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Effectiveness of thirst bundle on reduction of thirst intensity and dryness of mouth among postoperative patient's undergone abdominal surgery: A Pilot study

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ABSTRACT

Background: Most of the health care providers do not assess the patients for thirst & dryness of mouth, which leads to some severe complications like: Increase in thirst intensity of pain and dyspnoea. Ingestion of cold liquid in the mouth can reduce the perception of thirst. The fact indicates that cold fluids reduce the thirst with more effectiveness than hot or warm water. **Objectives:** 1) To determine the level of thirst intensity and dryness of mouth among postoperative patients undergone abdominal surgery in experimental & control group. 2) To evaluate the effectiveness of thirst bundle on reduction of thirst intensity & dryness of mouth among postoperative patients undergone abdominal surgery in experimental group. 3) To compare the effectiveness of thirst bundle on reduction of thirst intensity & dryness of mouth among postoperative patients undergone abdominal surgery between experimental & control group. **Research question:** Is thirst bundle an effective intervention to reduce thirst intensity and dryness of mouth immediately after surgery? **Setting:** The study was conducted in the surgical wards (male surgical ward), in tertiary level teaching Hospital. **Samples:** 10 samples with postoperative patient's undergone abdominal surgery were selected for the study. **Results:** The findings of the study revealed that after administration of thirst bundle intervention, the mean thirst intensity score was significantly lower (t=9.2, df=8, p=0.05) in experimental group (mean=2.6) than control group (mean=6.4). The mean dryness of mouth score was significantly lower (t=6.06, df=8, p=0.05) in experimental group (mean=1.4) than control group (mean=5.4). **Conclusion:** Thirst bundle intervention was effective in decreasing thirst intensity and dryness of mouth among postoperative patients. The study focuses on use of thirst bundle intervention by nurses to relive thirst intensity and dryness of mouth among patients.

KEYWORDS: Thirst bundle, Thirst intensity, Dryness of mouth, Abdominal surgery, Postoperative patients, Nil Per Oral (NPO).

INTRODUCTION:

"Not only the thirsty seeks the water
the water as well seeks the thirsty"

Water is the basic necessity for the functioning of all life forms that exists on earth. The human body comprises of 70% water. It is the basic necessity for the day-to-day survival. Thirst is a sensational stimulation occurring due to deficit of fluid in either on both the intracellular or extra-cellular fluid compartment for which the body responds by drinking water. The patient undergoing operative procedure and surgeries who are kept nil per oral have significant distress of thirst. And on the other hand, dryness of mouth is a symptom of post-operative patient which occurs due to NPO (Nil Per Oral) status, also the medicines used in intraoperative and post-operative period affects the flow of saliva. Simple nursing interventions can manage this problem using thirst bundle intervention.

NEED FOR THE STUDY:

The first 24 hours of postoperative period after surgery is considered as crucial period, as the patient requires certain intervention specific to post anaesthetic care. Patient are kept NPO route to prevent the complication which can be caused due to effect of general or spinal anaesthesia such as nausea and vomiting which can lead to aspiration. The NPO status causes distressing symptoms like thirst and dryness of mouth for the patient. During the postoperative phase, the patient frequently experiences the desire to drink fluids, but oftenly this is undocumented by nurse. During this time patient feels dry mouth, throat & tongue, difficulty in speaking, saliva that feels thick & stringy, bad breath, presence of coated teeth, cracked lips, more distress and discomfort due to thirst. As assessment and evaluation of thirst & dryness of mouth are not performed regularly are unappreciated and under-studied**.**

A study has formulated a safety protocol for management of thirst and dryness of mouth among postoperative patients who are in NPO status. Assessing level of consciousness, reflexes to protect airways such as swallowing and coughing and also there is need to manage nausea and vomiting which eventually result in thirst and dryness of mouth. A thirst bundle can be a solution to maintain the level of thirst as it consists of wetting of mouth, spraying with cold sterile water to minimize thirst. Cold water satiates thirst more effectively than body temperature water. And it is also preferred because it offers greater relief from dryness of mouth. There is greater stimulation for saliva production from cold water than warm water. Which may in turn, reduces dryness of mouth. So, investigator found a solution for thirst intensity and dryness of mouth by using simple nursing intervention such as wet gauge swab & with sterile cold-water spray.

STATEMENT OF THE PROBLEM:

"A study to evaluate the effectiveness of thirst bundle on reduction of thirst intensity and dryness of mouth among postoperative patients undergone abdominal surgery in Tertiary level teaching Hospital, Sattur, Dharwad."

OBJECTIVES OF THE STUDY:

1. To determine the level of thirst intensity and dryness of mouth among postoperative patients undergone abdominal surgery in experimental & control group.
2. To evaluate the effectiveness of thirst bundle on reduction of thirst intensity & dryness of mouth among postoperative patients undergone abdominal surgery in experimental group.
3. To compare the effectiveness of thirst bundle on reduction of thirst intensity & dryness of mouth among postoperative patients undergone abdominal surgery between experimental & control group.

HYPOTHESIS:

1. **H_1**: Mean post interventional scores of thirst intensity & dryness of mouth will be significantly lower than pre-interventional scores among post-operative patients of experimental group at 0.05 level of significance.
2. **H_2**: Mean post interventional scores of thirst intensity & dryness of mouth of postoperative patients in the experimental group will be significantly lower than control group at 0.05 level of significance.

OPERATIONAL DEFINITIONS:

1. Evaluate

In this study, it refers to determine the effectiveness of thirst bundle on reduction of thirst intensity & dryness of mouth by assessing scores of thirst intensity on numeric rating scale & scores of dryness of mouth on challacombe scale.

2. Effectiveness

In this study, it refers to determine the intervention of thirst bundle for its desired effect on reduction of thirst intensity and dryness of mouth among NPO postoperative patients.

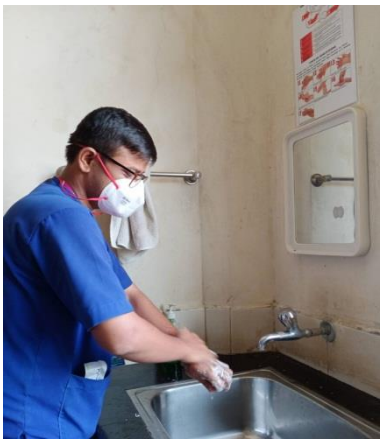
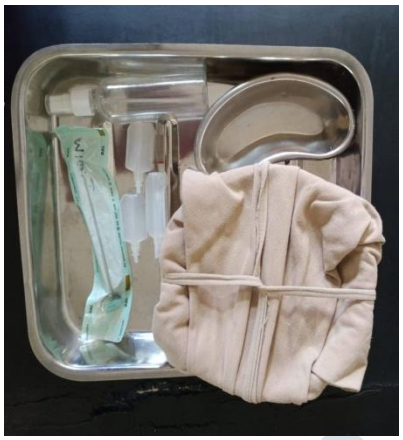
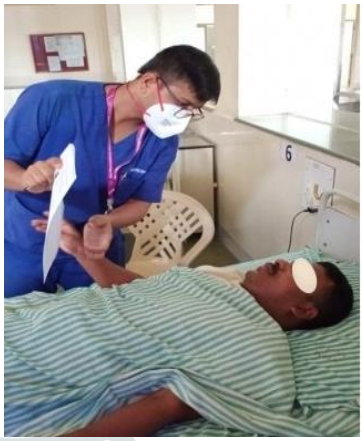
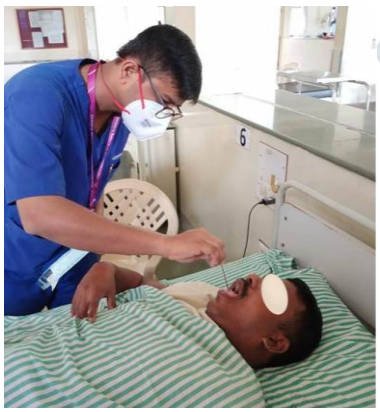
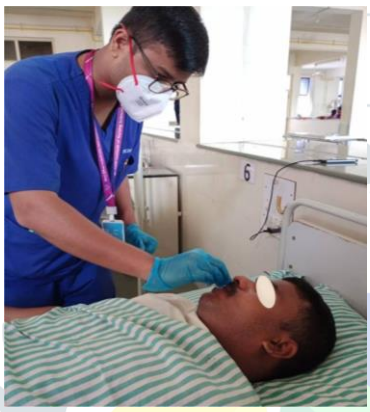
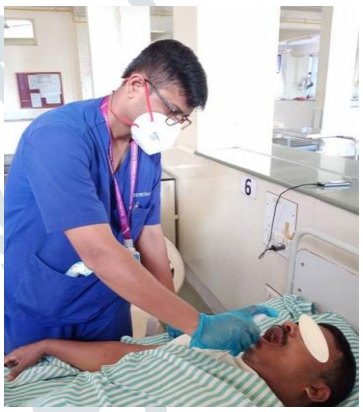
3. Thirst Bundle

In this study, thirst bundle is a series of steps carried out for experimental group postoperative patients composed of sterile oral gauze piece to moisten the mouth, sterile water spray to moisten the oropharynx & tongue.

- STEP 1: Moisten the mouth by sterile oral gauze piece over 3 wipes followed by;
- STEP 2: Squirt spray bottle containing sterile water to be sprayed in oropharynx and

tongue over 6 sprays with 10 seconds gap between each spray.

- Repetition of step 1 and step 2 for two more times.
- So, a patient totally receives 9 wipes and 18 sprays. (18 sprays contain 1.8 ml of sterile water.)

4. Thirst Intensity

In this study, thirst intensity is the feeling of desire to drink water, marked / notable on a Numeric Rating Scale of 1 to 10 where less than 3 indicates no thirst & 3 or more indicates presence of thirst.

5. Dryness of mouth

In this study, dryness of mouth refers to lack of saliva in mouth among NPO postoperative patients who experiences irritation or discomfort which is determined by scores obtained on a standardized Challacombe scale, also called as Clinical Oral Dryness Score (CODS).

6. Postoperative patients

In this study, patients are postoperative adults of surgical unit (male & female surgical ward), who have undergone abdominal surgery under general or spinal anesthesia and who were kept nil per oral in preoperative phase for at least 6 hours.

7. **Abdominal surgery**

In this study, abdominal surgery refers to the surgical procedures done in a client's abdominal region to treat a surgical condition for instance hernia, cholelithiasis, appendicitis & intestinal obstruction.

RESEARCH METHODOLOGY:

- **Research approach:** Quantitative evaluative approach was used in this proposed study.
- **Research design:** A quasi experimental design (pre-test post-test control group design) is used in this proposed study.

Group	Pre-Test	Intervention	Post-Test
Experimental Group	O_1	X	O_2
Control Group	O_1	-	O_2

KKEYS

O_1:- Pre-test level of thirst intensity & dryness of mouth.

X: - Intervention (Thirst bundle intervention).

O_2: -Post-test level of thirst intensity & dryness of mouth.

- **Research study setting:** The study was conducted in the male surgical ward in Tertiary level teaching Hospital, Dharwad.
- **Population:** The postoperative patients undergoing treatment in Tertiary level teaching Hospital, Dharwad.
- **Sample:** Postoperative patient's undergone abdominal surgery.
- **Sampling procedure:** Non-Probability Purposive sampling technique.
- **Sample size:** 10 samples with 05 in experimental group and 05 in control group.

CRITERIA FOR SAMPLE SELECTION:

Inclusion criteria:

Patients who were:

1. of both gender with an age group between 20 - 45 years.
2. nil per oral route for minimum of 6 hours including pre-operative NPO period.
3. conscious with GCS score of 15.
4. rated ≥ 3 on a numeric rating scale for thirst intensity.
5. willing to participate and are available during the study.
6. under general or spinal anaesthesia in post-operative recovery phase.

Exclusion criteria:

Patients who are:

1. on mechanical ventilation.
2. a mouth breather.

3. developed complications during surgery and during period of recovery from anaesthesia (bleeding, hypoglycaemia, nausea, vomiting, fever, etc.)

DESCRIPTION OF THE TOOL:

1. Part - I: Baseline variables
2. Part - II: Standardized numeric rating scale to assess the thirst intensity.
3. Part - III: Standardized challacombe scale to assess the dryness of mouth.

PILOT STUDY:

Pilot study was conducted on 10 samples. 5 each in experimental and control group from 05-07-2021 to 11-07-2021 in selected Hospital of city.

DATA COLLECTION PROCEDURE:

Data collection was started after obtaining necessary permission from the ethical committee. A formal administrative permission was obtained from the authorities of the proposed hospital. A written consent was obtained from the participants regarding their willingness to participate in the study. The investigator had done pre assessment of thirst intensity & dryness of mouth of postoperative patients of experimental & control group and thirst bundle intervention was implemented in experimental group, after that the investigator had done post assessment on both groups.

PLAN FOR DATA ANALYSIS:

The data obtained was analyzed using descriptive statistics (frequency & percentage distribution, Mean and standard deviation) & inferential statistics (Paired & Unpaired 't' test).

RESULTS AND DISCUSSION:

PART-I (A): Frequency and percentage distribution of subjects according to the socio demographic variables.

SR. NO	DEMOGRAPHIC VARIABLES	EXPERIMENTAL GROUP (5)		CONTROL GROUP (5)		TOTAL (10)	
		f	%	f	%	f	%
01.	AGE IN YEARS						
	21-25	0	0	0	0	0	0
	26-30	2	40	1	20	3	30
	31-35	2	40	1	20	3	30
	35-40	0	0	1	20	1	10
	41-45	1	20	2	40	3	30
02.	GENDER						
	Male	5	100	5	100	10	100
	Female	0	0	0	0	0	0
	Transgender	0	0	0	0	0	0

03.	**PERSONAL HABITS**						
	Smoking	**0**	**0**	**1**	**20**	**1**	**10**
	Tobacco chew	**0**	**0**	**2**	**40**	**2**	**20**
	No personal bad habits	**5**	**100**	**2**	**40**	**7**	**70**
04.	**MARITAL STATUS**						
	Single	**1**	**20**	**1**	**20**	**2**	**20**
	Married	**4**	**80**	**4**	**80**	**8**	**80**
	Separated /divorced	**0**	**0**	**0**	**0**	**0**	**0**
05.	**EDUCATIONAL STATUS**						
	Primary education	**3**	**60**	**2**	**40**	**5**	**50**
	Secondary education	**2**	**40**	**1**	**20**	**3**	**30**
	Graduate	**0**	**0**	**2**	**40**	**2**	**20**
	Post graduate & above	**0**	**0**	**0**	**0**	**0**	**0**
06.	**OCCUPATION**						
	Professional	**1**	**20**	**0**	**0**	**1**	**10**
	Arithmetic skill jobs	**2**	**40**	**3**	**60**	**5**	**50**
	Skilled jobs	**1**	**20**	**1**	**20**	**2**	**20**
	Unskilled jobs	**1**	**20**	**1**	**20**	**2**	**20**
	Unemployed	**0**	**0**	**0**	**0**	**0**	**0**

PART-I (B): Frequency and percentage distribution of subjects according to the clinical variables.

SR. NO	**DEMOGRAPHIC VARIABLES**	**EXPERIMENTAL GROUP (5)**		**CONTROL GROUP (5)**		**TOTAL (10)**	
		f	**%**	**f**	**%**	**f**	**%**
01.	**TYPE OF SURGERY**						
	Appendectomy	**2**	**40**	**2**	**40**	**4**	**40**
	Cholecystectomy	**0**	**0**	**1**	**20**	**1**	**10**
	Hernia repair	**3**	**60**	**2**	**40**	**5**	**50**
	Others	**0**	**0**	**0**	**0**	**0**	**0**
02.	**TYPE OF ANESTHESIA**						
	General	**2**	**40**	**2**	**40**	**4**	**40**
	Spinal	**3**	**60**	**3**	**60**	**6**	**60**
03.	**HISTORY OF ANY COMORBID ILLNESS**						
	Yes	**0**	**0**	**0**	**0**	**0**	**0**
	No	**5**	**100**	**5**	**100**	**10**	**100**
04.	**HISTORY OF PREVIOUS SURGERIES**						
	Yes	**0**	**0**	**0**	**0**	**0**	**0**
	No	**5**	**100**	**5**	**100**	**10**	**100**

05.	**DURATION OF NPO (HOURS)**						
	06-08	**0**	**0**	**0**	**0**	**0**	**0**
	09-11	**0**	**0**	**0**	**0**	**0**	**0**
	12-14	**4**	**80**	**3**	**60**	**7**	**70**
	15-17	**1**	**20**	**2**	**40**	**3**	**30**
06.	**DRUGS PRESCRIBED**						
	Yes	**5**	**100**	**5**	**100**	**10**	**100**
	No	**0**	**0**	**0**	**0**	**0**	**0**

1. **The first objective was to determine the level of thirst intensity and dryness of mouth among postoperative patient's undergone abdominal surgery in experimental & control group.**

THIRST INTENSITY

Table 1: Frequency st intensity in experimental & control group. **N=10**

SR.NO	LEVEL OF THIRST INTENSITY	EXPERIMENTAL GROUP		CONTROL GROUP	
		PRE-TEST		PRE-TEST	
		f	%	f	%
1	Normal	0	0	0	0
2	Mild	0	0	0	0
3	Moderate	4	80	5	100
4	Severe	1	20	0	0

- **In pre test,** majority of the patients in the experimental & control group had moderate thirst intensity.

DRYNESS OF MOUTH

Table 1.1: Frequency & percentage distribution of pre-test level of dryness of mouth in experimental & control group. **N=10**

SR.NO	LEVEL OF THIRST INTENSITY	EXPERIMENTAL GROUP		CONTROL GROUP	
		PRE-TEST		PRE-TEST	
		f	%	F	%
1	Normal	0	0	0	0
2	Mild	0	0	1	20
3	Moderate	5	100	4	80
4	Severe	0	0	0	0

- **In pre-test,** majority of the patients in the experimental & control group had moderate dryness of mouth.

2. **The second objective was to evaluate the effectiveness of thirst bundle on reduction of thirst intensity & dryness of mouth among postoperative patient's undergone abdominal surgery in experimental group.**

THIRST INTENSITY

Table 1.2: Comparison of pretest & posttest scores of thirst intensity among postoperative patients undergone abdominal surgery in experimental group. n=5

Sr.no	Test	Mean	SD	Mean difference	Degree of freedom	P value	Calculated Paired 't' test value	Table 't' value
1	Pre test	5.6	1.1	3	4	<0.05	t=10 S P<0.05	2.78
2	Post test	2.6	0.89					

Table 1.2 shows that the pretest mean value was 5.6 with standard deviation of 1.1 & the posttest mean value 2.6 with standard deviation 0.89. The mean difference between the pre & posttest level of thirst intensity score was 3. The calculated paired 't' test value was 10, which showed that there was a significant difference between the pre & posttest level of thirst intensity among postoperative patients undergone abdominal surgery in experimental group at 0.05 level of significance.

DRYNESS OF MOUTH

Table 1.3: Comparison of pretest & posttest scores of dryness of mouth among postoperative patients undergone abdominal surgery in experimental group n=5

Sr.no	Test	Mean	SD	Mean difference	Degree of freedom	P value	Calculated Paired 't' test value	Table 't' value
1	Pre test	4.6	0.54	3.2	4	<0.05	t=8.5 S P<0.05	2.78
2	Post test	1.4	0.89					

Table 1.3 shows that the pretest mean value was 4.6 with standard deviation of 0.54 & the post test mean value 1.4 with standard deviation 0.89. The mean difference between the pre & post test of level of dryness of mouth score was 3.2. The calculated paired 't' test value was 8.5 which showed that there was a significant difference between the pre & post test level of dryness of mouth among postoperative patients undergone abdominal surgery in experimental group at 0.05 level of significance

- Referring to tabulated 't' value at 4 degrees of freedom (df) for the 0.05 level of significance, the calculated 't' value of thirst intensity & dryness of mouth is more than tabulated 't' value then **we accept research hypothesis and reject null hypothesis**
- Hence, we can infer that the thirst bundle intervention was effective in reducing thirst intensity and dryness of mouth among postoperative patients undergone abdominal surgery in experimental group.
- **Therefore 2nd objective is achieved and 1st Research hypothesis is accepted.**

3. **The third objective was to compare the effectiveness of thirst bundle on reduction of thirst intensity & dryness of mouth among postoperative patients undergone abdominal surgery between experimental & control group.**

THIRST INTENSITY

Table 1.4: Comparison of post-test scores of thirst intensity among postoperative patients undergone abdominal surgery in experimental group & control group. N=10

Sr.no	Test	Mean	SD	Mean difference	Degree of freedom	P value	Calculated Paired 't' test value	Table 't' value
1	Pre test	2.6	0.89	-3.8	0.35	9.2	2.31	8
2	Post test	6.4	0.54					

Table 1.4 shows that the experimental group post test mean value was 2.6 with standard deviation of 0.89 & the control group post test mean value was 6.4 with standard deviation 0.54. The mean difference between the experimental and control group post test of level of thirst intensity score was -3.8 with standard difference 0.35. The calculated unpaired 't' test value was 9.2 which showed that there was a significant difference between the experimental and control group post test scores of thirst intensity among postoperative patients undergone abdominal surgery at 0.05 level of significance

DRYNESS OF MOUTH

Table 1.5: Comparison of post-test scores of dryness of mouth among postoperative patients undergone abdominal surgery in experimental group & control group. N=10

Sr. no	Group	Mean	SD	Mean difference	Standard difference	Unpaired 't' test	Table value	df	Significance
1	Experimental Group	1.4	0.89	-4	0.35	6.06	2.31	8	S
2	Control group	5.4	0.54						

Table 1.5 shows that the experimental group post test mean value was 1.4 with standard deviation of 0.89 & the control group post test mean value was 5.4 with standard deviation 0.54. The mean difference between the experimental and control group post test of level of thirst intensity score was -4 with standard difference 0.35. The calculated unpaired 't' test value was 6.06 which showed that there was a significant difference between the experimental and control group post test scores level of thirst intensity among postoperative patients undergone abdominal surgery at 0.05 level of significance

- Referring to tabulated 't' value at 8 degrees of freedom (df) for the 0.05 level of significance, the calculated 't' value of thirst intensity & dryness of mouth in experimental and control group is more than tabulated 't' value then we accept research hypothesis and reject null hypothesis

- Hence, we can infer that the thirst bundle intervention was effective in reducing thirst intensity and dryness of mouth among postoperative patients undergone abdominal surgery in experimental group.

- **Therefore 3rd objective is achieved and 2nd Research hypothesis is accepted.**

LIMITATIONS:

- This study was limited to patients with postoperative abdominal surgeries.
- This study was limited to selected hospital of city.
- Interventions were given only twice to the patients.
- Duration of NPO status varied between the different subjects, undergoing different surgeries for general surgeries subject was longer.
- Only one observation was done for each patient to assess effectiveness of the intervention.

RECOMMENDATIONS:

- The same study can be conducted on larger samples for better generalization.
- The similar study can be conducted with one group pre-test post-test.
- The similar study could be replicated in different settings.
- Study can be conducted using intervention session of longer duration as suggested by some subjects, which may benefit the patients.

- A descriptive study can be conducted to assess the attitude of the health care professional regarding the thirst management.

CONCLUSION:

The present study was undertaken "A study to evaluate the effectiveness of thirst bundle on reduction of thirst intensity and dryness of mouth among postoperative patient's undergone abdominal surgery in Tertiary teaching Hospital." Thirst intensity and dryness of mouth are common among postoperative patients who are nil per oral. In the assessment of 10 samples, evaluation of thirst intensity & dryness of mouth was done before and after the intervention of thirst bundle among experimental & control group. The findings revealed that thirst bundle intervention was effective in reducing thirst intensity and dryness of mouth among postoperative patient's undergone abdominal surgery in experimental group, at p value < 0.05. Therefore, simple nursing interventions can manage such problems using thirst bundle intervention**.**

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