

## The Effectiveness of Priapism's Structured Educational Module on Nurses' Knowledge, Attitude, Beliefs, and Patient's Profile

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### Abstract

**Background:** Priapism is a painful and protracted penile erection that usually holds up more than three to four hours without stimulus, requiring emergent treatment to avoid tissue damage or/and erectile dysfunction. Nursing care for a patient with priapism focus on assessment of health history, emergent pain control, medications administration and health education. **The aim of the study:** This study was designed to evaluate the effectiveness of priapism's structured educational module on nurses' knowledge, attitude, & beliefs, and patient's profile. **Subjects and Methods: Design:** A quasi-experimental design was used (pretest, posttest, and follow-up) in this study. **Subjects:** Two subjects were recruited; the first was 32 convenient nurses' samples, and the second was 28 purposive patients' samples. **Settings:** This study was conducted at Andrology and Urology department in Suez Canal University hospitals. **Tools:** Utilizing three tools to collect data: Nurses' knowledge self-administered questionnaire, Nurses' attitude, & beliefs interviewing questionnaire, and patient's profile questionnaire. **Results:** Nurses' knowledge, attitude, and beliefs were significantly improved at the post and follow-up of educational module implementation compared to pre-phase. Moreover, more than three quarters (75%) of the studied patients were married, as well as there was a significant improvement in patient's profile among the studied patients cared for by the studied nurses at the post and follow-up phase with P value=0.01. **Conclusion:** The result's study revealed that improvement of nurses' knowledge, attitude, and beliefs and the patient's profile with the studied patients at post the educational module phase. **Recommendation:** A primordial endorsed nursing guideline about priapism in the orientation program for nurses to knowledge, attitude, and beliefs. Conducting periodic in- services education in a specialized unit regarding the care of priapism is essential plus patients' educational guidelines to improve their profile.

**KEYWORDS:** Attitude, Beliefs, Module, Nurses' Knowledge, Patient's Profile, Priapism.

## Introduction

Priapism is a genitourinary emergency condition and clarified as unrationalized prolonged penile erection, complete or partial penile tumescence lasting for more than or equal to four hours without sexual arousal or desire <sup>(1)</sup>. Globally, priapism was dramatically reported with increased prevalence and there is a time-dependent relationship between the total duration of erection and increasing risk of permanent erectile dysfunction <sup>(2)</sup>. There is a bimodal peak distribution of prevalence at the hospital from 2010 to 2021<sup>(3)</sup>.

It is significant problem-interrelated health that imposes a considerable social and monetary burden nationally and internationally can be seen in any age group <sup>(4)</sup>. It is mainly happening in middle age 20 to 40 years in adults and impotence's outcome rates from 35-60% <sup>(5)</sup>. Despite priapism being a preventable condition, it is a serious and significant problem facing health care systems; increases in the hospital stay and cost negatively affect the patient's impact profile <sup>(6)</sup>.

The condition is classified into three subtypes of priapism; ischemic (generally painful; low flow and veno-occlusive) in record cases, Stuttering (either recurrent or intermittent) considered by repetitive and painful occurrences of extended erections, and non-ischemic (generally non-painful; high arterial flow) <sup>(7)</sup>.

Hematological disorders are the leading cause of priapism, estimated 40% of all the cases, include sickle-cell disease, hyper-viscosity syndromes as seen with the myeloproliferative diseases, hypercoagulable states such as deficiencies of proteins C and S, antiphospholipid syndromes, and amyloidosis, while can be precipitated by

trauma, neoplasm, neurologic conditions, and pharmacologic substances, e.g., Viagra <sup>(6,8)</sup>.

Primordially, priapism is diagnosed through history taking and physical examination, but corporal blood gas analysis, hematological screening, and a penile ultrasound are sometimes beneficial <sup>(9)</sup>. Ischemic priapism is a urological emergency that must be treated immediately using invasive procedures such as surgical needle aspiration to drain excess blood; saline flushed into penile veins to improve blood flow blood, surgical shunt to vent blood from the penis, or/and treat underlying causes, while non-ischemic priapism often goes away treatment such as simple ice compress, lower limb exercise and pressure on the perineum may help end the erection to low risk of developing irreversible erectile dysfunction <sup>(10,11)</sup>.

Nursing care has a crucial role in provision the therapeutic care of men who have priapism <sup>(12,13)</sup>. It is necessary to comprehend their experiences, how they and their family perceive their illness, and helps to manage to prevent illness through promotes self-care, the possibility of negotiation, decision making, health education to empowerment their beliefs about disease or/and family, community view of disease, and treat health conditions during hospitalization by symptom management, acts on pain control and relief, apply ice compress, practice leg exercise, monitoring intake and output, turning & positioning, apply wound dressing and adopts a holistic approach in the care of people with this threatening life condition <sup>(10,13)</sup>.

Priapism's structured educational module is a planned educational specific nursing action

about caring priapism adapted from standard guidelines, textbooks and literature review in simplified Arabic validated language by experts in medical-surgical nursing and urology andrology medicine to ensure consistency and quality of care, enhancing nurses, knowledge attitude, beliefs regarding priapism and consequently patient's profile (10,14, 15).

### **Significance of the study**

Priapism is a real urologic emergency condition, and immediate intervention permits the right chance for functional recovery. The global incidence in 2021 of priapism is 1.5 cases per 100,000 person-years in middle-aged men years. obviousness, the incidence raises to 2.9 cases per 100,000 person-years not only in developing countries (9). Nationally, the prevalence of priapism is not factual, and the clarifications comprise underreporting by patients, delayed awareness by healthcare member and lack of right prospective studies (12).

Moreover, nurses play a vital role in assessing patients' needs, informing the patients about the plan of care, and providing standardized patients' care; this means that nurses need continuous training on how to prevent and treat priapism (8,13).

Priapism is a complication in order to deserves nearby attention due to its significant impact on the life of the patient and, therefore, should be further clarified (11).

Limited studies examine the effect of the nursing educational module on nurses' knowledge and patient's profile, despite of the abrupt elevation of admitted cases with priapism (16). Therefore, the present study was established and aimed to evaluate the effectiveness of priapism's structured educational module on nurses' knowledge,

attitude, beliefs, and patient's profile.

### **Aim of the Study**

The aim of this study was designed to evaluate the effectiveness of priapism's structured educational module on nurses' knowledge, attitude, beliefs, and patient's profile.

### **Research hypothesis**

Three research hypotheses were formulated to be assessed as follows: -

**H1:** Nurses will have a satisfied level of knowledge about priapism care post-module implementation when compared to pre-module.

**H2:** Nurses will have a positive level of attitude and beliefs about priapism care post-module implementation when compared to pre-module.

**H3:** Patients cared after the module implementation will have significantly improved patient's profile when compared to pre-module.

### **Subjects and method**

#### **Study design**

A quasi-experimental research design was utilized in the current study (pretest, posttest, and follow-up).

#### **Study setting**

This study was conducted at Andrology and Urology department in Suez Canal University hospitals.

#### **Subjects:**

A convenient sample of (36) nurses were recruited in the study, but four nurses withdrew from the study due to leave birth or frequent work leaves to be (32) nurses who completed the study. The nurses' inclusion criteria involve all nurses working in the selected department and agreed to participate in the current study, while exclusion criteria involved experience less than 6 months or/ and disagree to participate

in the study.

Additional to, A purposive sample of (32) patients were recruited in the study, but four patients withdrew from the study due to delay of their clinical visits to be (28) patients who completed the study. They were recruited based on eligibility of the following criteria: adult male patient, and agreed to participate in the current study, while exclusion criteria included delayed or/ and complicated cases on admission admitted for psychiatric reasons and rehabilitation, recent urological surgical intervention, and medication-induced priapism. The study sample size was determined using the following equation <sup>(17)</sup>.

$n = \frac{z^2 \times \hat{p}(1-\hat{p})}{\epsilon^2}$	where <b>z</b> is the z score <b>ε</b> is the margin of error <b>N</b> is population size <b>p̂</b> is the population proportion
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#### Tool of data collection

Three questionnaires were utilized in data collection in the current study. It comprised three valid and reliable tools as well as a two section was developed by the researchers to: (a) assess nurse's demographic and training characteristics such as age, gender, marital status, years of experience, educational level, and receiving educational modules about priapism care as well as (b) assess the studied patients' demographic characteristics, such as age, marital status, and working condition.

**Tool (1) Nurses' knowledge self-administered questionnaire:** It was developed by the researcher based on related previous studies and literatures <sup>(10,12,13)</sup>. It is a valid and reliable tool was used to assess the studied nurses' level of knowledge regarding priapism, consisting of twenty-five questions regarding

definition (2 items), prevalence (3 items), causes & precipitating factors (6 items), diagnostic studies (3 items), nursing care (7 items), and medical management (4 items).

**Scoring system:** Each correct answer was given one grade, but incorrect answer was given zero grade. The total scores ranging from 0 to 25 and it is considered a satisfactory level score  $\geq 75\%$ .

**Tool (2) Nurses' attitude and beliefs interviewing questionnaire:** It was adapted from previous study to assess nurses' attitude and beliefs regarding priapism at interviewing time with the studied nurses <sup>(18)</sup>. It is a valid and reliable tool was consisted of two parts: (a) five items part used to determine the level of priapism attitude and (b) five items part used to determine the level of priapism beliefs among the studied nurses.

**Scoring system:** Each part is considered a positive if its score  $\geq 60\%$ , and the level of agreement on five-point Likert scale; with 5="strongly agree", 4="agree", 3="neutral", 2="disagree" and to 1="strongly disagree".

**Tool (3) Patient's profile questionnaire:** It was developed by the researchers and consisted of two parts: part (3.1) to assess the studied patient's health history involved complain of chronic disease, recurrent priapism and family's health history of priapism.

While part (3.2) it is a valid and reliable useful tool, composed of 12 items to assess the studied patient's priapism impact profile, it adopted from previous study <sup>(19)</sup>. It encompassed of three domains: (a) It four items used to assess the quality of life, (b) It five items used to assess sexual function, and (c) It three items used to assess physical wellness among the patient with priapism.

**Scoring system:** Each domain is considered

adequate if its score  $\geq 60\%$ , level of agreement on Likert scale 1-7, which varied from 1="absent", 2="minimal", 3="slight", 4="moderate", 5="substantial", 6="extreme" and 7="very extreme".

**Tool validity and reliability:** Its validity was tested by a panel of five experts in Medical-Surgical nursing, and Urology-Andrology medicine to revise its relevance, comprehensiveness, clarity, and applicability. The three tools' reliability was tested by Cronbach's alpha were (0.83), (0.79) and (0.80) consecutively which indicate high internal consistency of recruited tools.

**Pilot study:** It was carried out on four nurses and four patients (10%) pre beginning the study to test its clarity, applicability, and feasibility. Required modifications were established and its findings were excluded from the study.

**Ethical considerations:** Ethical approval was obtained from the ethics committee-Faculty of Nursing, at university. Official permission to implement the study was obtained from hospital administrators. The aim and significance of the current study were clarified for each nurse and each patient.

As well as they were informed that have the right to refuse or withdraw without any harm or award. Confidentiality and anonymity were secured by data coding. Furthermore, patients were informed that these data will not be reused without their permission. Informed consent was obtained from the nurses and patients who agreed.

#### **Protocol and procedure**

**Pre implementation phase:** Researchers assess the available location, time, equipment, supplies, and instructional materials for implementing the priapism's structured educational module, as well as

related literature on many areas based on precondition needs. The researchers greeted the studied nurses and patients, introduced themselves, and explained the study's goal. They were interviewed for 15 to 25 minutes using pre-designed tools.

Based on related nursing and medical literature reviews and guidelines; priapism's structured educational module was developed and adapted in to simplified Arabic language to be applicable to clearable to the study<sup>(4,10,11,12)</sup>. A panel of Medical-Surgical nursing and Urology- Andrology medicine experts revised it to ensure clarity, comprehension, and applicability.

It adapted relied on the general expertise objectives and intended to improve nurses' knowledge, attitude, beliefs and promote patient's profile. The aim and significance of the current study were clarified for both participants and informed they had the right to refuse or withdraw without any harm or award.

**Implementation phase:** Priapism's structured educational module implemented within suitable time among small groups over nine months from April 2020 to February 2021. Implementation took a total of twenty sessions and fifteen hours. The educational module was presented in a clear, understandable, and comprehensive manner at each session, summarizing what was given through the previous session. At the end of each session, the participants were greeted and informed about the content of the next session, its time and asked to give feedback to correct or interpret any point.

Sessions of implementation structured education module started at the beginning and covered both the theoretical and soft practice. Appropriate teaching methods were selected based on a patient's suitability and

nature of educational modules, which were in the form of a lecture “definition, causes, diagnosis” and small discussion groups “emergent management, possible complication, and early preventive measures”.

Appropriate media in the form of a PowerPoint presentation, handouts, audiovisual material, and use of other materials such as medications, syringes, gloves, ice bag, cannula, pencil, drawing paper, and highlighter. Copies of the constructed tools were available to collect data at interviewing time.

**Post implementation phase (Evaluation phase):** Nurses' knowledge, attitude, and beliefs were reevaluated immediately after delivering the module and after one month of the module implementation to assess the retained related knowledge, attitude, and beliefs. Nurses' knowledge was evaluated using the priapism knowledge questionnaire, while the nurses' attitudes and beliefs were measured.

Moreover, all the patients in the selected units who met inclusion criteria were assessed before discharge from an inpatient unit “post module implementation” and the second during a follow-up visit at the clinic. Furthermore, matching the studied patients' post module with the pre-module was performed; the matching was done based on demographic data and medical profile. This phase took about seven months.

#### **Statistical design**

Data were evaluated by the IBM SPSS Statistics 25<sup>(20)</sup>. The Kolmogorov-Smirnov test was used to assess the normality of data, which was none significant at  $\geq 0.05$  and presenting parametric data. Descriptive statistics utilized to clarify the study sample attributes. The independent-sample t-test for

related groups evaluated a correlation between two variables and considered significant  $p \leq 0.05$ .

#### **Results**

The study findings were presented into two sections: Section (1) is pertinent to nursing-related variables as nursing demographic variables, as well as comparison of mean knowledge, attitude, and beliefs scores of nurses pre, post, and follow up nursing educational module implementation. Section (2) concerns patients' related variables, such as demographic and history-related variables, comparison of total profile, mean scores between patients, cared post, and follow up the module implementation throughout the study period.

#### **Participant (A): The studied Nurses**

**Table (1):** identifies that there are more than half (56.2%) of the study nurses aged 20-27 years and their Mean $\pm$ SD was 24 $\pm$ 2.6. About less than two-thirds (59.4%) were female, while more than two quarters (59.3%) had technical institute. Moreover, half of them (50%) had 5-8 years of experience, and less than three quarter (71.8%) were married.

**Figure (1):** presents that more than one quarter (34.5%) of the study nurses had a satisfactory level of knowledge regarding priapism at pre phase, while more than three quarters (80.2%) at post phase and more than half (50.7%) at the follow-up phase. There was a statistically significant correlation between level of knowledge pre-post and follow-up phases at the study P-value=0.042.

**Figure (2):** shows that less than one third (30.4%) of the study nurses had a positive attitude regarding priapism at pre-phase. Moreover, less than two third (60.3%) at the post phase, more than half (55.5%) at the follow-up and there was a statistically significant correlation at pre and follow-up

phase of the study  $P\text{-value} \leq 0.05$ .

Moreover, approximately half (50.1%) of the studied nurses had a positive level of beliefs regarding priapism at pre-phase. In contrast, less than three-quarters of them (65.5%) had a positive level at the follow-up phase, and there was a statistically significant correlation at the study phases  $P\text{-value} \leq 0.05$ .

#### **Participant (B): The studied Patients**

**Table (2):** demonstrates that more than one third (39.3%) of the studied patients aged 29-38 years and their Mean $\pm$ SD was 32 $\pm$ 5.2. About three quarters (75%) of the studied patients were married, and more than half (57.1%) had work.

**Figure (3):** reveals that more than two-thirds (78.6%) had a negative complain from chronic disease, while more than three-quarters (60.7%) had a positive complain of recurrent priapism. Moreover, more than three quarters (88.9%) had a negative family history regarding priapism.

**Figure (4):** clarifies that more than half (62.3%) had adequate the level regarding the quality of life at the predischage phase, while more than two quarters (76.4%) at the post-discharge phase. Also, more than two quarters (51.4%) had adequate level regarding sexual function at predischage phase, while less than two quarters (69.8%) at post-discharge phase.

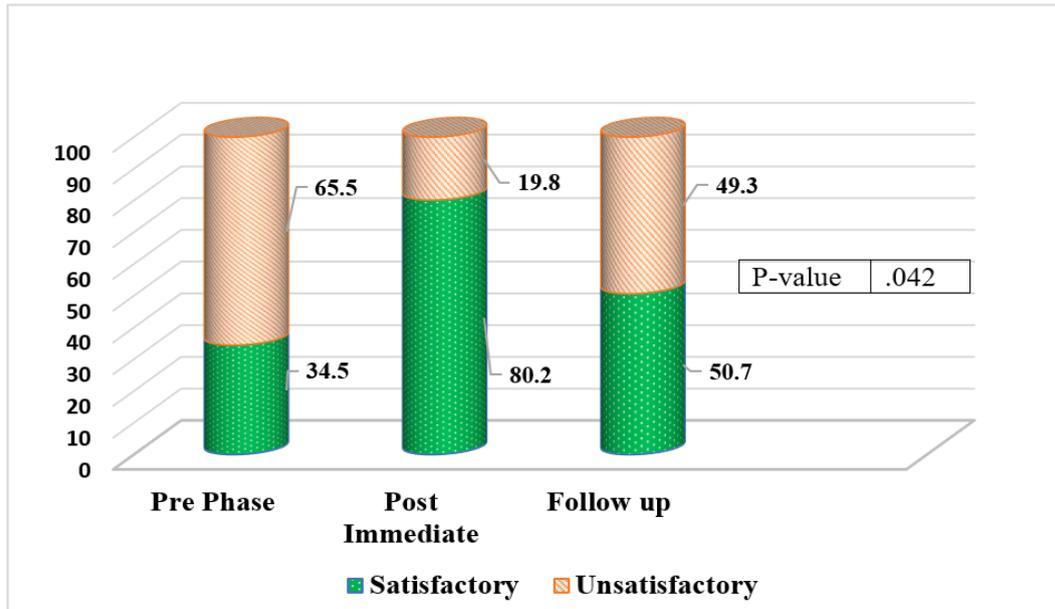
In comparison, more than three quarters (80.1%) had adequate the level regarding physical wellness at the predischage phase, while more than two-thirds (90.2%) at the post-discharge phase. Furthermore, there was a significant correlation between the study phases  $P\text{-value}=0.01$ .

**Table (3):** presents that there was a statistical significance between the studied patients' profile and the studied nurses' total level of attitude & beliefs scores at post

phase with  $P\text{ value}= 0.04$ . Furthermore, showed that there was a statistical significance between the studied patient's profile and their' total level of knowledge and attitude & beliefs scores at follow up phase with  $P\text{ value}= 0.01$  and  $0.001$  consecutively.

**Participant (A): The studied Nurses****Table 1:** Frequency and distribution of the studied nurses' demographic characteristics (n=32).

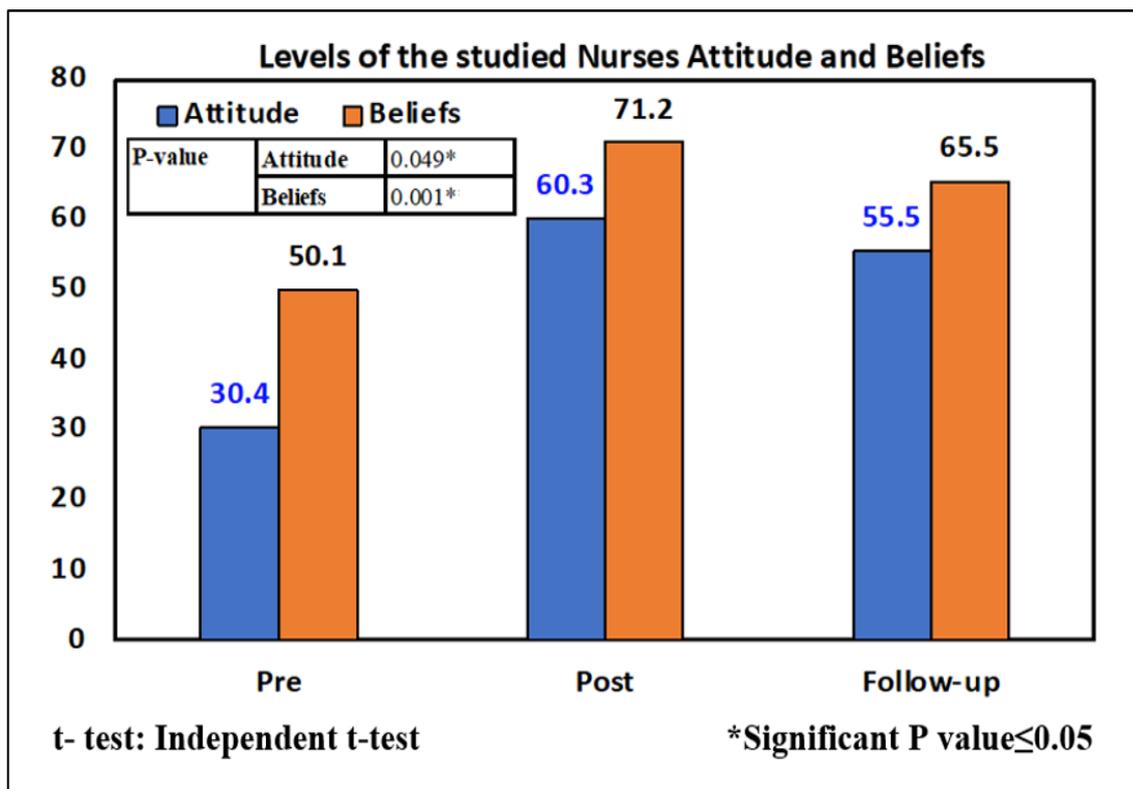
<b>Variables</b>	<b>Frequency</b>	<b>Percentage (%)</b>
<b>Age</b>		
20-	18	56.25
28-	10	31.2
more than or equal 38	4	12.5
<b>Mean±SD</b>	24±2.6	
<b>Gender</b>		
Male	17	40.6
Female	19	59.4
<b>Education degree</b>		
Diploma	8	25
Technical institute	19	59.3
Bachelor	7	21.7
<b>Experience "years"</b>		
-4	13	40.6
5-8	16	50
more than 8	3	9.4
<b>Marital status</b>		
Single	8	32
Married	23	71.8
Divorced	1	1
<b>SD: Standard deviation</b>		



F: ANOVA test

\*Significant P-value ≤ 0.05

Figure 1: The total satisfactory level of the studied nurses' knowledge and its correlations at the study phases. (n=32)



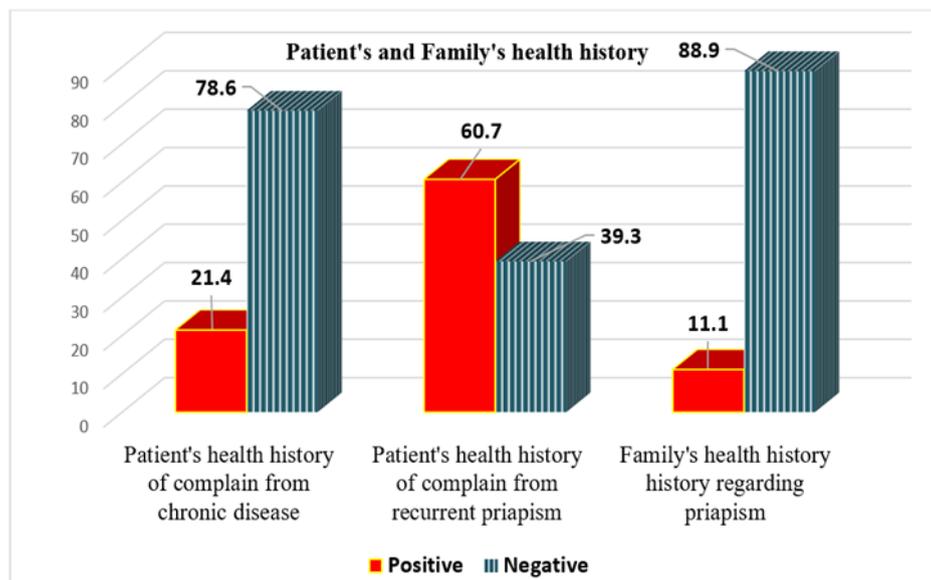
t- test: Independent t-test

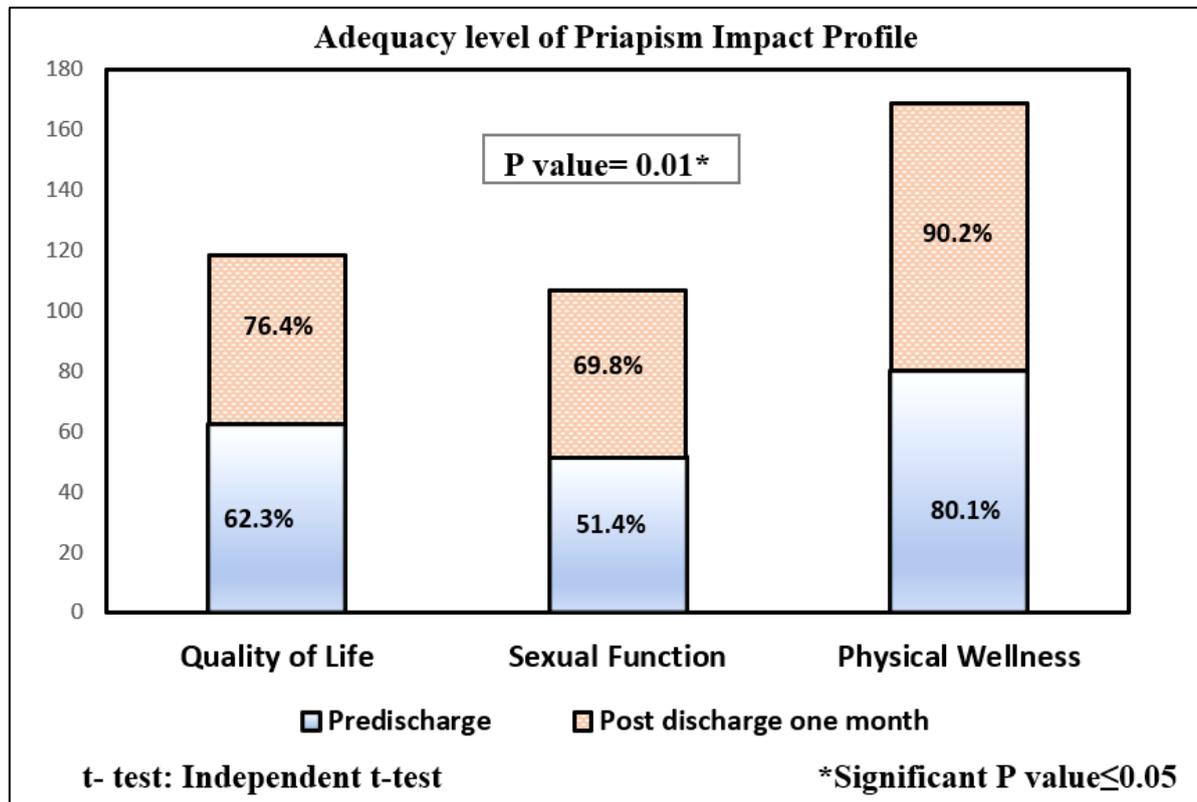
\*Significant P value ≤ 0.05

Figure 2: The total level of the studied nurses' attitude & beliefs and its correlations at the study phases. (n=32)

**Participant (B): The studied Patients****Table 2: Frequency and distribution of the studied patients' demographic characteristics. (n=28)**

Variables	Frequency	Percentage (%)
<b>Age</b>		
20-28	6	21.4
29-38	11	39.3
39- 48	6	21.4
more than 49	5	17.9
Mean±SD	32±5.2	
<b>Marital status</b>		
Single	3	10.7
Married	21	75.0
Divorced	2	14.2
<b>Working</b>		
No	12	42.9
Yes	16	57.1
<b>SD: Standard deviation</b>		

**Figure 3: The studied patient's and family's health history regarding priapism. (n = 28)**



**Figure 4:** The total adequacy level of patient's profile and its correlations at the pre-discharge and post-discharge study phases. (n=28)

**Table 3:** Correlation between the studied patient's profile and the studied nurses' total level of knowledge and attitude & beliefs scores throughout the study phases. (n=28)

Nurses' Knowledge and Attitude & Beliefs Scores		Patient's Profile	
		R	P
Post phase (Pre-discharge)	Knowledge score	0.032	0.07
	Attitude and beliefs score	-0.13	0.04*
Follow-up phase (Post-discharge)	Knowledge score	0.02	0.01*
	Attitude and beliefs score	-0.41	0.001*

**r: Spearman Rho correlation coefficient**  
\*significant at  $P \leq 0.05$

## Discussion

Priapism is an emergent urological condition marked by an uncontrollable painful erection without sexual stimulation and resulting in penile fibrosis and impotence<sup>(12,21)</sup>. Nurses' interventions play a crucial role in management priapism and prevent further obstacles to prevent further complication, reduce length of hospital stay, reduce cost and for effective therapeutic regimens<sup>(22)</sup>.

### Participant (A): The studied Nurses

The current study: showed that more than two-quarters of the studied nurses had average age 20-27 years, mostly more than half of the studied nurses coming had a female gender with technical institute's education and a half of them had 5-8 years' experience and approximately more than three quarter were married. It can be related that most of the studied nurses were recently graduated and recruited once finishing internship. It is worth mentioning that females were registered as nursing personnel in Egypt more than males and being married once graduated as their Egyptian culture.

This result was consistent by Mahieu, et al. found more than two-thirds of the studied nurses were female and had more than eight years of experience<sup>(13)</sup>. In the same concern, this agreed with Minoia, et al. that found that most of them were qualified female nurses, and more than half of the studied nurses were married<sup>(23)</sup>. Which incongruence with Bdair, Maribbay, and Disability, stressed that more than two-thirds had a bachelor's degree and less than five years of experience<sup>(24)</sup>.

Concerned with the studied' level of knowledge score regarding priapism: the present study findings revealed that there was a statistically significant an

improvement in the studied nurses' level of knowledge post implementation of structured educational module compared to the pre implementation phase. Furthermore, there was a statistically significant correlation between level of knowledge at pre-post and follow-up phases.

This result could be attributed to implementing priapism's structured educational module with specific, clear, learnable, and simple written information in addition to the curiosity and interest of the studied nurses to learn and improve their knowledge and concerns about disease. These results are compatible with Yacoub, et al. stated that more than two-quarters of the studied nurses appeared to be moderately knowledgeable<sup>(25)</sup>. These findings are contradicted with Whyte, et al. who clarified that the studied nurses' level of knowledge was insufficient among the studied nurses at the study phases<sup>(26)</sup>.

Regarding nurses' attitude and beliefs: the studied nurses had a positive level toward attitudes and beliefs of priapism at post and follow up phase as compared with pre phase. A statistically significant correlation was found between attitude and beliefs at the study phases. Theses could be related to good compatibility with adequate adherence with educational module to promote their information and skills to deal with these group, necessary to clarify and correct embarrassing topics in their culture and environment.

However, this finding is supported Bdair, Maribbay, & Disability stated that the studied nurses had a positive level of attitude at the study phases and a significant correlation between the level of beliefs<sup>(24)</sup>. This also was like Mahieu, et al.

who found that the studied nurses were had a positive level of attitude and beliefs at the study <sup>(27)</sup>. These findings disagreed with Basal, & Nafady who mentioned that the studied nurses had a negative attitude and no statistical correlations at the study phase <sup>(28)</sup>.

### **Participant (B): The studied Patients**

The findings of the presented study revealed that more than one-third of the studied patients were aged between 29-38 years with their Mean±SD= 32±5.2, most of them were married, and more than half had work. These could be concerned with desire to appear with a good sexual status, poor health education, bad friend relationships, and culture that considered health sexual and priapism as shame topics to explore and even discuss.

This is convenient with Raji, Shokunbi, and Ajuwon found that most of the studied cases with priapism had more than 30 years <sup>(29)</sup>. As well as was concordant with Dutta, et al. who identified that the mean age of the respondents was 29.8 years ± 13.3 years <sup>(29)</sup>. This is inconsistent with Montgomery, et al. who found that the studied patients with priapism a Mean±SD= 23.6±8.8 years and were not married <sup>(31)</sup>. Similarly, Menon, and Rahman, reported that mostly of the studied case aged of a 20 year <sup>(32)</sup>.

However, the findings identified that more than two-third had a negative complain from chronic disease, while more than three quarters had a positive complain from recurrent priapism. Moreover, more than two quarters had a negative family history regarding priapism. This might be attributed to a deficiency in a counseling session as paying efforts and motives to train the patients on such problems as well as unexpected predisposing factors to

priapism.

This result is like that of Menon and Rahman, who found that about half of the studied patients had recurrent priapism <sup>(32)</sup>. Furthermore, no chronic illness or predisposing factors. This is contradicted Koyuncu et al. who clarified that more than two-thirds of the studied patients had recurrent priapism in spinal cord injuries <sup>(33)</sup>.

Related to the studied patient's profile, the result of the study presented that revealed an improvement of the studied patient's profile involving "quality of life, sexual function, physical wellness" at post phase as compared with pre-phase "pedischarge". From the researchers' point of view, might be appropriate to comply with the educational module on the studied nurse, the established healthcare system is rife with quality-and-safety-improvement programs on patients' conditions, adhere with enhancement and corrective intervention of their level of attitudes and beliefs regarding priapism as well as direct care from the studied nurses who were overwhelmed with priapism structured educational module.

This is agreed with Metzger, et al. who found an effective improvement of a sample of Jamaican men patients' outcomes at the study phase <sup>(34)</sup>. In the same concern, supported by Nellesen, et al. who found that there was a positive effect of role modeling on the patient's profile in the study <sup>(35)</sup>.

Otherwise, these findings are in accordance with Bennett and Mulhall who stated that the studied patients of African American men presenting with priapism had a poor enhancement of their outcomes at post phase of the study, which may be related to poor health sanitation,

inappropriate health education and delayed admission to emergency care <sup>(36)</sup>.

Furthermore, there was a statistically significant correlation between the studied patient's profile and the studied nurses' total level of attitude & beliefs scores at post phase. Moreover, showed that there was a statistical significance between the studied patient's profile and their' total level of knowledge and attitude & beliefs scores at follow up phase.

It was clarified due to significant an improvement of the studied nurse' level of knowledge and attitude & beliefs at the study phases, readiness of the studied patients to enhance their level of priapism impact profile as well as well-planned delivered structured educational module by the researchers.

These results are compatible with Bdair and Maribbay who mentioned a statistically significant correlation between the studied nurses perceived level of knowledge, practices, attitudes, and beliefs <sup>(24)</sup>. This is considered may be related to well trained nurses, continuous updating level of knowledge and recognizing social aspect of this issue.

Moreover, this finding agreed with Yacoub, Zaiton, Abdelghani, and Elshatarat who stated this there was a statistically significant correlation between the studied nurses' knowledge and practice at the study phases <sup>(25)</sup>.

### **Conclusion**

The findings of the study concluded that the study results supported the three suggested research hypotheses as the priapism structured educational module was an influential tool to improve the quality of patient care by keeping the nurses abreast of current knowledge and promoting their attitude, beliefs, and

promotion the studied patient's profile.

### **Recommendations (Implications for nursing practice)**

The study finding recommended that; a primordial endorsed nursing guideline about priapism in the orientation program for nurses to knowledge, attitude, and beliefs, conducting periodic in- services education in a specialized unit regarding the care of priapism is essential plus patients' educational guidelines to improve their priapism impact profile. Replication of the study on a larger probability sample at different areas for findings' generalization.

**Limitations of the study:** Involved the limited studies about priapism in nursing studies as well as participants who withdrew after being recruited to the study for varied reasons.

**Acknowledge:** All thanks to the studied nurses and patients for their participations.

**Authors' contribution:** The research team authorized the last version to be submitted for publication after authoring the article and critically editing. The first and fourth authors were responsible for the study's idea and design. While the first, second, and fourth authors were responsible for data collection as well as he third author is responsible for critical appraisal and reviewing. Furthermore, all researchers contributed to the data analysis and interpretation.

**Budget source:** This research did not obtain any specific contribution from financing agencies.

**Conflict of interest:** Revealed that there was no interest's conflict. The authors on your own are responsible for the contents and writing of this original article.

**Ethical Approval:** The study was approved by the ethics committee Faculty

of Nursing, Suez Canal University, Egypt and Code No. 80, June 2020 and from hospitals administrator. Informed consent was obtained from both participants with confidentiality and anonymity by coding the collected data.

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