Effectiveness of Nursing Intervention on Sexual Health of Women Undergoing Direct-Acting Antiviral Drugs for Hepatitis C Virus

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Abstract

HCV infection is a global health problem that has an impact on women's quality of life, including sexual function. Novel treatments for HCV have been available in the form of direct-acting antiviral drugs (DAAS) since their introduction in 2014. Nurses play an important role in promoting sexual health. This requires the use of the proper communication style, diplomacy, and patience at times. The study aimed to determine the effectiveness of the nursing intervention on the sexual health of women undergoing direct-acting antiviral drugs for the Hepatitis C virus. Method: The research was carried out using a quasi-experimental design, which consisted of a study and a control. Setting: The Outpatient Clinic of the National Liver Institute at Menoufia University in Egypt served as the location for carrying out this investigation. Sample: A purposive sample of 300 women who were chronically infected with HCV was taken. A study group of 150 women who received acting antiviral drugs for treatment of the Hepatitis C virus and routine outpatient clinic care in addition to routine nursing intervention (safe sex instructions, measures that improve psychological status, and measures that improve sexuality) was compared to a control group of 150 women who received only acting antiviral drugs for treatment of the Hepatitis C virus and routine outpatient clinic care. Two instruments were used for data collection: Instrument 1 included the socio-demographic characteristics of the studied women and the women's knowledge of sexual health. Instrument II is related to the Female Sexual Function Index (FSFI). Results: The study revealed that the study group had statistically significantly lower FSFI scores than the control group before DAAS and nursing interventions. While there was an improvement in all FSFI scores in the study group after treatment and nursing intervention compared to before treatment, that improvement was statistically significant. **Conclusion**: Infection with chronic HCV prior to cirrhosis had a detrimental impact on all FSFI score domains. After DAAS and nursing intervention, there was an improvement in all FSFI scores. Recommendations: Assessment of sexual health should be a part of the evaluation protocol for all women with HCV before and after using DAAS. Also, a nursing intervention program should be applied to all HCV women for sexual health promotion. Replicating a similar study on a large sample in different maternity settings so that the results can be applied to all populations.

Keywords: Sexual health, Direct-Acting Antiviral Drugs for Hepatitis C virus, nursing intervention

Introduction

Restoring a person's sexual health is a primary issue for those recovering from serious illnesses. Furthermore, sexuality is an important part of all human functioning. When it comes to sexuality, the World Health Organization defines "sexual health" as "a condition of physical, emotional, mental, and social welfare, not merely the absence of disease, dysfunction, or infirmity" (Abu Bader & Tantino, 2017).

According to an Egypt study by Imam et al. (2020), even in the absence of liver disease, chronic infection with the hepatitis C virus (HCV) impairs health-related quality of life, with substantial negative effects on both physical and mental well-being. Hepatitis C also has an effect on both men's and women's

sexual health. Hepatitis C is generally accompanied by atigue and distress, followed by a decreased interest in sex. Furthermore, according to a study by Tunçel et al. (2019) in Turkey, antiviral medications commonly used to treat hepatitis C can cause sexual dysfunction and lower libido.

Treatments for hepatitis C have changed significantly over the years. With the use of a combination of direct-acting antiviral drugs (DAAS), the viral clearance rate was sustained at up to 99 percent (DAAS) (Rowan & Bhulani, 2015).

DAAS, as defined by Gonzalez et al. (2016), are drugs used to treat the hepatitis C virus. They're a combination of antiviral medications that target stages of the hepatitis C reproductive cycle. They are more effective

than older therapies such as ribavirin and interferon. For 8–12 weeks, the DAAS is taken orally as pills.

A study by Tunçel et al. (2019) in Turkey suggests that direct-acting antiviral drugs have a lower risk of causing side effects while still achieving high cure rates. Combinations of Paritaprevir-Ritonavir-Ombitasvir Dasabuvir have been linked to insomnia, rash, redness of the skin, itching skin, swelling of the throat, face, tongue, lips, hands, feet, ankles, or lower legs, weakness, and confusion. Sofosbuvir and Ledipasvir (PROD) are less likely to cause these side effects.

In terms of the sexual side effects, Lenz et al. (2017) reported a case of acute onset sexual dysfunction within the first month of therapy with sofosbuvir/ledipasvir in the United States. This case occurred within the first month of taking sofosbuvir/ledipasvir. In addition, it is common knowledge that a substantial correlation exists between HCV infection and issues relating to sexual health. Karaivazoglou et al. (2017) established three patterns of sexual dysfunction in HCV-infected patients in their systematic review of sexual functioning in patients with chronic hepatitis C. These patterns are as follows: erectile dysfunction, hypoactive sexual desire, and hypoactive sexual desire. These patterns include pre-cirrhotic sexual impairment, cirrhosis-induced sexual decline, and interferon-associated sexual difficulties. Pre-cirrhotic sexual impairment occurs before cirrhosis develops.

Life satisfaction can be greatly impacted by one's sexuality. Sexual dysfunction (SD) may be caused by the virus itself. The incidence of sex problems in people with chronic hepatitis C is also unclear (Cojocaru, 2019).

Significance of the study

One of the most frequent causes of chronic liver disease, hepatitis C virus (HCV) infection affects approximately 71 million individuals around the world (European Union HCV Collaborators, 2017). The prevalence of HCV infection is highest in Egypt. In a demographic and health study conducted in 2015, nearly 10% of the Egyptian population between the ages of 15 and 19 were seropositive for HCV, and 7% had viremia. These percentages are estimated to be 5.5 million chronically infected people (Imam et al., 2020).

There are several cultural and traditional hurdles to having open discussions about sexual life, especially with female health care practitioners, in Egypt, which makes it inappropriate to discuss female sexuality (Saker, 2019). Furthermore, female sexual dysfunction in HCV patients is under-researched. It is frequently overlooked in research, with only a few studies addressing women's sexual functioning and dysfunction in an Egyptian study (Saker et al., 2019).

Sexual health promotion for women is more than just handing over a bag of condoms. It is also the case that professionals and nurses are clearly very well trained to produce one-to-one interventions in sexual health promotion. Furthermore, this needs appropriate communication style, diplomacy, and patience at times, as stated by Evans D. (2013). This research set out to determine whether or not direct-acting antiviral medication treatment for hepatitis C has a negative impact on the sexual health of women.

The aim of the study

The aim of this study was to determine the effectiveness of the nursing intervention on the sexual health of women undergoing direct-acting antiviral drugs for the hepatitis C virus.

Research Hypotheses:

- Women in the study group will have higher FSFI scores after nursing intervention than women in the control group.

- Women in the study group will have a higher knowledge score about sexual health and how to improve it after nursing intervention than women in the control group.

Method

Research Design: In this investigation, a quasi-experimental approach was taken (study and control groups).

Setting: The outpatient clinic at Egypt's Menoufia University's National Liver Institute was the setting of the research.

Sample:

Three hundred female patients with chronic HCV were selected as a purposive sample. The women were randomly assigned to either a study group that received acting

antiviral drugs for hepatitis C virus treatment and routine outpatient clinic care or a control group that received only acting antiviral drugs for hepatitis C virus treatment and routine outpatient clinic care, with or without nursing intervention (safe sex, measures to improve psychological status, and measures to improve sexuality).

Under the following inclusion criteria:

1- Women with chronic hepatitis C virus without liver cirrhosis.

1- Married and sexually active.

2- Hepatitis C virus-infected women who get direct-acting antiviral medication.

Exclusion criteria:

1- A female under the age of eighteen

2- Women in menopause

3- Women who are not married

4- Patients with cirrhosis, depression, ischemic heart disease, or diabetes, all of which impair sexual function.

Researchers determined the necessary sample size using the Epi statistical program available from Open-Source Statistics for Public Health. In this case, we assumed that the ratio of unexposed (control) to exposed (study group) sample size is 1% of the unexposed, with a result of 5%, a two-sided confidence level of 95% (1-power), or an 80% chance of detecting.

Instruments for collecting data: The following instruments were utilized throughout the data collection process:

Instrument 1: A structured interviewing questionnaire. It was designed by the researchers after reviewing the existing literature on the topic. There were two sections to it:

Part One: Demographic information about the women in the study, including age, level of education, employment, and household income.

Part 2: The knowledge assessment questionnaire was designed to gather information about women's sexual health knowledge. It had 11 questions that asked about definitions, the importance of the topic, factors that affect sexual health, factors that hurt sexual health, and ways to improve sexual health.

Total score: The overall score was classified into three groups (Gooda et al., 2020).
- Poor (60 percent to 75 percent)
- Average 60 to 75 percent
- Good (more than 75%).

Instrument 1 validity:

The instrument's content validity was examined and evaluated by a panel of five specialists (1 professor of Obstetrics and Gynecology Medicine, 2 professors of Maternal and Newborn Health Nursing, and 2 professors of Internal Medicine and Hepatology). Relevancy and completeness were improved by making these changes.

Instrument 1 reliability:

The reliability of the instrument (1) was determined by employing the test-retest method. The tests' reliability was measured using Cronbach's alpha coefficients. This instrument was reliable, as its Cronbach's alpha was 0.861.

Instrument (II): Female Sexual Function Index (FSFI):

It was adapted from Reed et al. (2014). It has 19 items designed to evaluate female sexual function on a 5-point scale, with 1 being "almost never" and 5 being "almost always." There are six categories: desire (two items), arousal (four items), lubrication (four items), orgasm, satisfaction, and pain (three items).

Domains of the Female Sexual Function Index Scores

The formula for computing the FIFFSFI's domain scores and full-scale (overall) score is presented in the table below. Domain scores are calculated by multiplying the sum of the item scores by the domain factor, as described by Reed et al. (2014). The total scale score is calculated by adding the scores from the six individual domains. It is important to note that a score of 0 in a given domain indicates the individual did not engage in any sexual activity in that domain during the prior month. Researchers can enter subject ratings in the right-hand column.

Domains	Questions	Score Range	Factor	Minimum Score	Maximum Score	Score
Desire	1, 2	1 – 5	0.6	1.2	6.0	
Arousal	3, 4, 5, 6	0 – 5	0.3	0	6.0	
Lubrication	7, 8, 9, 10	0 – 5	0.3	0	6.0	
Orgasm	11, 12, 13	0 – 5	0.4	0	6.0	
Satisfaction	14, 15, 16	0 (or 1) – 5	0.4	0.8	6.0	
Pain	17, 18, 19	0 – 5	0.4	0	6.0	
Full Scale Scoring	2.0	36.0				

Validity of the instrument (II)

The validity of the instrument's content was reviewed by five experts (3 professors in the Obstetrics & Gynecology Medicine Department, Faculty of Medicine, Menoufia University, and 2 professors in the Maternal & Newborn Health Nursing Department, Faculty of Nursing, Menoufia University). A number of updates were implemented to guarantee accuracy and currency.

Reliability of instrument (II)

The test-retest method was used because of its reliability. The Cronbach alpha was equal to 0.82.

In addition, the FSFI had already been verified through the utilization of matching controls in an investigation of sexual arousal issues in females (Weigl et al., 2005). Anis et al. (2011) were able to validate the Arabic version of the FSFI through research conducted in Egypt. On the basis of clinical interpretation, six domain structures were constructed. These domain structures include desire, arousal, lubrication, orgasm, satisfaction, and pain. Overall, the test-retest reliability coefficients were high for each individual domain (r = 0.79 to 0.86), and there was a high degree of internal consistency (a Cronbach's alpha value of 0.82 or higher) in the study that was conducted in Egypt (Saker, 2019).

The administrative strategy behind this study was for the Dean of the Nursing Faculty at Menoufia University to formally obtain approval from the directors of the study settings prior to the start of the study. In this letter, we explained why we need your help with our research so that we can get the green light to begin collecting data.

Ethical considerations: The researchers obtained the women's informed consent before conducting the study, as required by the Faculty of Nursing Ethical Research Committee. They were told by the researchers that any data collected would be kept secret.

A pilot study: In order to ensure the clarity and application of the instruments, as well as the amount of time necessary to finish the survey, a pilot study was performed on 10 percent (30 women) of the entire sample. The results of the pilot study were used to figure out what changes needed to be made, which were then made.

Methods of Collecting Data: To get a better understanding of the topic, the researchers looked at the current local and international literature on it, made study instruments, and then used books, journals, magazines, and the internet to complete them.

Beginning in April and continuing through August of that same year, 2021, genuine fieldwork was carried out. The researchers were present at the study locations three times per week between the hours of nine in the morning and twelve in the afternoon. The investigators introduced themselves to the doctors and nurses working at the hospital.

The researchers solicited the participants' participation after describing the scope and purpose of the investigation. During the course of the research, the following stages were carried out:

The following steps were taken during the course of this study:

1. In the first stage, "assessment," researchers personally met each woman with HCV who met the inclusion criteria in an outpatient clinic at the National Liver Institute, where they introduced themselves, discussed the study's goals, and, after obtaining informed consent, gathered socio-demographic data from the participants. Next, the FSFI questionnaire

was given to women before they started DAAS therapy.

2. Planning phase: The researchers prepared a booklet about sexual health that included the definition, importance, components, and measures to improve sexual function and health. In addition, strategies for women's physical and psychological well-being.

3. **During the implementation phase**, the researchers taught each woman in the study group through two teaching sessions. Each session lasted 30 minutes and comprised five women. During the sessions, the researcher utilized a booklet as a teaching tool. The first session covered the following topics: what is sexual health, what characteristics does a sexually healthy person have, and why is sexual health important? The consequences of poor sexual health. The second cession included measures aimed at improving sexual health, such as

　　1- Safe sex
　　2- Psychologically improving measures
　　3- Sexuality-improving measures

1) **Safe sex:** use condoms and a clean, germ-free technique to stop the spread of hepatitis, especially among women who have the hepatitis C virus.

2) Measures that improve psychological status:

　　The researchers found measures that improved psychological status, including breathing exercises, relaxation, exercise, walking, expressing feelings, and communication with a specialist for help. These measures also improve emotional problems.

　　Exercise , in general, is known to improve both physical and psychological health. Kegel, yoga, and walking may all improve sexual function and libido in both men and women. As stated by Stanton et al. (2018), exercise sessions seem to boost sexual arousal via activation of the sympathetic nervous system, which ultimately improves physical performance, as stated by Stanton et al. (2018).

Measures that improved sexuality included counseling for HCV-infected women.

1) The researchers talked to the women about the link between being relaxed and being sexually aroused and helped them find ways to relax.

2) Through counseling, the researchers looked at the thoughts, worries, and patterns of behavior that keep women from being able to relax. They also looked at how they could create an outside environment that would help them get used to being sexually responsive or erotically engaged.

3) The researcher highlighted how to enhance sexual pleasure by using sensory input before sexual intercourse (tastes, sounds, smells, visual stimuli, touch), according to Binik and Hall (2014).

4) The researchers demonstrated the benefits of legal exercise in improving sexual excitement by advising the woman to repeat the activity 20 times in one session. According to Lolowang, Afiyanti, and Ungsianik (2019), there are two sessions per day, each lasting 15 minutes, and three days per week.

❖ **Evaluation phase:**

　　During the evaluation phase, women with chronic HCV infection who were candidates for DAAs were given a female-sexual-function index (FSFI) questionnaire and compared to women in a control group.

Data Analysis
Descriptive statistics, including frequencies and percentages for qualitative variables, were used to arrange, examine, code, tabulate, analyse, and present the data. The study and control groups were compared using a test of significance. There is no statistically significant difference when $P > 0.05$. A statistically significant difference is indicated by a P value of 0.05, while a P value of 0.001 indicates an extremely significant difference.

Results:

　　Table 1 shows the studied women's socio-demographic characteristics. The women in the study and control groups (ages 18–50) are displayed in Table 1. About half of the participants in the study were between the ages of 28 and 39. Furthermore, there were no significant differences between the study and

control groups with regards to age, education, location, or wealth (all P > 0.05).

Table 2 shows that there were no significant differences between the study and control groups in the mean value of any of the FSFI domains (desire, arousal, lubrication, orgasm, or pain) (all P > 0.05).

Table 3 provides clarification that there was a highly significant rise in the mean value of all FSFI categories (desire, arousal, lubrication, orgasm, and pain) in the study group as compared to the control group (all P=0.000).

Figure 1 shows that there were highly statistically significant differences in the total mean value of all FSFI domains in the study group after DAAS and nursing intervention than before DAAS and nursing intervention. The total mean value in the study group after DAAS and nursing intervention (18.8±0.27) was higher than before DAAS and nursing intervention (16.77±1.6) (P<0.001).

Figure 1 shows that the total mean value of all FSFI domains in the study group was significantly different after DAAS and nursing intervention than before DAAS and nursing intervention. The total mean value in the study group (18.8±0.27) was higher than the control group (16.77±1.6) (P<0.001).

Table 4 shows that there were no statistically significant differences between the study group and the control group with regard to the majority of aspects of sexual health and methods to enhance it (P > 0.05). Whereas nearly two-thirds of the patients in both the study and control groups had poor or average knowledge scores regarding the definition, importance, factors improving sexual health, cycle of sexual intercourse, measures used to improve sex, and nutrition that improves sex, and only one-third of them had good knowledge scores regarding these topics. On the other hand, more than one-third of the patients in the study group had poor knowledge scores regarding the elements that affect sexual

health. This is in contrast to the control group, which only had 26.7% of patients with poor knowledge scores, which is highly statistically significant (p<000). It is statistically significant that nearly half of the patients in the study group (46.6 percent, to be exact) had poor awareness of the factors that impair sexual health, in comparison to only 33.3% of the patients in the control group. Comparing the study group, which consisted of 33.3% of people, to the control group, which consisted of 26.7% of patients, there was a statistically significant difference (P 0.05) between the two groups' levels of ignorance concerning exercise that improves sexual performance.

Table 5 demonstrates that there was a statistically significant improvement in knowledge scores among the study group (hepatitis C women) regarding most items of sexual health and measures to improve it. This improvement was seen among the study group in comparison to the control group (women who tested negative for hepatitis C). It was found that a higher percentage of women in the study group had good knowledge scores regarding (definition, importance, factors affecting sexual health, factors improving sexual health, factors impairing sexual health, cycle of sexual intercourse, measures used to improve sex, nutrition that improves sex) (53.3%, 46.7%, 46.7%, 53.3%, 46.7%, 46.7%, 53.33% respectively) than the control group (26.7%, 26.7%, 33.3%, 33.3%, 40.0%, 33.3%, 33.3%, 33.3% respectively).

Figure 2 shows that prior to the nursing intervention, only one-third of the women in both the study and control groups (33.3%) had adequate knowledge regarding sexual health. The difference between the two groups was not statistically significant (p > 0.05). As a result of the nursing intervention, the majority of women in the study group have good knowledge scores regarding sexual health; this is in contrast to the women in the control group, who have poor knowledge scores; the difference between the two groups is highly statistically significant (p 0.001).

Table 1: The Socio-demographic Characteristics of the Studied Women

Items	Study group (N= 150)		Control group (N= 150)		x^2	P-value
	No.	%	No.	%		
Age / years.						

-18- 28	33	22.0	30	20.0	.35	.838
>28 – 39	75	50.0	80	53.3		
>39 – 50	42	28.0	40	26.6		
Educational Level					.14	.932
- Read and write	47	31.3	50	33.3		
- Secondary	48	32.0	47	31.3		
- University	55	36.7	53	35.3		
Husband education					.51	.774
- Read and write	55	36.7	60	40.0		
- Secondary	45	30.0	40	26.7		
- University	50	33.3	50	33.3		
Woman occupation					.51	.774
- Housewife	55	36.7	60	40.0		
- Employee	45	30.0	40	26.7		
- Health-related career	30	20.0	30	20.0		
- others	20	13.3	20	13.3		
Husband occupation					.75	.861
- Un employee	25	16.7	30	20.0		
- Employee	50	33.3	50	33.3		
- worker	30	20.0	30	20.0		
- Others	45	30.0	40	26.7		
Residence					.68	.409
- Rural	87	58.0	94	62.7		
- Urban	63	42.0	56	37.3		
Income					1.72	.190
- Enough	88	58.7	99	66.0		
- Not enough	62	41.3	51	34.0		

Table 2: FSFI Domains Before DAAS Treatment and Nursing Intervention in the Study Group and Control Group

Domains	Study Group (No=150) (X± SD)	Control Group (No=150) (X± SD)	P-value
Desire	3.47±1.17	3. 46±1.14	>0.05
Arousal	3.56±0.86	3.35±0.83	>0.05
Lubrication	3.48±0.93	3.49±0.86	>0.05
Orgasm	3.54±0.94	3.52±0.91	>0.05
Satisfaction	2.97±0.84	2.97±0.84	>0.05
Pain	4.21±1.06	4.23±1.08	>0.05
Total	16.77±1.6	16.75±1.5	>0.05

Table 3: FSFI Domains after DAAS Treatment and Nursing Intervention in the Study Group and the Control Group

Domains	Study Group (No=150) (X± SD)	Control Group (No=150) (X± SD)	P-value
Desire	4.25±1.0	3. 46±1.14	0.000
Arousal	4.07±0.61	3.35±0.83	0.000
Lubrication	4.26±0.6	3.49±0.86	0.000
Orgasm	4.05±0.67	3.52±0.91	0.000
Satisfaction	3.73±1.01	2.97±0.84	0.000
Pain	4.85±0.87	4.23±1.08	0.000
Total	18.8±0.27	16.75±1.5	P<0.001

Figure 1: The total FSFI Domains in the Study Group Before and After DAAS and Nursing Intervention.
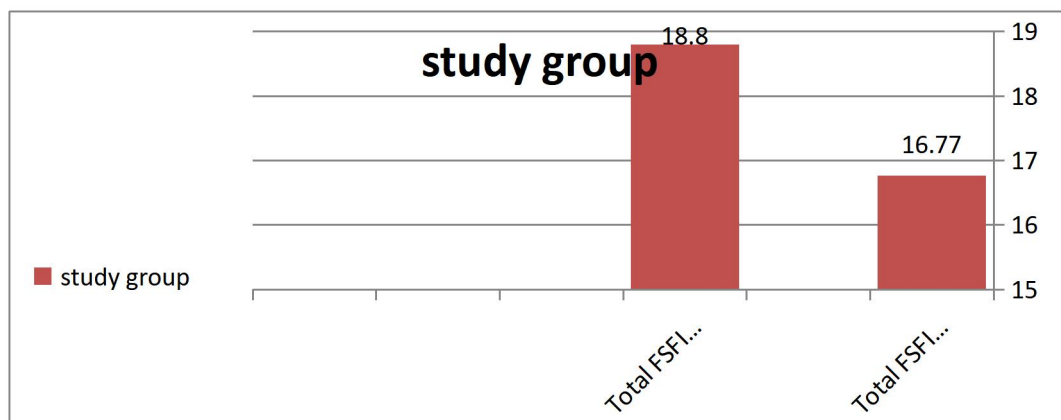
Table (4): Knowledge Score regarding Sexual Health among the Study and the Control Groups before Nursing Intervention

Items	Study group (N=150)		Control group (N=150)		X2	P-value
	No.	%	No.	%		
Definition of sexual health						
- Good	50	33.3	40	26.7		
- Average	30	20.0	60	40.0	5.67	.058
- Poor	70	46.7	50	33.3		
Importance of sexual health						
- Good	50	33.3	40	26.7		
- Average	60	40.0	60	40.0	6.02	.069
- Poor	40	26.7	50	33.3		
Factors affecting sexual health						
- Good	60	40.0	50	33.3	14.91	.000
- Average	30	20.0	60	40.0		
- Poor	60	40.0	40	26.7		
Factors improving sexual health						
- Good	50	33.3	50	33.3		
- Average	50	33.3	60	40.0	0.23	0.82
- Poor	50	33.3	40	26.7		
Factors impair sexual health						
- Good	40	26.7	60	40.0		
- Average	40	26.7	40	26.7	7.33	.025
- Poor	70	46.6	50	33.3		
Cycle of sexual intercourse						
- Good	50	33.3	50	33.3		
- Average	40	26.7	30	20.0	2.20	.333
- Poor	60	40.0	70	46.7		
Measures used to improve sex						
- Good	40	26.7	50	33.3		
- Average	50	33.3	40	26.7	2.22	.329
- Poor	60	40.0	60	40.0		
Nutrition that improves sex						
- Good	50	33.3	50	33.3		
- Average	20	13.3	70	46.7	.75	.861
- Poor	80	53.4	30	20.0		
Exercise that improves sex						
- Good	60	40.0	60	40.0	6.02	.049
- Average	40	26.7	50	33.3		
- Poor	50	33.3	40	26.7		

Table (5): Knowledge Score regarding Sexual Health among Study Group and Control Group after Nursing Intervention

Items	Study group (N=150)		Control group (N=150)		X2	P-value
	No.	%	No	%		
Definition of sexual health						
- Good	80	53.3	40	26.7		
- Average	50	33.3	60	40.0	16.83	.000
- Poor	20	13.4	50	33.3		
Importance of sexual health						
- Good	70	46.7	40	26.7	6.88	.032
- Average	50	33.3	60	40.0		
- Poor	30	20.0	50	33.3		
Factors affecting sexual health						
- Good	70	46.7	50	33.3	10	.007
- Average	60	40.0	60	40.0		
- Poor	20	13.3	40	26.7		
Factors improving sexual health						
- Good	80	53.3	50	33.3	24.92	.000
- Average	60	40.0	60	40.0		
- Poor	10	6.6	40	26.7		
Factors impair sexual health						
- Good	70	46.7	60	40.0	17.63	.000
- Average	60	40.0	40	26.7		
- Poor	20	13.3	50	33.3		
Cycle of sexual intercourse						
- Good	70	46.7	50	33.3	24.35	
- Average	50	33.3	30	20.0		.000
- Poor	30	20.0	70	46.7		
Measures used to improve sex						
- Good	70	46.7	50	33.3	14.44	.000
- Average	50	33.3	40	26.7		
- Poor	30	20.0	60	40.0		
Nutrition that improves sex						
- Good	80	53.33	50	33.3	15.10	.000
- Average	40	26.7	70	46.7		
- Poor	30	20.0	30	20.0		
Exercise that improves sex						
- Good	80	53.3	60	40.0	5.40	.067
- Average	40	26.7	50	33.3		
- Poor	30	20.0	40	26.7		

Figure (2): Total Sexual Health Knowledge Score in the Study and the Control Groups before and after Nursing Intervention
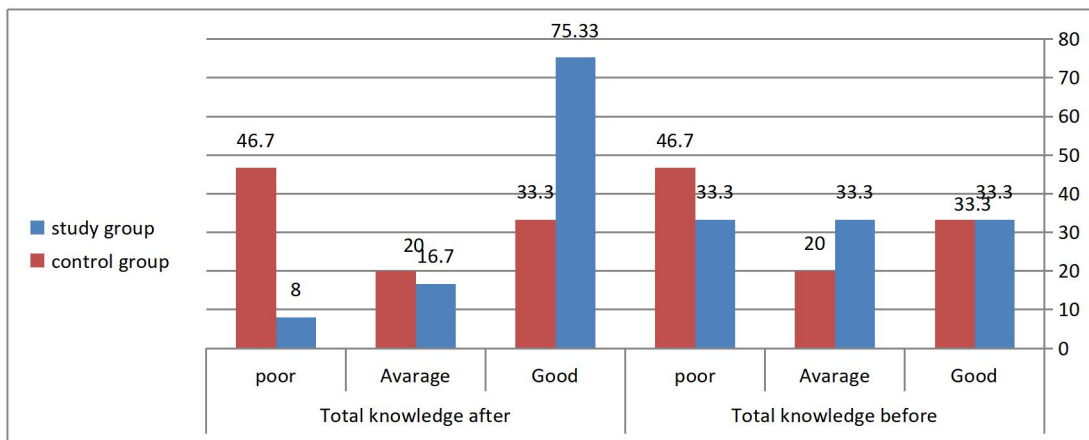
Discussion:

The findings of this study showed that there were no statistically significant differences between the study group and the control group on any of the subscales of the female sexual function index (FSFI) either before or after DAAS treatment or nursing intervention. After DAAS treatment and nursing care, the study group had higher means for all FSFI domain scores (desire, arousal, lubrication, orgasm, satisfaction, and pain) than the control group did. This was the case even though the control group experienced more pain. These variations were statistically significant.

From the researcher's point of view, this increase in FSFI after DAAS and nursing intervention can be explained by several reasons, as chronic HCV may be associated with extrahepatic manifestations and may affect many body systems. In addition, psychosocial factors that are associated with HCV diagnosis and treatments, such as depression, anxiety, and stigmatization, may lead to marital difficulties and social isolation. This is because chronic HCV may be associated with extrahepatic manifestations and may affect many body systems. Also, nurses may be able to dispel the myth that HCV is spread by sharing drinks and food by telling people what to do.

Saker stated in his Egyptian study (2019) that prior to being diagnosed with HCV infection, all patients were satisfied with their sexual lives. Following their diagnosis, the majority of the women in the study reported problems in their households, including marital issues. In Egypt, husbands typically do not marry women who have a chronic HCV infection, and if they do marry such women, they regularly divorce them even after the women have been healed. Many people assume that HCV is a sexually transmitted disease that can also be spread through sharing drinks and meals.

These results were confirmed by Saker (2019) in his study about female sexual dysfunction in chronic HCV Egyptian patients, who stated that the FSFI scores were lower before treatment with a direct-acting antiviral drug for hepatitis C virus than they were after treatment and compared to those in the control group. In addition, Evangelia et al. (2016) conducted a study in Athens that proved the influence that anti-HCV drugs have on the sexual lives of patients. The results of this study show that the participants' sexual functioning got a lot worse while they were in therapy. This is likely due to the effects of depression, the way the virus works, and the bad side effects of the medication.

Tunçel et al. (2019) agreed with these findings and stated in their study that women with chronic hepatitis C frequently complain of vaginal dryness, which leads to a decline in sexual interest. They added that the majority of women with hepatitis C have vaginal irritation, burning, or itching and are on interferon and ribavirin therapy.

Regarding the total knowledge score of sexual health, before the nursing intervention, the study and control groups had similar total sexual health knowledge scores. At the pretest, approximately one-third of the women in both the study and the control group had good knowledge of sexual health, and the difference was not statistically significant at the pretest. While the majority of women in the study group had good knowledge of sexual health at the post-test, nearly half of the women in the control group had poor knowledge. The difference between the study and control groups is highly statistically significant at post-test.

From the researcher's point of view, this finding demonstrated the researchers' efficacy in identifying and addressing sexual worries and challenges. Then, they give HIV-positive women support and specific information or advice about their sexual problems, so they can get back to having fun with sexual activity.

There was little research that provided enough information on female sexual disorders linked to HCV infection. But until now, there was no information about how nurses could help improve the sexual health of women with HCV who were getting DAAS.

It has been established by Evans (2013) that "nurses have challenges when discussing sexuality and sexual health with patients, and they must do it in a way that is sensitive to their patients' needs while still protecting their confidentiality". Healthcare providers have a duty to either directly address patients' sexual health issues or refer them to community resources so that they can do so, as sexual health and well-being are an integral part of comprehensive care.

According to WHO (2017), comprehensive sexuality education and information entail providing accurate and current information on physical, psychological, and social aspects of sexuality, as well as sexual health and ill health. Accurate information may fill knowledge gaps, dispel misconceptions, and foster empowering skills, positive attitudes and values, and healthy behaviors, as well as a comprehensive understanding. This is, without a doubt, a crucial component of all intervention areas.

Furthermore, according to WHO (2017), all interventions should ensure that people have the knowledge and skills they need to make well-informed decisions about sexuality and to follow through on those decisions.

Conclusion:
- According to the findings of the current research, the FSFI domain scores of the study group increased significantly compared to the control group following DAAS treatment and nursing intervention. This confirmed the first hypothesis of the study.
- When comparing the FSFI scores of the study group before and after treatment and nursing intervention, there was a statistically significant rise in FSFI scores following treatment and nursing intervention. This confirmed the second research hypothesis.
- In addition, compared to the control group, participants in the study group showed a statistically significant increase in their total knowledge scores related to sexual health and ways to enhance it. This verified the third research hypothesis. As a result, the research hypotheses are accepted.

Recommendations:
- Based on what was found in this investigation, the following suggestions and ideas have been made:
1. All women with HCV who are getting therapy with direct-acting antiviral drugs should have an evaluation of their sexual health as part of the procedure for their evaluation.
2. Nursing intervention programs for sexual health promotion should be applied to all HCV women.
3. Conducting a similar study with a large sample of women in different maternity settings so that the results can be used for all groups.

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