

Effect of Implementing Nursing Teaching Protocol on Health Promotion Life Style for Patients with Plastic Biliary Stent

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Abstract:

Background: Patient with biliary stent should have life style modifications to help in minimizing post stent complications. **Aim:** Evaluate the effect of implementing nursing teaching protocol on health promotion life style for patients with plastic biliary stent. **Research design:** Quasi-experimental (Pre/test) research design. **Setting:** endoscopy unit at El-Rajhy hospital in Assuit University Hospital. **sample:** A convenience sample of 60 male and female adult patients **Tools: (I),** Patient assessment **Tools: (II),** Health promotion Model-instruments **Results:** A statistically significance difference between study and control pre and post three months of implementing nursing teaching protocol regarding health promotion life style with P. value 0.001. **Conclusion:** there was a great improvement in health promotion life style after implementation of nursing teaching protocol than pre. **Recommendations:** Simple instructions hand book should be available for patients about post-operative complications and patients health promotion life style of plastic biliary stent.

Keywords: *Health promotion, Life style, Nursing teaching protocol & Plastic biliary stent*

Introduction:

Biliary obstruction is by and large alluded to blockage of extrahepatic biliary system. Interruption in bile stream because of hepatic or intrahepatic biliary framework is for the most part alluded as cholestasis. All these can present as raised bilirubin levels and Jaundice. Bile impediment is normal and influences a huge segment of the populace all throughout the planet with huge morbidity and mortality (Lee et al., 2017).

Indication of plastic biliary stent in the event of harmful biliary impediment improves jaundice, pruritus, anorexia, and overall quality of life. Benign biliary strictures are caused by post surgical injuries (eg, cholecystectomy, liver transplantation) or chronic inflammatory disorders (eg, chronic pancreatitis, primary sclerosing cholangitis). Biliary stents are brought about by post careful wounds (eg, cholecystectomy, liver transplantation) or persistent incendiary problems (eg, ongoing pancreatitis, essential sclerosing cholangitis). Biliary stents can be put to mitigate biliary impediment in patients with different huge bile channel stones that can't be totally cleared from the bile duct. Impermanent plastic stent arrangement can diminish the number and size of stones, working with complete stone clearance (Xiao et al., 2020).

Complications of plastic biliary identified with patient, are perforations which cause dying, fistulae to the gastrointestinal bleeding has likewise been

accounted. Infection as pancreatitis, Cholangitis brought about by stent getting hindered, showed by tummy pain, sore muscle, fever, shivering, being sick, loss of appetite, yellow eyes, dark urine, itching, pallor skin, nausea and vomiting. Complications identified with stent; will be stent impediment is typically brought about by aggregation of inspissated bile, ooze, or flotsam and jetsam inside the stent (biofilm) or development of a tumor through or around the stent. Plastic stent impediment is subject to the inner measurement of the stent. Relocation of a biliary and pancreatic stent is an exceptional marvel; in any case, in case of a proximal migration (Komaya et al., 2017).

The most well-known side effects of stent complications are stomach torment, fever, chills, jaundice, and pruritis. In the event that cholangitis creates in a patient that has a stent set up, a pressing ERCP is demonstrated. The lab abnormalities incorporate rises of alanine aminotransferase (ALT), aspartate aminotransferase (AST), antacid phosphatase, all out bilirubin, and a raised white platelet tally. In a dominant part of cases, imaging considers are not useful in diagnosing stent-related intricacies (Olthof et al., 2016).

Health promotion lifestyles refer to practices of people, families, networks, and social orders advances the advancement of harmony, satisfaction, and the acknowledgment of wellbeing potential, that is, any movement that one may take to accomplish a

more elevated level of health, self-realization, peace and happiness (Eldredge et al., 2016).

It is important for the biliary stent patients showed modified their life style. It is generally accepted that the way to achieve optimal health and prevent complication is to maintain a healthy lifestyle. Moreover health promotion is spurred by the craving to build prosperity and complete human health potential," while health protection insurance to distinguish it early or keep up working inside the imperatives of illness (Fazal et al., 2019).

Significant of the study

In the endoscopy unit at Al Rajhi hostiptal through years of 2017-2018. It was found that 480 patients had plastic biliary stent. From the researcher clinical experiences. It is observed that more than half of these patients developed stent obstruction and migration due to bad life style of these patients. Therefore this study will be carried out to promote life style for patient with plastic biliary stent.

Aim of the study:

The study aim to evaluate the effect of implementing nursing teaching protocol on health promotion life style for patients with plastic biliary stent

Research hypothesis:

Patients who receive nursing teaching protocol will have better life style than who didn't receive it.

Research design:-

Quasi-experimental (Pre/test) research design design was utilized in this study.

Research settings:

The study was conducted at endoscopy unit at El-Rajhy hospital in Assuit University .

Patients:-

A convenience sample of 60 male and female adult patients was taken, the patients will be classified into two equal groups, 30 patients for each group. There age ranged between (18-85 years) and able to participate in the study. Study group who was receive this nursing teaching protocol and control group who was receive routine hospital care.

Sample size according to formula:-

$$n = \frac{N \times p (1 - p)}{N - 1 \times (d2 + Z2) + p(1 - p)}$$

N= Total patients size in one year.

Z= Confidence level is 0.95

D= the error rates is 0.05

P=The Estimated prevalence or proportions of project area.

Tools of the study:-

Two tools was used to collect the necessary data for this study:-

Tool (I): Patient assessment sheet:

This tool was developed by researchers after reviewing of literature for assessing patients' demographic and medical data. It included two parts:-

Part (1): Demographic data of patients and medical data such as:

Patient's code, sex, age, occupation, marital status and level of education.

Medical data:

It includes (body weight, previous placement of plastic biliary stent, duration of plastic biliary stent insertion, history of post stenting complications and causes of biliary obstruction.)

This part was filled from the patients and their hospital files.

Tool (II): Health promotion Model-instruments to measure health promoting lifestyle (HPL) pre/post implementing nursing teaching protocol:

The health promotion Model- instruments (English version) was developed and revised by (Walker et al., 1987). To measure health promoting life style of patient with plastic biliary stent, modified by the researcher after reviewing relevant to the study and with guidance of the supervisors and medical staff. The reliability and validity of translated version have been demonstrated.

Health promotion- instrument has 52 items to measure health promoting life style subscales, it was categorized into sixth subscales (Health responsibility, Physical activity, Interpersonal relations, Nutrition, spiritual growth, stress management).

In this study health promotion - instrument composed of thirty five items to measure health promoting lifestyle subscale:

Health responsibility, Physical activity, Interpersonal relations and Nutrition.

Four- point likert scale; never=1, sometimes=2, often=3, routinely=4

This used to determine the frequency of each behavior, while score more than 2.50 was considered to be a positive response (Kreutz et al., 2009).

It was filled by the researcher through personal interview with the patients and direct observation of them.

Methods

Procedure:-

The study proceeded using the following phases:

Preparatory phase:

Tools development: after reviewing of current and past, local and international related literature in the various aspects using books, articles, periodicals and magazine were done.

Ethical approval:-

- Permission to carry out the study was obtained from the ethical committee of the faculty of nursing.
- An official letter was issued from the dean of faculty of nursing, Assuit university, was prepared and delivered to the director of El-Rajhy hospital at Assiut university.
- Asking for permission to collect the necessary data for this study. The researcher emphasized that the studied patients were voluntary had the right to refuse to participate in the study and can withdraw at any time.
- Verbal consent from each patient was obtained prior the contribution in the present study.
- Anonymity and confidentiality assured through coding of all data.

Validity and reliability:-

To achieve face validity of the tools, it revised by 5 experts (three medical-surgical nursing staff, nursing faculty, Assuit university and two medical staff) in the field of the study and necessary modifications was done. The final form of the tools were tested for reliability by using consistency for the measured using Cronbach test the tool and proved to be reliable at (0.85) showed that was good.

Pilot study

Pilot study was conducted on (ten percentage) of the sample (six patients) to test clarity of the tools, No changes were done to the tool, so these patients were included in the study.

Implementation phase (work field)

- After receiving medical management, each patient was individually interviewed.
- Then the oral consent gained and the study was carried out at morning and afternoon shifts.
- Researchers introduced self to initiate the communication, explained the purpose of the designed health promotion lifestyle protocol to the studied patients.
- Assessing the patients before application of lifestyle protocol using assessment questionnaire sheet tool (I) and scheduled the teaching session with them.
- Only one patient every day was interviewed by the researcher this took about ten minutes for collection of data collection pre application protocol session and another ten minutes for evaluating data.
- The total data collection period was six months (from May 2020 to October 2020).

Protocol session implementation:

- The contents of the designed health promotion lifestyle protocol given to all patients.
- The content of instructional protocol was written in a simple Arabic language and consistent with related literature based on their level of understanding.

- Designed health promotion life style protocol accompanied during three sessions for each patient in addition to the pre assessment session. The session duration was range between 10 to 20 minutes.
- The session started by a summary of the previous session' knowledge and list the new session' objectives. Feedback and discussion opened after each session for 5 minutes.
- Strengthening according to patient's needs was performed to ensure their appreciative.
- Using pictures, illustration and diagram, facilitate reach the information to the patient.

1st session:

This included the knowledge about plastic biliary stent as (the definition, types, indications, and complications) and health responsibility (regular follow up and inspecting signs and symptoms of plastic biliary stent complications, doing laboratory investigations and ultrasonography).

2nd session:

It included health responsibility knowledge nutrition; foods & fluids types and meals numbers.

3rd session:

It provid the patient about interpersonal relationship activities of daily living, practicing exercise, and medications information as type, route, precautions and its side effects. In addition to self –management in the home.

At the end of the session the researcher emphasized on the importance of follow up visits and arranged with them the follow up' time and place by month for six months in the out patient clinic (at El-Rajhy hospital at Assuit University). Studied patients obtained a hard copy of protocol also the researcher used clear pictures to enhance patient's knowledge and helped them to retain the learned materials.

Evaluation phase:

In this phase study patients were assessed three months later from their discharge from hospital to assess the effectiveness of the nursing teaching protocol using tool (II) to compare between pre and post application of nursing teaching protocol.

Statistical design:

Data using compatible computer by the researcher. All data was entered into statistical packages for the social sciences (SPSS) version 20.0 software for analysis and Excel for figures.

The content of each tool was analyzed, categorized and then coded by the researcher. Categorical variables described by mean and standard deviation (Mean, SD). Chi-square test and fisher exact test used to compare between categorical variables. A two-tailed $P < 0.05$ was considered statistically significant.

Results:

Table (1): Distribution of studied patients regarding their demographic characteristics (n. = 60)

Variable	Study =30		Control =30		X2
	N	%	N	%	
Age by years	39.26±11.13		49.20±13.31		1.569
Sex					
Male	13	43.3	18	60.0	1.669
Female	17	56.7	12	40.0	
Occupation					
Non- working	1	3.3	3	10.0	13.903
Farmer	11	36.7	10	33.3	
Student	2	6.7	1	3.3	
Professional	0	0.0	7	23.3	
House wife	16	53.3	7	23.3	
Retired	0	0.0	2	6.7	
Marital status					
Single	4	13.3	4	13.3	.311
Married	19	63.3	19	63.3	
Divorced	3	10.0	2	6.7	
Widowed	4	13.3	5	16.7	
Educational level					
Not educated	1	3.3	3	10.0	10.509
Primary school	1	3.3	9	30.0	
Preparatory school	2	6.7	2	6.7	
Secondary school	15	50.0	7	23.3	
University	11	36.7	9	30.0	

Chi-Square Tests * = Significant difference * $p \leq 0.05$ ** = highly significance * $p \leq 0.01$ Ns = Non significant

Table (2): Distribution of studied patients regarding their medical data (n. = 60)

Medical data	Study =30		Control =30		X2
	N	%	N	%	
Body weight by kg	70.13±6.527		73.43±8.84		3.098
Pervious placement of plastic biliary stent	27	90.0	3	10.0	24
Duration of plastic biliary stent insertion	2.26±.78		1.76±1.00		1.941
History of post stenting complications	25	83.3	5	16.7	25
If yes					
Bleeding	2	8.0	2	8.0	4.732
Infection	1	4.0	4	16.0	
Pancreatitis	7	28.0	2	8.0	
Stent dysfunction	11	44.0	12	48.0	
Perforation	4	16.0	5	20.0	
Causes of biliary obstruction					
Gall stones	18	60.0	13	43.3	6.692
Inflammation of bile ducts	7	23.3	3	10.0	
Cysts	3	10.0	9	30.0	
Trauma	2	6.7	5	16.7	

Chi-Square Tests * = Significant difference * $p \leq 0.05$ ** = highly significance * $p \leq 0.01$
Ns = Non significant difference $P > 0.05$

Table (3): Comparison between study and control groups regarding mean ± SD of health promotion items pre and post implementing nursing teaching protocol (n.=60).

Health promotion	Group	Pre	Post	F	P. value
		Mean ± SD	Mean ± SD		
Total health responsibility	Study	16.10±3.07	29.36±5.08	10.764	.001**
	Control	16.33±2.61	16.93±3.75	10.764	.001**
Total physical activity	Study	12.86±3.42	26.60±6.0	10.091	.001**
	Control	13.00±3.59	13.23±4.06	10.091	.001**
Total interpersonal relation	Study	19.06±2.44	31.30±4.25	11.704	.001**
	Control	19.30±3.66	19.30±3.66	11.704	.001**
Total nutrition	Study	17.10±3.43	31.30±4.30	17.044	.001**
	Control	16.90±1.60	16.96±1.65	17.044	.001**
Total health promotion	Study	65.13±9.08	118.5667	17.302	.001**
	Control	65.53±7.98	66.4333	17.302	.001**

Independent t-test used for this table *=Significant difference *p≤0.05 **= highly significance *p≤0.01

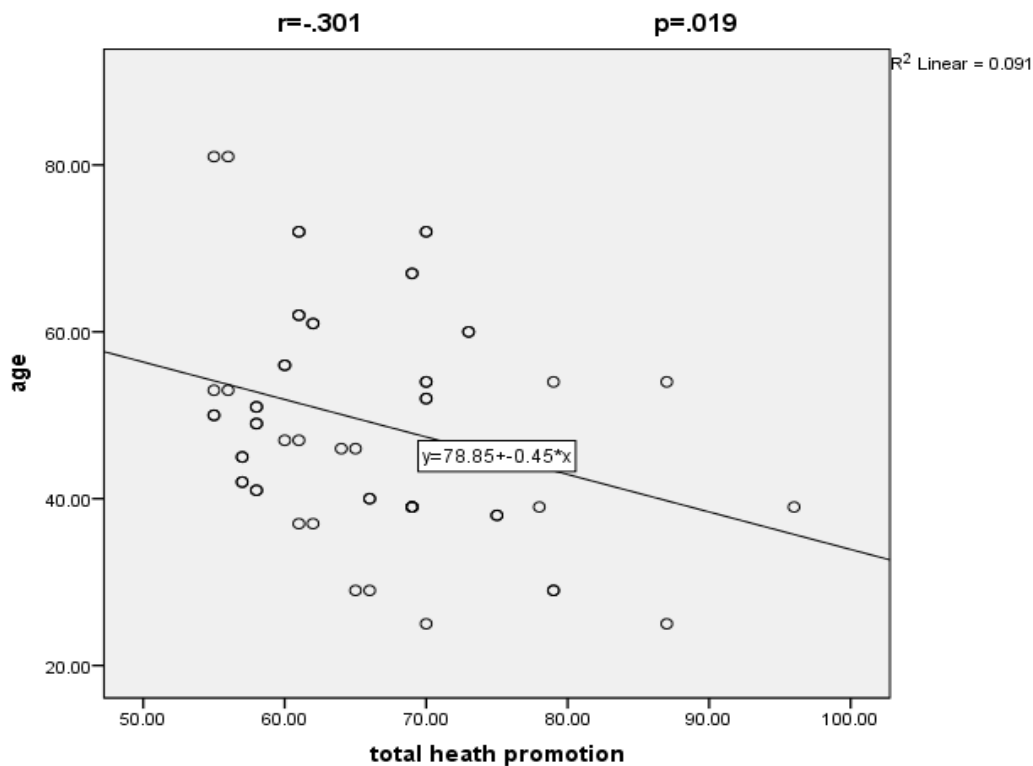


Figure (1): Correlation between the demographic data of the study group patients and all items of health promotion life style (n. =30)

Table (1): This table revealed that the mean age of study group was 39.26±11.13 while in control group was 49.20±13.31 Regarding sex, more than half of the studied patient in the study group were females but in the control group were males (56.7 and 60% respectively). Regarding the marital status, the highest percentage of both groups were married. Regarding educational level more than half of the study group had a secondary school but around one third of the control group were primary and university education.

Table (2): This table revealed that the body weight for study and control groups were (70.13±6.527 and 73.43±8.84 respectively). Regarding duration of plastic biliary stent for study and control, groups were 2.26±.78 but the control group was 1.76±1.00. The majority of them had previous placement and history of post stenting Complications regarding due to the stent dysfunction and the main cause of the biliary stent was gall stone.

Table (3): This table found that there was statistically significance difference between study and control

regarding all items of life style pre and post implementing nursing teaching protocol.

Figure (1): Revealed that there was a negative correlation between the studied patients' ages groups and either interpersonal relation and total life style. Also, the figure displayed that there was a positive correlation between the studied patients' educational level, either nutritional life style and the total life style.

Discussion:

Obstructive jaundice brought about by an inoperable distal dangerous biliary sickness is related with various inconveniences including helpless retention, coagulopathy, hepatocellular and reformist renal brokenness, cholangitis, and tingling. These intricacies make the personal satisfaction of terminal patients more regrettable than it would be something else. Endoscopic stent arrangement diminishes dangers of these complications (**Kapoor et al., 2018**). The aim of this study was to evaluate the effect of implementing nursing teaching protocol on health promotion life style for patients with plastic biliary stent.

Regarding the demographic data of the studied patients; the current study revealed that the mean age of study group was 39.26 ± 11.13 but in control group was 49.20 ± 13.31 with a statistically significant difference between both groups, this match with **Navaneethan et al., (2017)** who found that the mean age of the biliary stent patients was 48.1 years.

Kusumaningtyas et al., (2020) added that the biliary stent placed for adult age patients less than sixty years old. The present study found that greater than half of the studied patient were females but in the control group were males. (**Adler et al., (2017)** mentioned that biliary drainage occurred in both sex of patients there was no difference between both sexes.

Regarding their occupation; there was astatically significance difference between both groups, while greater than half of the study group were house wives but only one third of the control group were farmers. Regarding the marital status, majority of both groups were married. This not match with **Suenaga et al., (2020)** who found no significant effect of marital status of the patients with biliary stent on their condition.

Regarding the educational level, there was astatically significance difference between both groups, while more than half of the study group had a secondary school but around one third of the control group were primary and university education. While, **Arafat et al., (2019)** reported that the patients education had a great effect on their compliance regarding medication and attaining medical checkup.

The existing study found no statically significance difference between the studied groups regarding their body weight. The results similarly, discovered that there was astatically significance difference between both groups regarding the duration of plastic biliary stent insertion where the study group was 2.26 ± 0.78 but the control group was 1.76 ± 1.00 . This not match with **Lang et al., (2018)** who found that plastic stents were introduced 30 years ago, and metal stents were introduced 15 years ago.

This not match with **Zhu et al., (2018)** who found in their study of implanted metal stent patency lasted longer than the plastic one patency for 116.9 ± 8.2 days versus 80.4 ± 8.3 days. In the study of **Martins et al., (2020)** plastic stents have more complications, longer periods without and less need to repeat ERCP. Regarding the medical data, our study found that there was no statically significance difference between the two groups and the majority of them had previous placement and history of post stenting. The researcher opinion this result is due to the stent dysfunction and the main cause of the biliary stent was gall stone.

This not match with **Driescher et al., (2021)** who considered that best palliative procedure for patients with inoperable pancreatobiliary tumors. The high risk of obstruction three to four months after placement **considers** the main disadvantage of plastic stent usage (**Siddiqui et al., 2019**). Nevertheless, **Anderloni et al., (2019)** documented that biliary stent dismiss very efficiently the presence of jaundice once they are positioned by removing obstruction.

This matched with **Vaishnavi et al., (2018)** who reported that plastic stents displayed a better incidence of frequent obstructions.

Obstructions occur due to many factors as stent design, constituent materials, proteins, and bile viscosity, however the main elements are the presence of microbes with calcium bilirubinate and calcium palmitate gems (**Arafat et al., 2019**).

In this respect, **Palermo et al., (2020)** explained that calcium salts and unsaturated fats over the long haul, biofilm movement and reformist agglomeration of biliary silt cause the development of biliary mud which thus prompts stent impediment that match with our study results.

Universal specifications, **Tringali, (2020)** concluded that that picking between metal stents and plastic stents for harmful biliary injury don't yet exist. Be that as it may, most investigations recommend picking metal prostheses for patients who are probably going to endure over four months.

Wakkie et al., (2020) recommended that the stents of things to come ought to have longer patency, less need of mediations, better money saving advantage connections and longer quiet endurance .

Also, **Chen et al., (2018)** documented that improvements among biliary stent patients with social function scores, likewise dissimilar to stent. The researcher point of view, plus even a light workout can boost the mood and make feeling less tired.

Generally, the current study showed that there was a statistically significance difference between study and control regarding all items of life style before and after application of the implementing nursing teaching protocol on life style modifications.

Also, the result revealed that the all items of life style (health responsibility, physical activity, interpersonal relation and nutritional life style) mean \pm SD were improved among the study group after nursing teaching protocol on life style modifications application. Around half of the study group patients routinely applied the life style modification regarding all items of the life style than the control group. The researchers opinion that the teaching protocol was effective due to readiness of the studied patients to gain more knowledge and practice to cope and overcome their problem.

In **Castiglione et al., (2019)** study, suggested that the pattern indication and health promotion life style estimation might have been performed just after the system, when patients might have had strategy related manifestation, there was critical whittling down and the absence of a benchmark group are significant constraints; health promotion life style frequently improves essentially over the long run in responders in palliative consideration concentrates with high steady loss .

Ribeiro et al., (2018) additionally rejected patients with stent blockage and just announced results for patients with fruitful seepage, as opposed to a purpose-to-treat examination or results for the accessible sample.

Karjula et al., (2019) showed enhancements in both health promotion life style and manifestations, one didn't report generally results yet didn't show pertinent advantages in a restricted gathering, and one showed a huge improvement in pruritus yet a critical lessening in health promotion life style .

Generally, the investigation of reactions to surveys on health promotion life style permits us to set up the connection between the sickness and the general effect on the patient's life and, in this way, break down more agreeable signs and the consequence of specific therapies (**Otto et al., 2018**).

This current study revealed that there was a negative correlation between the studied patients' ages groups and either interpersonal relation and total life style. Also, the showed that there was a positive correlation between the studied patients' level of education and either nutritional life style and the total life style. The result also showed that there was no correlation

founded between the study group patients' demographic data and the life style level.

The current study revealed that there was a negative correlation between the studied patients' ages groups and either interpersonal relation and total life style. Also, the result showed that there was a positive correlation between the studied patients' educational level and either nutritional and total life style.

The researcher opinion, that the education could effect on the life style choices as eating, rest full pattern medical check up and all domain of their life style.

In this respect, **Mangino et al., (2017)** concluded that person's comebacks toward the aging process exaggerated by genetic as well as conservation influences.

These results supported **Laffon et al., (2020)** supposition stable chromosome abnormalities expression a larger accumulation with age than do unstable ones suggesting that lifestyle features donate to the accretion of cytogenetic mutilation.

WHO, (2021) reported that a longer life brings with it opportunities, not only for older people and their families, but also for societies as a whole. In the same report of WHO added that; added years are controlled by decays in both physical and mental capability, the society suggestions for elderly are more negative.

This match with **Velten et al., (2018)** who found that educational attainment has no significant effect on the lifestyle choices of individuals.

In this line, **Yildirim et al., (2017)** widely studied and recognized that there is a positive relation between health status and educational level.

However, **Trigueros et al., (2019)** revealed that education is strongly correlated with most health-related behaviors or lifestyle

In contrast, **Franceschi et al., (2018)** reported that the aging is strongly exaggerated by lifestyle, environmental, and presence of chronic disease that are related to aging but not due to aging itself.

Generally, the present study found that patients who receive nursing teaching protocol had a better life style than who didn't receive it.

Conclusions:

Based on the outcomes of this study, there was statistically significance difference between study and control regarding all items of life style pre and post implementing nursing teaching protocol on life style modifications. Also, designing nursing teaching protocol achieve its objectives by improving the patient's outcomes including, a great improvement in the all items of life style.

Recommendations

For patients:

1. Patients should be delivered with enough relevant written material to remind them about what they can perform to handle with the procedure.
2. Tell the patients the importance of regular follow-up at consistent times that is a key part of treatment and safety.

For Nurses:

1. Nurse should always be encouraged to attend scientific meetings and conferences to keep pace with the rapidly growing wealth of knowledge and practice necessary for proper nursing service.
2. The Nurse should be aware by instructions that must be given to patients before the discharge.

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