Designing Nursing Recommendations for Patients with Chronic Bronchitis at Al- Badary Central Hospital

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Aabstract
Background: Chronic bronchitis is defined as a productive cough that lasts for three months or more per year for at least two years. **The aim of this study was** to evaluate effect of designed nursing recommendations on knowledge for patients with chronic bronchitis. **Methods: Research design**: Quasi experimental (pre – post) test research design was utilized to conduct this study. **Setting**: The study was conducted at internal medical unit of Al-Badary Central Hospital. **Subjects**: Sixty adult patients with chronic bronchitis, the age ranges between (18-65) years, both male and female. **Tools:** An interview questionnaire sheet for patients. **Results:** There was statistically significant difference between pre and post implementing of designed nursing recommendations in relation to signs and symptoms and patient's knowledge about chronic bronchitis in all items with p-value 0.001.**Conclusion:** Designed nursing recommendations had statistically significant effect on patient condition and knowledge **Recommendation** : Patient should be provided with sufficient information on chronic bronchitis and health improvement before discharge from the hospital.

Key words: Designed, Nursing Recommendations & Chronic Bronchitis.

Introduction

Chronic bronchitis is a lung condition that develops over time in which the bronchi become inflamed and scarred. This causes the bronchi to make large amounts of mucus and can lead to a chronic cough and breathing problems. Chronic bronchitis usually does not go away completely. It is a type of chronic obstructive pulmonary disease (COPD) **(National of Cancer Institute. 2018).**

Chronic bronchitis has a 3.4% to 22% prevalence rate among the general population. Individuals over the age of 45, smokers, those that live in areas with high air pollution and those have asthma have a higher risk of developing chronic bronchitis. This wide range is due to the different definitions of chronic bronchitis which can be defined based on signs and symptoms or the clinical diagnosis of the disorder. In the United States in the year 2014 per 100,000 populations the death rate of chronic bronchitis was 0.2. **(Albert, 2010).**

The major signs and symptoms of chronic bronchitis are cough and sputum production are the most common symptoms. They usually last for at least 3 months and occur daily. The intensity of coughing and the amount and frequency of sputum production vary from patient to patient. Sputum may be clear, yellowish, greenish, or occasionally, blood-tinged. Shortness of breath gradually increases with the severity of the disease. Usually, people with chronic bronchitis get short of breath with activity and begin coughing; dyspnea at rest usually signals that chronic obstructive pulmonary disease or emphysema has developed.Wheezing. **(Kim et al., 2013).**

There are many causes and risk factor for individuals to develop chronic bronchitis, the main is cigarette smoke. **(Gotfried & Grossman, 2010)** Statistics from the US centers for disease control and prevention (CDC) suggest that about 49% of smokers develop chronic bronchitis. Many other inhaled irritants (for example, smog, industrial pollutants, and solvents) can also result in chronic bronchitis. Viral and bacterial infections that result in acute bronchitis may lead to chronic bronchitis if people have repeated bouts with infectious agents or pneumonia, and gastric reflux (by inhalation of gastric contents). Obesity has also been linked to an increased risk in the onset of chronic bronchitis.**(Mayo Clinic Staff, 2014 & Albert, 2010).**

The major complications of chronic bronchitis are: difficulty breathing, sometimes severe, respiratory failure, pneumonia, enlargement and weakness of right heart ventricle of the heart caused by lung disease, pneumothorax (collection of air or gas in lung causing lung collapse), polycythemia (abnormally high concentration of red blood cells needed to carry oxygen), COPD (some NIH researchers consider chronic bronchitis a type of COPD), emphysema, chronic advancement of the disease, and high mortality (death) rate **(National Health Services, 2014).**

Recommendations is a statement that someone or something would be good or suitable for a particular job or purpose or advice telling someone what the best thing to do or a suggestion that something is good .**(Iscoe et al ., 2011).**

Nurse recommendations aimed to reduce and prevent complications of chronic bronchitis it includes: Education which play a vital aspect in the prevention and management of chronic bronchitis. Education about the presenting condition, risk factors associated with it and treatment can help reduce anxiety associated with the development of any chronic condition and a proper understanding of the condition and how to manage it can encourage the individual to take a proactive approach to their management program **(British Lung Foundation, 2015).**

Nursing recommendations for patient with bronchitis included: bed rest and get sleep, humidify the environment, avoid exposure to irritants, drink plenty of liquids, add foods that improve chronic bronchitis symptoms to diet, gargle with salt water, turmeric, stop smoking, practice proper hygiene and pursed lip breathing, Exercise, Postural Drainage, and Active Cycle of Breathing.**(Fauci et al., 2008).**

Significance of the study

According to experience of researcher, it was noted that patient's knowledge about chronic bronchitis are not adequate and need for improvement. This study is the first study to provide nursing recommendations for patients with chronic bronchitis in this geographical location which helped such group of patients. About 100 cases admitted in medical department at Al-badary Central Hospital at 2016 , and 120 cases at 2017 according to hospital records.

Aim of the study

The aim of this study was to evaluate effect of designed nursing recommendations on knowledge for patients with chronic bronchitis.

Research Hypothesis

The post mean knowledge scores of patients who will be exposed to the designed nursing recommendations will be higher than their pre mean knowledge scores.

Subjects & Methods

Research design

Quasi experimental (pre – post) test research design was conducted from June to October, 2018.

Study variables

The independent variable was nursing recommendations, while the dependent variable patient with chronic bronchitis.

Subjects

Sixty adult patients with chronic bronchitis included with the following criteria; the age ranges between (18-65) years, both male and female and patient willing to participate in this study.

Setting of the study

The study was conducted at internal medical unit at Al-Badary Central Hospital.

Tools of data collections

Tool I: An interview questionnaire sheet for patients: This sheet was developed by the researcher in Arabic language to collect information based on the relevant literatures and consulting expertise in this area to assess socio-demographic data, Medical data, and patient's knowledge about bronchitis. It includes three parts:

Part (1): Socio-demographic data about the patients such as: name, age, sex, level of education, years of experience, marital status.

Part (2): Medical data which include history (past& present) of chronic bronchitis such as family history of disease, smoking and presence of other chronic diseases as hypertension, diabetes, atherosclerosis and renal failure.

Part (3): Pre & post knowledge assessment: it was constructed by the researcher based on current literature, it was used prior to the implementation of the designed nursing recommendations to assess the exact knowledge, and the same tool was used before patient discharge. It includes (definition, causes, signs & symptoms, complications, nursing recommendations).

The Designed Nursing Recommendations

This tool was developed by the researcher based on patient's knowledge assessment after reviewing current national and international literature and aimed to reduce and prevent complications of chronic bronchitis it includes: Avoiding bronchopulmonary irritants, taking prescribed medicine, use of bronchodilator nebulizers, teaching adaptive breathing techniques, taking vaccines for influenza and pneumococcal pneumonia, cleaning of all home respiratory equipment and teaching the importance of environmental control, avoiding dry air and avoidance going out in cold temperature, Also nurses recommendation included :bed rest and get sleep, drink plenty of liquids, add foods that improve chronic bronchitis symptoms to diet, gargle with salt water, turmeric, stop smoking, practice proper hygiene and pursed lip breathing, exercise, postural drainage, and active cycle of breathing.

Procedures

The study proceeded using the following phases:

1. **Assessment phase**

The researcher met the selected patients; each patient was fully informed with the purpose and nature of this study and the patient's agreement was obtained. Socio-demographic and medical data were established using tool I (part 1 and 2). Assessment of patient's knowledge was done using (tool I part 3).

2. **Implementation phase**

- The studied patients were given an educational booklet in clear Arabic language; which included

nursing recommendations for patients with chronic bronchitis.
- Number of session (ten session) ,every session included 6 patient ,each session took about 30-40 min and the study was carried out in the morning shift.
- Each session contain the following items: definition, causes, signs and symptoms, nursing recommendations regarding cough, sputum, wheezing, breathlessness and smoking.
- Designed nursing recommendations were applied on an individual basis, one of the family members attended the session to confirm patients support and increasing their sense of responsibility.
- After each session there was 5-10 min for discussion & feedback.
- The researcher used pictures and diagram to help them retain the learned material.
- Data were assured anonymity and confidentiality and were collected using the study tools.
- The researcher arranged with the patients the time for other meeting before discharge at internal medical unit of Al-Badary central hospital.
- The study was carried out through the period from 8 am to 2 pm at the morning shift.

3. **Evaluation phase**
- Evaluation the effect of implementing the designed nursing recommendations on patient's knowledge about chronic bronchitis was done before patients discharge using (tool I part 3).

Ethical considerations
Research proposal was approved from Ethical Committee in the Faculty of Nursing. There was no risk for study subject during application of the research. The study followed common ethical principles in clinical research. Oral consent obtained from patients that were willing to participate in the study, after explaining the nature and purpose of the study. Confidentiality and anonymity were assured.

Study subject have the right to refuse to participate or withdraw from the study without any rational any time and study subject privacy considered during collection of data.

Content validity
The study tool was tested for content validity by 5 expertise in medical and medical –surgical nursing staff at Assiut university hospital and Al –badary central hospital. It was established by panel of five expertise's (Medical and Nursing) who reviewed the tools for clarity, relevance, comprehensiveness, understanding, applicability and easiness for administrative, minor modifications were required. Test reliability of the proposed tools was ascertained with Cionbach`s alpha =0.90.

Pilot study
A pilot study was done on 10% (6 pts.) of the sample to test clarity and feasibility of the developed tool. It had also provided an estimate of time needed to fill out the tools .To ensure the clarity of designed study tools, examine the utility of designed tools and identify any difficulties or problems needed to handle before applying it. No changes were done to the tool, so the sample of the pilot study was included in the actual study sample.

Statistical analysis
The data were tested for normality using the Anderson- Darling test for homogeneity variances prior to further statistical analysis. Categorical variables were described by number percent (N, %), where continuous variables described by mean and standard deviation (mean, SD). Chi-square and fisher exact tests used to compare between categorical variables where compare between continuous variables by t-test. A two-tailed p-value 0.001was considered statistically significant. All analysis was performed with the IBM SPSS 20.0 software.
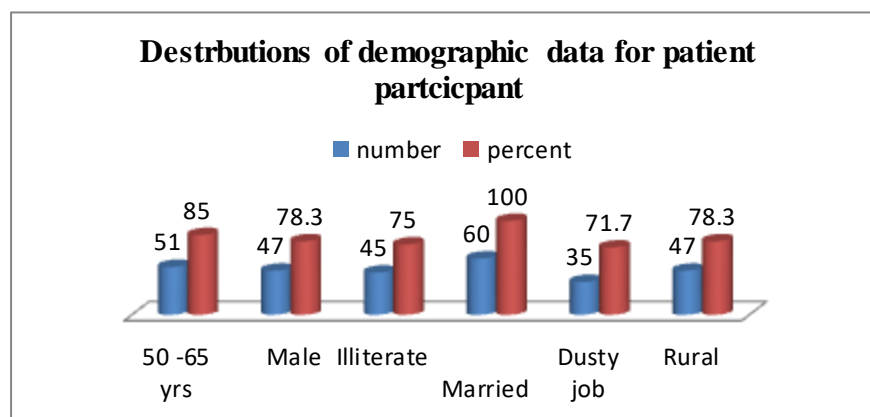
Results

Fig (1): Shows that the majority of studied patients age ranged between 50 – 65 years(85%).

Table (1): Medical data about chronic disease for patients participants (n=60).

Variables	Yes		No	
	n	**%**	**N**	**%**
Presence of chronic illness				
Hypertensions.	17	28.3	43	71.7
Diabetes.	10	16.7	50	83.3
Renal failure.	0	0	60	100
Heart disease.	12	20.0	48	80.0

Table (2): Means & standard deviation of the studied patients according to their knowledge &recommendations about chronic bronchitis.

Variables	Rang	Max score	Pretest Mean± Std. Deviation	Rang	Max score	Posttest Mean± Std. Deviation	P value
Total knowledge	7	9	5.86±1.79	8	11	8.2500±1.55	0.001**
Total recommendation	15	17	9.93±3.182	8	28	25.93±1.59	0.001**
Total knowledge and recommendation	12	21	15.80±2.97	10	38	34.18±2.11	0.001**

*Independent T test   *=Significant difference *p≤0.05   **= highly significance *p≤0.01*
Ns= Non significant difference P>0.05

Table (3): Comparison between pre and posttest for patient knowledge about nursing recommendations   n=60.

Symptoms	Recommendations				P value
	Pre Correct		Post correct		
	n	%	N	%	
Cough and Sputum					
Inhalation of water vapor in a correct manner helps to moisten the throat and relieve the cough.	4	6.7	56	93.3	0.001**
Anise drink helps to relax before bedtime.	36	60.0	56	93.3	0.001**
Wet air reduces coughing or sneezing.	41	68.3	55	91.7	0.001**
Helps lemon to reduce cough and mucus secretion.	29	48.3	58	96.7	0.001**
Breathing exercises can be done twice a day for 10 minute.	4	6.7	57	95.0	0.001**
Shower with cold water is useful for chronic bronchitis.	26	43.3	57	95.0	0.001**
A warm liquid such as soup and anise is not necessary for chronic bronchitis patient.	20	33.3	60	100.0	0.001**
Turmeric helps to reduce cough.	5	8.3	43	71.7	0.001**
Warm soap help to calm the inflamed throat of a chronic bronchitis patient.	28	46.7	57	95.0	0.001**
Bovine milk is an important beverage for chronic bronchitis.	23	38.3	59	98.3	0.001**
Eating onion raw useful for patients with chronic bronchitis.	35	58.3	48	80.0	0.001**
Recommended drinks to improve symptoms of chronic bronchitis	8	13.3	53	88.3	0.001
Breathlessness and Wheezing:					
Sleep and your head are raised, making breathing easier for patients with chronic bronchitis	33	55.0	54	90.0	0.001**
Breathing exercises can be done twice a day for 10 minute.	4	6.7	57	95.0	0.001**
Cold foods help filter the ducts.	27	45.0	60	100.0	0.001**
The work of deep breathing exercises is necessary to alleviate respiratory diseases.	1	1.7	59	98.3	0.001**
The most important nursing recommendations that help to rest in bed	34	56.7	60	100.0	0.001**
Breathing exercises are important for improving chronic bronchitis.	1	1.7	53	88.3	0.001**
Anise drink helps to relax before bedtime.	36	60.0	56	93.3	0.001**
Helps lemon to reduce cough and mucus secretion.	29	48.3	58	96.7	0.001**
Recommended drinks to improve symptoms of chronic bronchitis	8	13.3	53	88.3	0.001**

Weather					
Wet air reduces coughing or sneezing.	41	68.3	55	91.7	**0.001****
Shower with cold water is useful for chronic bronchitis.	26	43.3	57	95.0	**0.001****
Patients with chronic bronchitis should be treated with caution with household detergents and modern paint.	36	60.0	60	100.0	**0.001****
Chopped garlic helps to eliminate the causes of bronchitis.	17	28.3	45	75.0	**0.001****
Vaccinations can be taken to prevent influenza.	28	46.7	59	98.3	**0.001****
Avoid Passive smoking helps to prevent irritate the lung	38	63.3	56	93.3	**0.001****

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

Fig (1): Shows that the majority of studied patients age ranged between 50 – 65 years(85%). regarding sex the majority of studied patients were male (78.3%), and all studied patients were married (100%).As regard educational level the majority of studied patients were illitrate (75%). As regard occupation the highest number were worked in adusy job(71.7%). As regarding residence the majority were living in rural area(78.3%).

Table (1): Show that most of patients weren't had chronic illness & suffering from cough, shortness of breath and wheezing between attacks. This symptoms repeat with year around. The weather effect on patients .

Table (2): Show that there was statistically significant difference between pre and post implementing of designed nursing recommendations in relation to knowledge & recommendations about chronic bronchitis in all items with p-value 0.001.

Table (3): Show that there was statistically significant difference between pre and post implementing of designed nursing recommendations in relation to cough & sputum, Breathlessness and Wheezing, and Weather in all items with p-value 0.001.

Discussion
Based the result of the present study the discussion will cover the following:
1) Demographic characteristics of patient and medical data:
The majority of studied patients age range between 50 – 65 years. regarding sex the majority of studied patients were male. As regard marital status , all studied patients were married , illiterate and occupation the highest number were worked in a dusty job. As regarding residence the majority were living in rural area as fig.(1).This result in agree with **Fillip et al., (2017)** , who reported that: Chronic bronchitis symptoms occur in older age, less education, current smoking, occupational exposure to fumes, a self-reported diagnosis of asthma or lung cancer and a family history of chronic lung disease and this agree with my study. While **Andrei & Sergey, (2018)** revealed that there were no

differences by age and by sex between healthy and patients with chronic bronchitis. But this results disagree with **Malin et al., (2016)** who stated that 8.7% in subjects older than age 60.
Regarding residence and occupation , the majority of studied patients were living in rural area and the highest number were worked in a dusty job, this in line with **Elbehairy, et al., (2015) & catherine et al., (2015)** Reported that daily Exposure to Biomass Fuel Smoke Both Contribute to chronic bronchitis .Regarding level of education, the majority of studied patients were illiterate, this supported by **Louisa et al., (2017) & fillip et al., (2017)** Reported that , less education one of factors significantly associated with an increased risk of reporting chronic bronchitis.
Regarding to presence of chronic illness, the current study revealed that the majority of studied patients had hypertension, this result supported by **Shanda et al., (2017)** who demonstrated the highest reported health conditions (between 10 and 20% each) included hypertension.
Regarding to smoking, most of patients were active smokers ,they uses more than 9 cigarettes /day , begin smoke in young age and type of smoking mainly cigarettes and hookah (shisha).This result disagree with **Shanda et al., (2017)** who demonstrated that 59% used no tobacco, 15% only used chewing tobacco, 21% only smoked cigarettes, and 6% used both types of tobacco. Also **Shyamali et al., (2016)** told that personal smoking is widely regarded to be the primary cause of chronic bronchitis in adults. **panel et al., (2017)** revealed that chronic bronchitis increased hospitalizations more in smokers and ex-smokers than in never smokers. Smokers and ex-smokers with chronic bronchitis had an increased risk to die compared with never-smokers without chronic bronchitis.
2. Patient knowledge about chronic bronchitis
Regarding to patients knowledge about chronic bronchitis, our results revealed that there is a statistically significant difference between pre and post implementing of designed nursing recommendations in all items, from the researchers point of view this may be due to application of designed nursing recommendations with the all

needed methods that help in reducing signs and symptoms of chronic bronchitis, using of pictures and diagram in discussion helped the patients to retain the learned material ,also follow up studied patients by the researchers to ensure compliance of the patients to implement of designed nursing recommendations.

3. Patient response to designed nursing recommendations

The result of the present study show that there was statistically significant difference between pre and post implementing of designed nursing recommendations in relation to cough , sputum, breathlessness , wheezing , weather and smoking in all items .This result due to application of nursing recommendations aimed to reduce and prevent complications of chronic bronchitis it includes: Education can play a vital aspect in the prevention and management of chronic bronchitis. Education about the presenting condition, risk factors associated with it and a proper understanding of the condition. This agree with **Vanessa et al., (2017)** who revealed that respiratory nurse has an important role in the assessment and delivery of pulmonary rehabilitation. Respiratory nurses in particular have an important role in the provision of patient education and self-management, symptom management and monitoring, and primary and secondary prevention strategies to improve health and prevent deterioration. Also **Sharon & Ravi (2016)** study revealed that Cessation of smoking from visit 1 to visit 2 was significantly associated with resolution of chronic bronchitis between visits, whereas resumption of smoking between visits was associated with the development of chronic bronchitis. Persistent smoking was associated with the highest odds ratio for persistent chronic bronchitis and this agree with my study.

Nursing (2019) a study about Patient education series: Chronic bronchitis and emphysema revealed that patient should take care of herself through learn breathing techniques. Pursed-lip breathing can help you breathe easier, especially if you're short of breath, Exercise regularly, Eat a healthy diet and maintain a healthy weight, Drink lots of fluids, Stay away from fumes, smoke, and dust, as well as very hot or very cold temperatures. If it's hot outside, stay in air-conditioned rooms. Leave the house if it's being painted or sprayed for bugs, Avoid sick people , Stay away from anyone who has a cold or the flu, and get a flu shot each year and a pneumonia shot and this agree with my study.

Also **Poole et al., (2015)** who reported that: Avoid large crowds during flu season. Patients should receive the influenza and pneumonia vaccine as preventative measures. Walking and bicycling are the best exercises to strengthen respiratory muscles and aid in expectorating mucus. During acute attacks,

patients should be educated on how to use pursed-lip breathing to help decrease their respiratory rate, reduce bronchospasm, and relieve dyspnea. Coughing and deep-breathing techniques as well as chest physiotherapy are also useful and this agree with our results which revealed that cough, sputum, breathlessness ,wheezing and nasal catarrh is decreasing after application of designed nursing recommendations.

Conclusions

The present study revealed that designed nursing recommendations had statistically significant effect on patient condition and knowledge.

The study recommended that

Based on the results of the present study

1. patient should be provided with sufficient information on chronic bronchitis and health improvement before discharge from the hospital.
2. perodic monitoring of nurse's knowledge and practice to evaluate the level of nurses working in chest department.
3. Continuous follow up studied patients by the researchers to ensure commitment of the patients to implement of designed nursing recommendations.

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