Orignal Article

Indian Journal of Surgical Nursing
Volume 11, Number 3 September–December 2022
DOI: http://dx.doi.org/10.21088/ijsn.2277.467X.11322.2

Effect of Video Assisted Teaching Module on Knowledge Regarding PPC among Patients Undergoing Abdominal Surgeries in Selected Hospitals of Maharashtra State

Kapil Komal Raibole[1], Prabhudas A. Raiborde[2]

How to cite this article:
Kapil Komal Raibole, Prabhudas A Raiborde/Effect of Video Assisted Teaching Module on Knowledge Regarding PPC among Patients Undergoing Abdominal Surgeries in Selected Hospitals of Maharashtra State/Indian J Surg Nurs. 2022;11(3):79–87.

Abstract

Aim of the study: The study aims to find the effect of video assisted teaching module on prevention of post operative complications among patients undergoing abdominal surgeries Maharashtra state.

Objectives of study: *Primary objective* - To assess the knowledge on PPC among patients undergoing abdominal surgeries before intervention.

Secondary objectives: (1) Assess the knowledge regarding prevention of post-operative complications among patients undergoing abdominal surgeries. (2) To find out the effect of VATM on knowledge regarding PPC among patients undergoing abdominal surgeries. (3) To find out association between post-test knowledge score with selected demographic variables.

Method: Quasi experimental one group pre-test posttest design and quantitative approach was carried out on 60 patients selected by simple random sampling technique to test effect of structured teaching module. The data was collected by using structured interview questionnaire consists of 30 items.

Results: The presents study evaluates and found that demographic variables, Majority 40% of patients undergoing abdominal surgeries were in the age group of 29-39 years, gender depicts that majority of patients 56.70% of them were females, of them had educated up to secondary education. Majorityof 38.30% of them were from Hindu religion. Majority (65%) of them had monthly income between 5000 to 10000 majority (50%) had information post operative complications from patients undergoing abdominal surgeries.

Interpretation and conclusion: The data were analysed by applying descriptive and inferential statistics. The result of the study indicated that after intervention there was an improvement in the knowledge and they gain good knowledge about prevention of post operative complications. Analysis data shows that highly significance difference found between the pre-test and post-test knowledge scores at the level of ($P<0.05$). The hypothesis are proved and accepted.

Keywords: Video Assisted Teaching Module; Patients; Abdominal Surgeries.

Author Affiliation: [1]Assistant Professor, Gurukul Nursing Institute, Daryapur 444806, Maharashtra, India, [2]Professor, Department of Medical Surgical Nursing, Panjabrao Deshmukh Nursing Institute, Amravati 444606 Maharashtra, India.

Corresponding Author: Prabhudas A Raiborde, Professor, Department of Medical Surgical Nursing, Panjabrao Deshmukh Nursing Institute, Amravati 444606 Maharashtra, India.

E-mail: prabhudas_r@yahoo.com

Received on: 30.06.2022

Accepted on: 01.08.2022

INTRODUCTION

Surgery is the art and science of treating disease, injuries and deformities and instrumentation. Surgery may be performed for purpose of diagnosis, cure, palliation, cosmetic improvement and prevention.[1] The advance in surgical techniques and operative management has enable expert surgeons to perform highly demanding and extended operations with acceptable mortality rates in specialized institutions. How were overall postoperative morbidity remains at 24-44% depending on the definitions used, types of operations performed and the patients characteristics. Post operatives complications considerably impair patient's postoperative outcome, lengthening intensive care unit and total hospitals stay and increasing mortality. In view of the large numbers of operations carried out worldwide and the cost increase caused, post-operative complication burdens not only the Individual patient but also the healthcare system. Thus the prevention of post-operative complication is of prime importance.[2]

To prevent postoperative surgical complication, care full pre-operative preparation and practice in deep breathing and coughing exercises should be reinforced to prevent mostly pneumonia and atelectasis. Coughing removes retained secretion from the bronchi and larger airways.

The patient is encouraged to take three deep breaths exhaling through the mouth before coughing. Systematic and structured efforts are needed in order to improve the quality of anesthetic care, based on examination of the circumstances surrounding undesired events. Pulmonary complications during the pre, intra and post-operative periods have been a matter of concern for many years with regard to anesthesia.[3]

Need for the study

In health care sector the demand of surgery always occupies high. It was calculated that each year 234 million major surgeries are done in all over the world. It represents at least seven million cases are having post-operative complications and one million deaths in each year, which illustrate the high socio-economic burden associated with post-operative mortality and morbidity. So it is most important to prevent these post-operative complications with highest medical interest.[4] Global incidence of post-operative respiratory complications were 11.7 percent, global mortality in surgical patient ranges from seven to eight percent and out of all cases, pneumonia contributes 10 to 28%. In United States, elective abdominal surgery were 5075, the incidence of respiratory complications were 10.4% most frequent is pneumonia 52.5%, overall mortality due to the respiratory complication were seven and half percent and 27.8% morbidity related to respiratory complications. In India the incidence of respiratory complications following upper abdominal surgery is 20 to 25% and following lower abdominal surgery five to ten%.[5] Acute abdominal conditions, including peptic ulcer disease, appendicitis, and hernias are time critical illnesses that need urgent surgical care. These are common, treatable conditions in high income countries, but they remain important causes of premature mortality in India and many low income and 6 middle income countries where access to surgical care remains poor. There is growing recognition that mortality and morbidity from surgical diseases in low income and middle income countries could be reduced significantly by scaling up basic, life saving surgical care. Reducing mortality from surgical diseases, including deaths from acute abdominal conditions, will require better knowledge of where deaths occur, and the barriers to accessing surgical care. In India, as in many other low income and middle income countries, limited population based data exist to quantify the number and distribution of causes of death. About 75% of all deaths in India occur at home without medical attention and in the absence of national civil registration with medical certification at time of death, alternative systems to determine causes of death are neededespecially where significant socioeconomic inequalities exist that affect disease risk and access to health care.[6]

Review of literature: A descriptive study was conducted among patients undergoing abdominal surgeries in selected hospitals of Maharashtra. Globally millions of people every year required urgent time the critical emergency abdominal surgery resolve such as potentially catastrophic small bowel obstruction gastrointestinal perforation hemorrhage, intensive cancerous tumors, blunt force / penetrative trauma injuries and peritonitis.

Emergency surgery account for approximately 11% of total surgical cases in USA yet disproportionately can contribute to half of all surgical death and a third of all complication. Postoperative outcome following emergency abdominal surgery are generally poorer when compared to electives the most common serious complication after emergency abdominal surgery is a postoperative pulmonary complication (PPC) with an incidence rate 20-50% emergency surgery is the single greatest risk factors for a PPC much greater than the risk attributed to

others types of surgeries and existing patients co morbidities.[1] In India the incidence of respiratory complications following upper abdominal surgery is 20-25 percent and following lower abdominal surgery five to 10 percent.Abdominal surgery is the most frequently undertaken surgery type in Australia and New Zealand. At least 130,000 operations were performed in 2012-2013 across 246 hospitals in Australia alone and this is increasing by 25% per year (AIHW 2013). World wide, approximately 500 to 1,000 22 procedures per 100,000 head of population are performed annually in developed countries 3 Acute appendicitis is the most frequent etiology of acute surgical abdominal pain in developed countries.[1] Its currently approved standard of treatment is appendectomy. In the USA, the annual number of people undergoing appendectomy in acute care hospital is estimated at 300 000 Some studies done in Brazil, Sweden, China and the USA report SSI prevalence rates of 7.2%, 5.9%, 6.2% and 2.9%, respectively, after appendectomy.[4]

Assumption:

1. Patients may have some knowledge on PPC.
2. The demographic variables may influence on knowledge of patients with regard to PPC.

3. Effect of VATM on PPC may enhance the knowledge of patients.

Limitations: (1) Assessment of knowledge with regard to prevention of post operative complications. (2) The sample size is limited to 60 patients. (3) Patients whoare undergoing abdominal surgeries and willing to participate in the study.

HYPOTHESIS

- **H_1:** There is significant difference between pretest and posttest knowledge score regarding PPC among patients undergoing abdominal surgeries.
- **H_2:** There is significant association between posttest knowledge score on PPC among patients undergoing abdominal surgeries and demographic variables.

METHODOLOGY

Research approach: An experimental research approach was used for the study.

Research design: Quantitative, quasi-experimental one group pre-test & post-test design.

Variables under study: Dependent Variable: -knowledge on prevention of post operative complications.

Independent Variable: Structured teaching Module on effect on video assisted teaching module on prevention of post operative complications.

Accessible population: available of patients undergoing abdominal for present surgeries particular research studypresent at the time of research study were accessible populations.

Sample and sampling technique

Sample: patients undergoing abdominal surgeries in selected hospitals at Maharashtra were the samples for present study.

Sample size: Samples size was 60 calculated based on sample size determination formula.

Sampling technique: The convenient sampling technique was used to select patients undergoing abdominal surgeries in selected hospitals of Maharashtra. As per the tentative schedule of data collection, the investigator has selected the housewife conveniently on first come first basis after informed consent.

Inclusion criteria - Gave consent to participate in the study. were be available at the time of data collection.

Exclusion criteria: Who were critically ill.

Tool preparation: Tool used for the research study was structured knowledge questionnaire on prevention of post operative complications. The tool was prepared after extensive review of literature search, consultation with experts, and based on the past experience of the investigator.

DEVELOPMENT OF TOOL

The research instrument consists of two parts

Part A - Demographic data: It is related to seeking information on demographic variable of patients undergoing abdominal surgeries such as Age, Gender, Religion, Education, Monthly income, Occupation, area of residence, past history of surgery.

Part B – Structured knowledge questionnaires and observational checklist: It is related multiple choice questions on prevention of post operative complications. This multiple choice question (MCQ) Total 30 items. The questionnaire has 4 areas i.e. prevention of post operative complications, Impact of post operative complications of patients, Knowledge of patients undergoing abdominal

surgeries, Prevention of prevention of post operative complications.

Validation of the tool: To ensure The Content validity of SAQ and STM were established in consultation with 10 experts from the field of Medical Surgical nursing, preventive and social medicine expert, statistician, language expert. The experts were requested to give their opinions and suggestions regarding the relevance, adequacy and appropriateness of the tool. Their suggestions were taken into consideration in the preparation of the tool and structured teaching module (STM).

Reliability: In order to establish reliability of the tool, test re test method was used. Reliability of the tool was 0.78 and 0.99 which showed that tool was highly reliable.

Feasibility of the study: The investigator conducted a Pilot study.

Pilot study: The pilot study was conducted from 21/09/2019 to 28/09/2019 on after prior permission from concerned authority. Eight (08) patients were selected using convenient sampling technique from selected rural area of Maharashtra state. To assess the feasibility of the study and to decide the plan for analysis.

DATA COLLECTION PROCEDURE

The investigator has obtained formal permission from consent authorities in selected hospitals of patients undergoing abdominal surgeries pre operative and post operative urban & rural, Maharashtra for the conduct research study. The inform consent was obtained from each patients for their wiliness to participate in the study and data will be kept confidential. The period of data collection was from 16th December 2019. The data were collected by the investigator. Pre-test was conducted on patients undergoing abdominal surgeries of Maharashtra. Who fulfilled the inclusion criteria soon after the pre-test structured knowledge questionnaires was administered. Investigator dictates and one by one and put (√) mark on the right option mentioned below each question. If they required. On the same day of pre-test, given one video assisted teaching module to the patients to teach regarding the prevention of post operative complications. Told them about posttest after 7 days. The post test was conducted by using the same tool used for pre-test on 7th day of the intervention.

Plan for data analysis: (1) Description of demographic characteristics of the housewives was computed by using frequency and percentage. (2) Mean, Standard deviation of pre and post-test knowledge scores was computed. (3) "t" test was applied to determine the significance of mean difference between mean pre-test and post-test knowledge scores. (4) Chi-square test was used to find the association of knowledge score with demographic variables and the findings were documented in tables, graphs and diagram.

Scoring mode: Score 1 was given to every correct answer. 0 was given to every wrong answer. Based on the percentage of scores, level of knowledge was graded as Poor-5 to below Average-6 to 10, Good-11 to 16. Very good-17 to 21, Excellent – 22 above.

RESULTS

Section–I: Table 1: Distribution of patients undergoing abdominal surgeries according to their demographic variables.

n=60

Demographic Variables	No. of Housewives	Percentage (%)
Age (yrs)		
22-28 yrs	22	36.0
29-41yrs	24	40.0
39- 48 yrs	09	15.0
49-60 yrs	05	8.3
Gender		
Male	26	43.3
Female	34	56.7
Education		
No Formal Education	5	8.3
Formal Education	22	36.7
Primary	10	16.7
Secondary	23	38.3

Religion		
Hindu	39	65.0
Muslim	6	10.0
Christian	5	8.3
Others	10	16.7
Monthly Family Income (Rs.)		
<5000 Rs	17	28.3
5000-10000 Rs	30	50.0
10000-15000 Rs	8	13.3
>15000 Rs	5	8.3
Occupation		
Govt. Job	4	6.7
Private Job	32	36.7
Business	17	16.7
Unemployment	07	38.3
Area of residence		
Rural	28	46.7
Urban Slum	17	28.3
Urban	15	25.0
Past History of Surgery		
Yes	7	11.7
No	53	88.3

Section-II: Assessment of knowledge regarding prevention of post operative complications among patients undergoing abdominal surgeries before intervention

Table 2: Percentage distribution of knowledge on PPC among patients undergoing abdominal surgeries before intervention.

n=60

Level of knowledge	No of Patients	Percentage of knowledge	Mean	SD
Excellent	-	-	-	-
Very Good	-	-	-	-
Good	03	5%	14.33	2.30
Average	16	26.6%	9.25	1.61
Poor	41	68.3%	4.19	0.95
Overall	60	20.16%	10.60	3.18

Table 3: Area wise percentage distribution and Area wise Mean & Standard deviation of knowledge on prevention of post operative complications among patients undergoing abdominal surgeries.

n=60

Area	Item	Percentage of knowledge	Mean	SD
General information on of abdominal surgeries	3	22.2%	0.66	0.65
Knowledge of patients on risk factor of abdominal surgeries	3	17.2.33%	0.51	0.65
Post operative complications of abdominal surgeries	6	22.5.66%	1.35	1.08
Prevention of post operative complications of abdominal surgeries	18	20.4%	3.68	2.07
Overall	30	20.16%	11.60	3.18

Section-III: Assessment of knowledge on prevention of post operative complications among patients undergoing abdominal surgeries after intervention.

Table 4: Percentage wise distribution of knowledge on prevention of post operative complications among after intervention patients undergoing abdominal surgeries.

n=60

Level of knowledge	Pre-test		Post-test		Difference in Percentage
	Frequency	Percentage	Frequency	Percentage	
Excellent	–	–	1	1.67%	+1.676%
Very good	–	–	10	16.67%	+16.6%
Good	03	5 %	43	71.47%	+40.%
Average	16	26.6%	6	10%	-10%
Poor	41	68.3%	–	–	-41%
Overall	60	20.16%	60	55.16%	35%

Table 5: Mean SD & Mean percentage of knowledge on prevention of post-operative complications among patients undergoing abdominal surgeries after intervention

n=60

Level of knowledge	Pre-test		Post-test		Difference in mean %	
	Mean± SD	Mean%	Mean± SD	Mean%	Mean± SD	Mean%
Excellent	-	-	25.0±0.00	1.6 %	25.0 ± 00	+1.6%
Very good	-	-	21.10±2.02	16.67%	21.10±2.02	+16.67%
Good	14.33±2.30	5%	15.97±1.62	71.47%	+1.64±0.68	+66.67%
Average	9.25±1.61	26.6%	11.66±0.51	10%	2.41±1.1	-16.6%
Poor	4.19±0.95	68.3%	-	-	-	+68.3%
Overall	6.05±3.18	20.16%	16.55±3.14	55.16%	0.11±0.04	35%

Table 6: Area wise percentage distribution, Mean SD & % of knowledge on prevention of post operative complications among patients undergoing abdominal surgeries after intervention

n=60

Area wise percentage distribution					Areas wise Mean SD & %					
					Pre-test		Post-test		Difference in mean %	
Areas	Item	Pre-test %	Post-test %	Difference in %	Mean ± SD	Mean %	Mean ± SD	Mean %	Mean ± SD	Mean %
General information on abdominal surgeries	3	22.2%	61.66%	+39.4%	0.66±0.65	22.2 %	0.66±0.65	22.22 %	1.19±0.05	39.46%
Knowledge of patients on risk factor of abdominal series	3	17.2%	52.77%	+35.5%%	0.51±0.65	17.2%	0.51±0.65	17.22%	1.07±0.14	35.55%
Postoperative complications of abdominal surgeries	6	22.5%	56,38%	+33.8%	1.35±1.8	22.5%	1.35±1.8	22.50%	2.03±0.17	33.88%
PPC of abdominal surgeries	18	20.4 %	55.18%	+34.7%	3.68±2.07	22.4%	3.68± 2.07	22.46%	6.25±0.28	34.72%
Overall	30	20.16%	55.16%	35%	6.05 ±3.18	20.1 %	16.55±3.14	55.16%	0.11±0.04	35%%

Section-IV: Effect on prevention of post operative complications among patients undergoing abdominal surgeries after intervention.

Table 7: Area wise effect of VATM on prevention of post operative complications among patients undergoing abdominal surgeries

n=60

Area of knowledge	Pre-test	Post-test	t-value	p-value
	Mean ±SD	Mean ±SD		
General information on abdominal surgeries	0.66±0.65	1.85±0.60	11.27	0.0001 S.p<0.05
Knowledge of patients on risk factor of abdominal series	0.51±0.65	1.85±0.51	1.06	0.0001 S.p<0.05
Postoperative complications of abdominal surgeries	1.35±1.08	3.38±2..91	13.88	0.0001 S.p<0.05
PPC of abdominal surgeries	3.68±2.07	9.93±2.35	21.35	0.0001 S.p<0.05
Overall	6.05 ±3.18	16.5±3.14	34.13	0.003 S.p<0.05

Table 8: Overall Effect of VATM on prevention of post operative complications among patients undergoes abdominal surgeries.

n=60

Level of knowledge	Pre-test	Post-test	t value	p value
	Mean ± SD	Mean ± SD		
Excellent	-	25.0±0.00	11.27	0.0001 S.p<0.05
Very good	-	21.10±2.02	1.06	0.0001 S.p<0.05
Good	14.33±2.30	15.97±1.62	13.88	0.0001 S.p<0.05
Average	9.25±1.61	11.66±0.51	21.35	0.0001 S.p<0.05
Poor	4.19±0.95	-	–	0.0001 S.p<0.05
Overall	6.05±3.18	16.55±3.14	34.13	0.0001 S.p<0.05

With Student's paired' test applied at 5% level of significance 't' value was

Section-V: Association between posttest knowledge score prevention of post operative compilations and demographic variables of patients undergoing abdominal surgeries.

Table 9: Association of posttest knowledge score on prevention of post operative complications among patients undergoing abdominal surgeries with their demographic variables.

n=60

–		No. of patients	Mean posttest knowledge score	F-value	p-value
Age (years)	18-28 yrs	22	16±2.37	1.28	0.28 NS, p>0.05
	29-39 yrs	24	17.50±3.76		
	39-48 yrs	9	16±3.04		
	49-60 yrs	5	15.40±2.70		
Gender	Male	26	16.69±3.39	0.30	0.76 NS,p>0.05
	Female	34	16.4±2.99		

Education	No formal Education	05	14.80±3.03	0.86	0.46 NS,p>0.05
	Formal Education	22	17.04±2.95		
	Primary	10	15.90±1.37		
	Secondary	23	16.73±3.82		
Religion	Hindu	39	16.87±3.46	1.50	0.22 NS,p>0.05
	Muslim	6	17.50±1.64		
	Christian	05	16.60±2.60		
	Others	10	14.70±2.21		
Monthly Family Income (Rs)	<5000 Rs	17	15.82±3.00	1.64	0.18 NS,p>0.05
	5000-10000 Rs	30	16.30±2.58		
	10000-15000 Rs	8	18.62±3.92		
	>15000 Rs	05	17.20±4.76		
Occupation	Govt. Job	04	18±5.09	1.53	0.21 NS,p>0.05
	Private Job	32	16.90±3.42		
	Business	17	16.41±2.18		
	Unemployment	07	14.42±1.98		
Area of Residence	Rural	28	16.32±2.81	1.97	0.14 NS, p>0.05
	Urban Slum	17	15.76±2.63		
	Urban	15	17.86±3.97		
Past history of Surgery	Yes	7	17±4.58	0.39	0.69 NS,p>0.05
	No	53	16.49±2.96		

Organization of the data: The collected data is tabulated, analyzed, organized and presented under the following sections:

TESTING OF HYPOTHESIS

H_1: There is a significant difference between pre-test and post-test knowledge score on prevention of postoperative complication among patients undergoing abdominal surgeries.

In the present study, a significant difference (t=.35); p=0.001 at 0.05 level of significance) between pre-test and post-test knowledge score among Housewives was observed and hence, it is inferred that the VATM was effective in improving the knowledge of patients regarding prevention of post operative complication patients undergoing abdominal surgeries and the Research Hypothesis H1 Accepted.

H_2: Significant- p<0.05

For the variable like Age, Gender, education, religion, monthly income occupation area of residence the p value of the chi square test with knowledge and skill was less than 0.05. Concludes that there was significant association except past history of surgery of these demographic variables with the knowledge of the housewives at the time of pre-test. (H_2) hypothesis was accepted.

SUMMARY

- Majority (40%) of patients were 29-39 years.
- Majority (56.70%) of female patients had abdominal surgeries.
- Majority of (38.30%) patients had to Education.
- Around (65%) of patients undergoing abdominal surgeries Hindu.
- Around (50%) patients undergoing abdominal surgeries had monthly income is 5000 - 10000.
- Around (53.30%) Patients undergoing abdominal surgeries had private job.
- majority (46.70%) of Patients undergoing Abdominal surgeries were living in rural Area.
- majority 88.30% of them were no past History of surgery patients undergoing abdominal surgeries Before intervention, overall knowledge among patients undergoing abdominal surgeries was around 20.16%.
- Before intervention, the patients undergoing abdominal surgeries hadmean knowledge score of 10.60 ± 3.18.
- After intervention, overall knowledge among patients undergoing abdominal surgeries

was around 55.16%

- After intervention, the patients undergoing abdominal surgeries had mean knowledge score of 16.55±3.14
- There was a significant difference between mean pre-test and post test scores of knowledge among patients undergoing abdominal surgeries (t=34.13%), p= 0.0001 p>0.05).
- There was significant association (F=1.2 8p<0.05) between knowledge scores and age in years of patients.
- There was significant association (F=30, p<0.05) between knowledge scores and in gender of patients.
- There was significant association (F=0.86, p<0.05) between knowledge scores and education.
- There was significant association (F=1.50, p<0.05) between knowledge scores and religion.
- There was no significant association (F=1.64, p>0.05) between knowledge scores and monthly income.
- There was no significant association (F=1.53, p>0.05) between knowledge scores and occupation.
- There was no significant association (F=1.97, p>0.05) between knowledge score and area of residence.
- There was no significant association (F=0.39, p>0.05) between knowledge score and area of past history of surgery.
- The demographic variables such as age, education, religion, monthly income, source of information are having association with pre-test knowledge on prevention of post operative complication.

➢ Highly significance difference found between the pre -test and post- test knowledge scores at the level of (P<0.05).

➢ VATM proved to be effective in improving the knowledge of prevention of post operative complication among patients undergoing abdominal surgeries.

CONCLUSION

Around 60 Patients undergoing abdominal surgeries were selected by Conveniently sampling method working in hospitals. To assess the knowledge after teaching on VATM of selected hospitals of Maharashtra. The SIS was used before & after teaching. The result shows that significant differences in "t" value (t=17.37, p<0.0001). the study findings revealed that the instructional method like VATM are useful study among Patients undergoing abdominal surgeries. Therefore, the VATM as a instructional method is on PPC among Patients Undergoing abdominal surgeries hospitals.

RECOMMENDATIONS

The present study recommendations the following in different areas

- A similar study can be done on large scale.
- comparative study can be undertaken to find out the difference in knowledge among housewives urban and rural areas.
- A similar study can be undertaken with a control group.
- A similar study can be undertaken on domains of practice.
- A similar study can be conducted among patients.
- A similar study can be conducted by using video assisted teaching module.

REFERENCES

1. Boden et al. world journal of emergency surgery Published online 2018 Jul 3. (2018) 13; 29 doi .org, 10.1186, s13017-018-0189-y.
2. Bijoy Thomas, ImmalarajuSujani, SunithaReji John, Dane Rogers, Savitha, Anil Raj Manipal College of Nursing Manipal, Manipal University, Manipal (Karnataka) IndiaAsia Pacific Journal of Research Vol: I Issue XX,(Serial on internet) 2014;: 104110.
3. Reeve J, Boden I. The physiotherapy management of patients undergoing abdominal surgery. New Zealand Journal of Physiotherapy. 2016;44(1):33-49
4. Danwang C, Mazou T, Tochie J, Nzalie R, Bigna J. Global prevalence and incidence of surgical site infections after appendectomy: a systematic review and meta-analysis protocol. BMJ Open. 2018;8(8):e020101.
5. Kong V, Sartorius B, Clarke D. Acute appendicitis in the developing world is a morbid disease. The Annals of The Royal College of Surgeons of England.
6. Danwang C, Mazou T, Tochie J, Nzalie R, Bigna J. Global prevalence and incidence of surgical site infections after appendectomy: a systematic review and meta-analysis protocol. BMJ Open. 2018;8(8):e020101