A Study to Assess the Effectiveness of Oil Pulling on Constipation among Adolescent Students at Selected College Hostel, Coimbatore

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ABSTRACT

Constipation is a common gastrointestinal problem among adolescents and may negatively affect physical comfort, bowel habits, and quality of life. Non-pharmacological and low-cost supportive interventions are increasingly being explored for bowel health management. This study aimed to assess the effectiveness of oil pulling on constipation among adolescent students residing in a selected college hostel in Coimbatore.

A pre-experimental one-group pre-test and post-test design was adopted for the study. The study was conducted among 60 first- and second-year B.Sc. Nursing students selected through non-probability purposive sampling. Baseline socio-demographic variables and constipation levels were assessed using the Modified Wexner Constipation Scale. The participants were instructed to perform oil pulling using 10 ml of coconut oil for 10 minutes daily on an empty stomach for four weeks. Post-test assessment was conducted using the same tool after completion of the intervention.

Data were analysed using descriptive and inferential statistics including frequency, percentage, mean, standard deviation, and paired t-test. The findings revealed a reduction in the mean constipation score from 1.85 in the pre-test to 0.75 in the post-test. The calculated paired t-value was 8.12, which was statistically significant at $p < 0.001$. The results indicate improvement in constipation symptoms following the intervention.

The study findings suggest that oil pulling may be a simple, safe, low-cost, and supportive complementary practice for reducing constipation symptoms among adolescent students. The possible physiological explanation may include stimulation of salivary secretion, activation of the parasympathetic nervous system, relaxation response, and promotion of healthy morning bowel habits. However, the study was limited by the absence of a control group, small sample size, and short duration of follow-up. Further randomized controlled studies with larger samples are recommended to establish the effectiveness and physiological basis of oil pulling in constipation management.

INTRODUCTION

Constipation is a common gastrointestinal disorder characterized by infrequent bowel movements, hard stool consistency, difficulty in stool passage, or a feeling of incomplete evacuation. Functional constipation is

generally diagnosed when symptoms persist for several weeks or months without any identifiable structural or pathological abnormality. It is one of the most frequently reported digestive complaints among adolescents and young adults and may adversely affect physical comfort, appetite, concentration, sleep, emotional well-being, and overall quality of life.

Several factors contribute to constipation among adolescents, including inadequate dietary fiber intake, insufficient fluid consumption, sedentary lifestyle, stress, irregular bowel habits, altered sleep patterns, and unhealthy dietary practices. Hostel-residing students are particularly vulnerable because of academic workload, limited physical activity, irregular meal timings, consumption of low-fiber foods, and psychological stress associated with hostel adjustment and academic performance.

Persistent constipation may lead to abdominal pain, bloating, reduced appetite, hemorrhoids, and impaired daily functioning if not properly managed. Therefore, early identification and supportive management strategies are essential to improve bowel health and prevent complications.

In recent years, complementary and non-pharmacological approaches have gained increasing attention for bowel health management. Oil pulling is a traditional practice that involves swishing edible oil in the mouth for a specific duration and then spitting it out. Coconut oil is commonly used because of its antimicrobial, anti-inflammatory, and antioxidant properties. Although oil pulling is primarily practiced for maintaining oral hygiene, some evidence suggests that it may indirectly influence digestive health by promoting relaxation, stimulating salivary gland activity, encouraging parasympathetic nervous system activation, and supporting healthy morning routines that facilitate bowel movements.

The physiological basis of oil pulling in constipation management is not yet clearly established. However, the relaxation response associated with the practice may reduce stress-related autonomic imbalance, which is known to affect gastrointestinal motility. Additionally, the practice may encourage increased hydration awareness and regular bowel habits among adolescents. Despite these possible mechanisms, scientific evidence regarding the effectiveness of oil pulling in constipation management remains limited.

Therefore, the present study was undertaken to assess the effectiveness of oil pulling on constipation among adolescent students residing in a selected college hostel in Coimbatore **(Wassom MC 2023)**

Statement of the problem

A study to assess the effectiveness of oil pulling on constipation among adolescent students at selected college hostel, Coimbatore."

Objectives

- To assess the pre-test and post-test level of constipation among adolescent students.
- To evaluate the effectiveness of oil pulling on constipation among adolescent students.
- To determine the association between post-test constipation levels and selected demographic variables among adolescent students.

Operational definition

Assess: Assess refers to the process of collecting, measuring, and evaluating constipation levels among adolescent students using the Modified Wexner Constipation Scale before and after the intervention.

Effectiveness: Effectiveness refers to the reduction in constipation scores observed between the pre-test and post-test following the practice of oil pulling among adolescent students.

Oil Pulling: Oil pulling refers to the practice of swishing 10 ml of coconut oil in the mouth for 10 minutes daily on an empty stomach for four weeks and then spitting it out.

Constipation: Constipation refers to infrequent bowel movements, hard stool consistency, difficulty in passing stools, or incomplete bowel evacuation experienced by participants and measured using the Modified Wexner Constipation Scale.

Adolescent Students: Adolescent students refer to male and female B.Sc. Nursing students aged 18–19 years studying in first and second year and residing in the selected college hostel in Coimbatore.

College Hostel: College hostel refers to the residential accommodation facility provided for students within the selected college campus in Coimbatore.

Hypotheses

H1-There will be a statistically significant difference between pre-test and post-test constipation levels among adolescent students following oil pulling.

H2-There will be a statistically significant association between post-test constipation levels and selected demographic variables among adolescent students.

Assumption

- Oil pulling may support healthy bowel habits among adolescent students.
- Regular practice of oil pulling may contribute to reduction in constipation symptoms.
- Complementary non-pharmacological practices may help improve bowel comfort and bowel regularity.

Delimitation

- The study was limited to 60 adolescent students.
- The duration of the intervention was limited to four weeks.
- The study was conducted only among students residing in the selected college hostel.
- The study used a one-group pre-test post-test design without a control group.

Projected Outcome

The study is expected to determine whether oil pulling may help reduce constipation symptoms and improve bowel regularity among adolescent students residing in the selected college hostel.

Conceptual Framework

The conceptual framework of the present study was based on Modified Wiedenbach's Helping Art of Clinical Nursing Theory (1964). The theory emphasizes the nurse's role in identifying patient needs, providing supportive interventions, and evaluating outcomes. In this study, oil pulling was considered as a supportive nursing intervention aimed at improving bowel comfort and reducing constipation symptoms among adolescent students.

REVIEW OF LITERATURE

Goyal O., Nohria S., Dhaliwal A.S., Goyal P., and Soni (2023) conducted a cross-sectional descriptive study among college students aged 17–19 years in Punjab, India, to assess the prevalence of constipation and associated lifestyle factors. A total of 120 students were selected using a convenience sampling technique. Data were collected using the Rome IV Diagnostic Criteria and a self-administered lifestyle questionnaire. The findings revealed that 28.3% of the participants experienced constipation. Skipping breakfast, inadequate dietary fiber intake, low fluid consumption, irregular sleep patterns, psychological stress, and reduced physical activity

were significantly associated with constipation ($p < 0.05$). The study emphasized that lifestyle modification, adequate hydration, increased dietary fiber intake, physical exercise, and health education programmes may help reduce constipation and improve bowel health among adolescents. Several studies have also reported that hostel-residing students are more vulnerable to bowel irregularities because of altered food habits, academic stress, disturbed sleep patterns, and lack of regular physical activity. These findings support the importance of identifying simple, low-cost, and non-pharmacological interventions for bowel health management among adolescents.

Ramachandran et al. (2025) conducted a pilot study among college students aged 17–21 years in Coimbatore to assess the effectiveness of coconut oil pulling on oral malodor and dental plaque. Participants were selected using a convenience sampling technique. Plaque index and halitosis scores were used for assessment before and after the intervention. The findings demonstrated a statistically significant reduction in plaque accumulation and oral malodor scores after 14 days of coconut oil pulling ($p < 0.05$). The authors concluded that coconut oil pulling may serve as a simple, safe, affordable, and supportive complementary practice for maintaining oral hygiene. The study also suggested that the relaxation response associated with oil pulling may contribute to overall well-being and autonomic balance.Oil pulling is traditionally practiced as part of complementary and alternative medicine. Coconut oil contains antimicrobial and anti-inflammatory properties due to the presence of medium-chain fatty acids such as lauric acid. Researchers have suggested that regular oil pulling may stimulate salivary secretion, promote oral cleanliness, reduce stress, and encourage healthy morning routines. These mechanisms may indirectly support digestive health and bowel regularity, although scientific evidence remains limited.

Ramachandran et al. (2025) conducted a quasi-experimental study among nursing students aged 17–19 years residing in a college hostel in Coimbatore to assess the effect of coconut oil pulling on functional constipation symptoms. The study included 40 participants selected through purposive sampling technique. Constipation levels were assessed using the Modified Wexner Constipation Scale before and after the intervention.The findings demonstrated a statistically significant reduction in constipation scores following four weeks of oil pulling intervention ($p < 0.05$). Participants also reported improvement in bowel regularity, reduction in abdominal discomfort, and decreased straining during defecation. The authors suggested that complementary practices such as oil pulling may help support bowel comfort, relaxation, and healthy bowel habits among adolescents.The study further explained that oil pulling may influence gastrointestinal function indirectly through parasympathetic nervous system activation, reduction in stress-related autonomic imbalance, and establishment of regular morning routines. However, the researchers acknowledged limitations such as small sample size, absence of a control group, and short duration of follow-up. Therefore, they recommended randomized controlled trials with larger samples to establish stronger scientific evidence regarding the effectiveness and physiological mechanisms of oil pulling in constipation management.

METHODOLOGY

Research Approach: A quantitative research approach was adopted for the present study to assess the effectiveness of oil pulling on constipation among adolescent students. The quantitative approach was considered appropriate because it enabled the researcher to measure constipation levels objectively before and after the intervention using a standardized assessment tool and statistical analysis.

Research Design and Setting: A pre-experimental one-group pre-test post-test research design was used to evaluate the effectiveness of oil pulling on constipation among adolescent students. In this design, constipation levels were assessed before the intervention (pre-test) and after the intervention (post-test) among the same group of participants.

The study was conducted at the hostel of PPG College of Nursing, Coimbatore. The hostel environment was selected because hostel-residing students are more prone to constipation due to altered dietary habits, inadequate hydration, academic stress, irregular sleep patterns, and reduced physical activity.

Although the study design allowed assessment of changes following the intervention, the absence of a control group limited the ability to establish a direct causal relationship between oil pulling and improvement in constipation symptoms. Therefore, future randomized controlled studies are recommended.

Population: The target population comprised adolescent nursing students residing in hostels who experienced symptoms of constipation.

The accessible population included first- and second-year B.Sc. Nursing students residing in the selected college hostel and available during the period of data collection.

Sample Size and Sampling Technique: The sample size consisted of 60 adolescent nursing students residing in the selected college hostel.Participants were selected using a non-probability purposive sampling technique based on the inclusion criteria. The purposive sampling method enabled the researcher to select participants who met the criteria of mild to moderate constipation and were willing to participate in the intervention.

Criteria for Sample Selection

Inclusion Criteria

The study included adolescent students who were:

- Aged between 18 and 19 years.
- Experiencing symptoms of decreased bowel movement, difficulty in bowel evacuation, hard stool consistency, or incomplete bowel emptying.
- Identified with mild to moderate constipation based on the Modified Wexner Constipation Scale.
- Willing to participate in the study.
- Available during the period of data collection.
- Male and female B.Sc. Nursing students residing in the hostel.

Exclusion Criteria

The study excluded adolescent students who were:

- Diagnosed with chronic gastrointestinal disorders such as inflammatory bowel disease, irritable bowel syndrome, or intestinal obstruction.
- Experiencing severe digestive disorders requiring medical treatment.
- Experiencing jaw pain, oral ulcers, or oral discomfort that could interfere with oil pulling practice.
- Having severe tooth sensitivity or oral infections.
- Allergic to coconut oil or related products.
- Undergoing treatment for gastrointestinal disorders during the study period.
- Using laxatives or other medications affecting bowel movements regularly.

Variables of the Study

Independent Variable: The independent variable of the study was oil pulling using coconut oil.

Dependent Variable: The dependent variable was the level of constipation among adolescent students as measured by the Modified Wexner Constipation Scale.

Description of the Instrument

The tool used for data collection consisted of two sections:

Section A: Socio-demographic Variables

This section included variables such as:

- Age
- Gender
- Year of study
- Dietary habits
- Daily water intake
- Physical activity
- Sleep pattern
- Frequency of bowel movements

Section B: Modified Wexner Constipation Scale

The Modified Wexner Constipation Scale was used to assess constipation levels among adolescent students. The scale included items related to:

- Frequency of bowel movements
- Difficulty during defecation
- Feeling of incomplete evacuation
- Abdominal discomfort
- Stool consistency
- Time required for bowel evacuation

The scoring interpretation was as follows:

- Mild constipation
- Moderate constipation
- Severe constipation

Higher scores indicated greater severity of constipation symptoms.

Content Validity: The research instrument was validated by experts from the fields of Medical-Surgical Nursing, Community Health Nursing, Child Health Nursing, and medical sciences to ensure clarity, relevance, appropriateness, and scientific accuracy of the content. Necessary modifications were made based on expert suggestions.

Reliability: The reliability of the Modified Wexner Constipation Scale was established using the test-retest method among participants with characteristics similar to the study sample. The obtained reliability coefficient was r = 0.7, indicating acceptable reliability and consistency of the tool for assessing constipation symptoms.

Ethical Considerations: Formal approval for conducting the study was obtained from the Institutional Ethical Committee of PPG Group of Institutions. Permission was also obtained from the concerned college authorities before data collection. Written informed consent was obtained from all participants after explaining the purpose, procedure, benefits, and possible discomforts related to the study. Participants were informed that participation was voluntary and that they had the right to withdraw from the study at any stage without any penalty. Confidentiality, anonymity, privacy, and dignity of the participants were maintained throughout the study. The collected data were used only for research purposes.

Pilot Study: A pilot study was conducted among 6 students at PPG College of Occupational Therapy to assess the feasibility, practicability, clarity of the tool, and suitability of the research process.

The findings of the pilot study indicated that:

- The intervention was feasible.
- Participants were able to perform oil pulling without major difficulty.
- The tool was understandable and appropriate.
- The data collection procedure was practical and manageable.

Minor modifications were made in the instructions and monitoring process based on the pilot study findings before conducting the main study.

Procedure for Data Collection

The data collection procedure was carried out in three phases:

Preparation Phase

Formal permission was obtained from the concerned authorities before data collection. The purpose and procedure of the study were explained to the participants, and written informed consent was obtained. Baseline socio-demographic data and pre-test constipation levels were assessed using the Modified Wexner Constipation Scale.

Intervention Phase

Participants were instructed regarding the oil pulling procedure. The intervention involved swishing 10 ml of coconut oil in the mouth for 10 minutes daily, preferably in the morning on an empty stomach, and then spitting it out.

The intervention was continued for a period of four weeks. Participants were monitored periodically to ensure adherence to the intervention and to identify any discomfort or difficulties experienced during the practice.

The possible supportive physiological effects explained to participants included:

- Relaxation response
- Salivary stimulation
- Improved morning routine
- Stress reduction

- Possible parasympathetic nervous system activation that may indirectly support bowel motility

Evaluation Phase

After completion of the four-week intervention period, post-test constipation levels were reassessed using the same Modified Wexner Constipation Scale.The pre-test and post-test scores were compared to determine the effectiveness of oil pulling on constipation among adolescent students.

Techniques of Data Analysis and Interpretation

Collected data were organized, coded, tabulated, and analysed using descriptive and inferential statistics.

Descriptive Statistics

Descriptive statistics such as:

- Frequency
- Percentage
- Mean
- Standard deviation

were used to summarize socio-demographic variables and constipation levels.

Inferential Statistics

Inferential statistics included:

- Paired t-test to determine the effectiveness of oil pulling by comparing pre-test and post-test constipation scores.
- Chi-square test to determine the association between post-test constipation levels and selected demographic variables.

The calculated paired t-value was interpreted to determine statistical significance. Statistical significance was considered at $p < 0.05$ level. Effectiveness of the intervention was interpreted based on reduction in mean constipation scores between pre-test and post-test assessments.

RESULTS AND DISCUSSION

Table No.4.1: Frequency and Percentage Distribution of Pre-test and Post-test Level of Constipation Among Adolescent Students

n=60

Level of Constipation	Pre test		Post test	
	(f)	Percentage (%)	(f)	Percentage (%)
Normal (0-7)	0	0%	8	13.3%
Mild (8-14)	19	31.7%	38	63.3%
Moderate (15-20)	41	68.3%	14	23.4%
Severe (22-28)	0	0%	0	0%

Table 4.1 presents the frequency and percentage distribution of constipation levels among adolescent students before and after the oil pulling intervention. During the pre-test assessment, none of the participants demonstrated normal bowel function. Among the 60 participants, 19 (31.7%) had mild constipation, whereas 41 (68.3%) experienced moderate constipation. No participants were categorized under severe constipation during

the pre-test. Following four weeks of oil pulling intervention, improvement in constipation levels was observed among the participants. In the post-test assessment, 8 (13.3%) participants achieved normal bowel function. The number of participants with moderate constipation decreased considerably from 41 (68.3%) in the pre-test to 14 (23.4%) in the post-test. Most participants were categorized under mild constipation in the post-test, accounting for 38 (63.3%). The findings indicate improvement in bowel regularity and reduction in constipation severity following the intervention. The improvement observed in the post-test may be related to supportive effects such as relaxation response, establishment of regular morning routines, increased health awareness, and possible parasympathetic nervous system stimulation associated with oil pulling practice. The present findings are partially consistent with previous studies that reported improvement in bowel comfort following complementary and lifestyle-based interventions among adolescents. However, because the study used a one-group pre-test post-test design without a control group, the findings should be interpreted cautiously. Other uncontrolled factors such as dietary changes, hydration status, stress reduction, and physical activity may also have influenced bowel habits during the study period. Therefore, further randomized controlled trials with larger sample sizes are recommended to establish stronger scientific evidence regarding the effectiveness of oil pulling in constipation management.

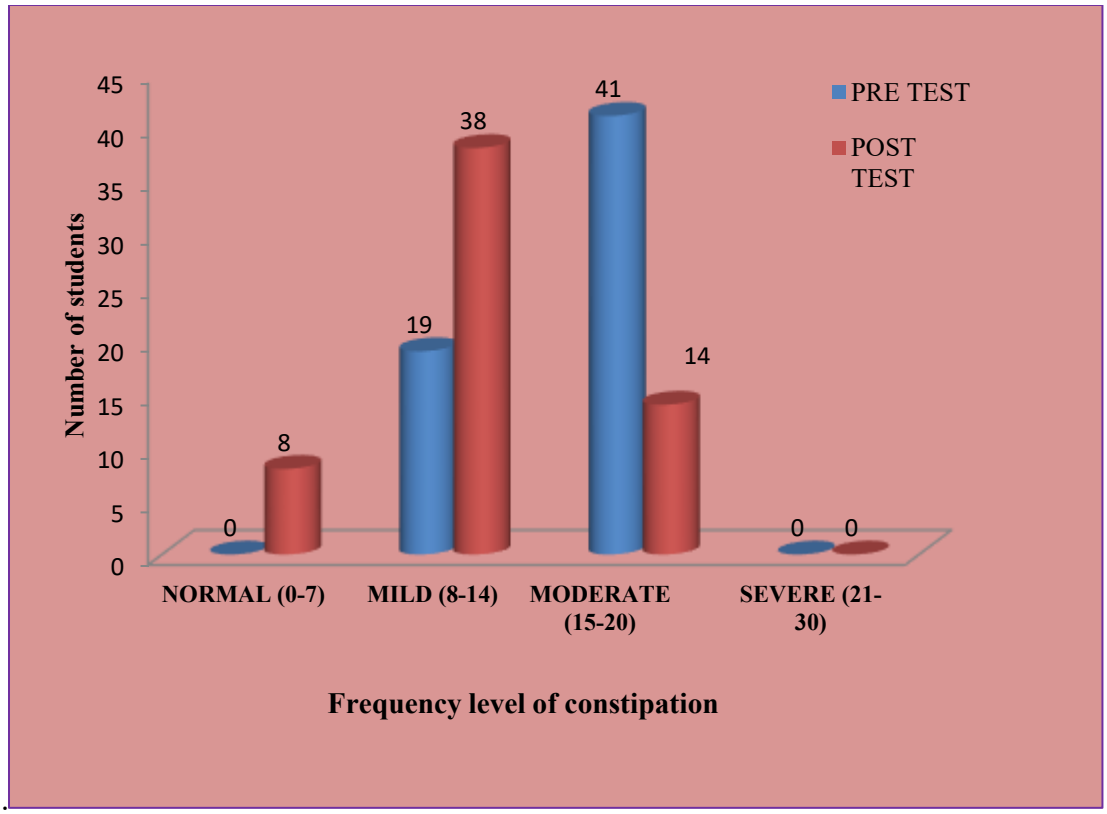


Table 4.2 Mean and Standard Deviation of Pre-test and Post-test Constipation Scores Among Adolescent Students

Experimental Group	Mean	Standard deviation	Paired 't' test & p-Value	
Pre-test	1.85	0.82	t –Value=8.12 p=0.001	P=0.001 df= 59 **(S)**
Post-test	0.75	0.68		

df = 59

Statistically significant at p < 0.05

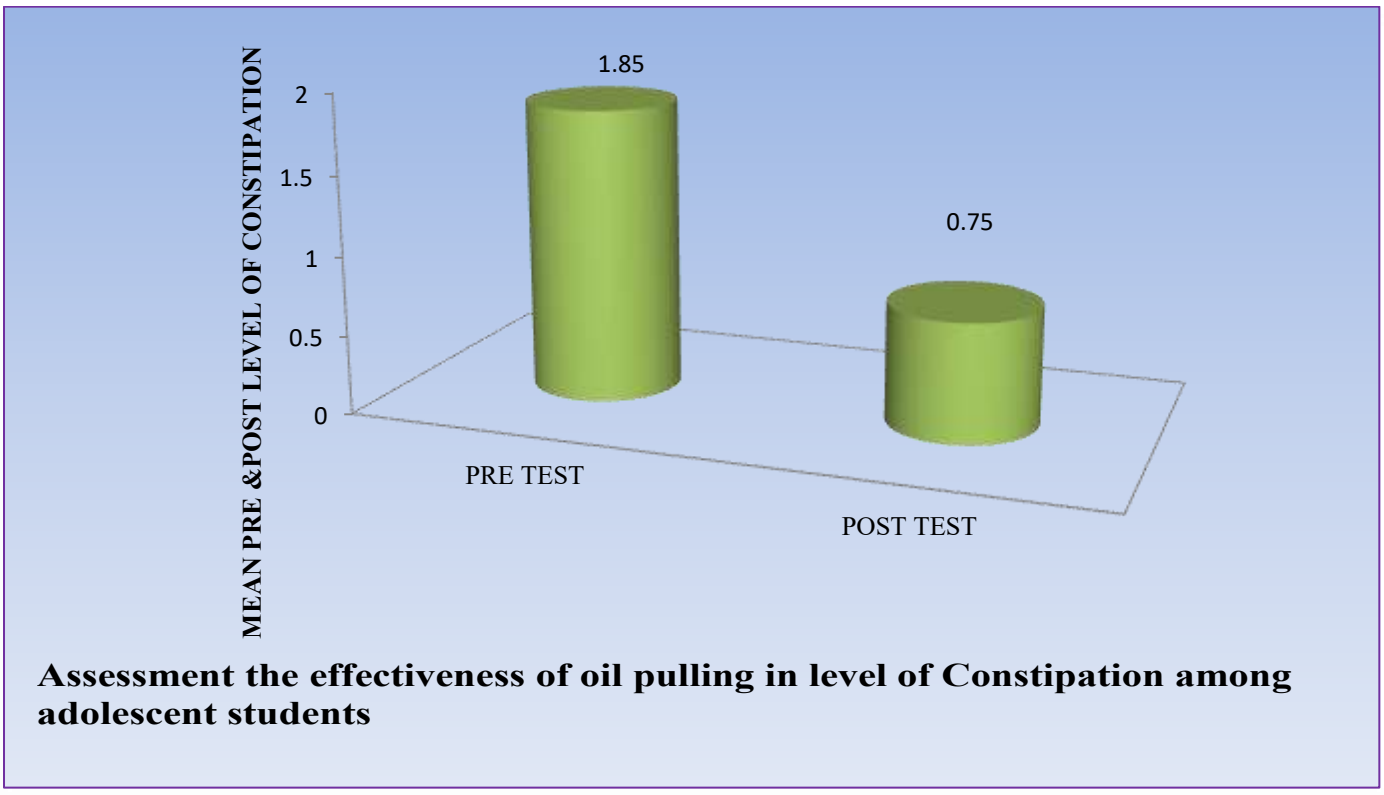
Table 4.2 presents the comparison of mean pre-test and post-test constipation scores among adolescent students following the oil pulling intervention. The mean pre-test constipation score was 1.85 with a standard deviation of 0.82, indicating the presence of constipation symptoms among participants before the intervention. Following four weeks of oil pulling practice, the mean post-test constipation score decreased to 0.75 with a standard

deviation of 0.68, demonstrating improvement in bowel function and reduction in constipation symptoms. The calculated paired t-value was 8.12 with a p-value of 0.001, which was statistically significant at $p < 0.05$ level. The statistically significant reduction in mean constipation scores suggests that oil pulling may have contributed to improvement in constipation symptoms among adolescent students. The improvement observed in constipation scores may be associated with supportive physiological and behavioral mechanisms such as:

- Relaxation response
- Reduced stress-related autonomic imbalance
- Stimulation of salivary secretion
- Development of healthy morning routines
- Increased awareness regarding bowel habits and hydration

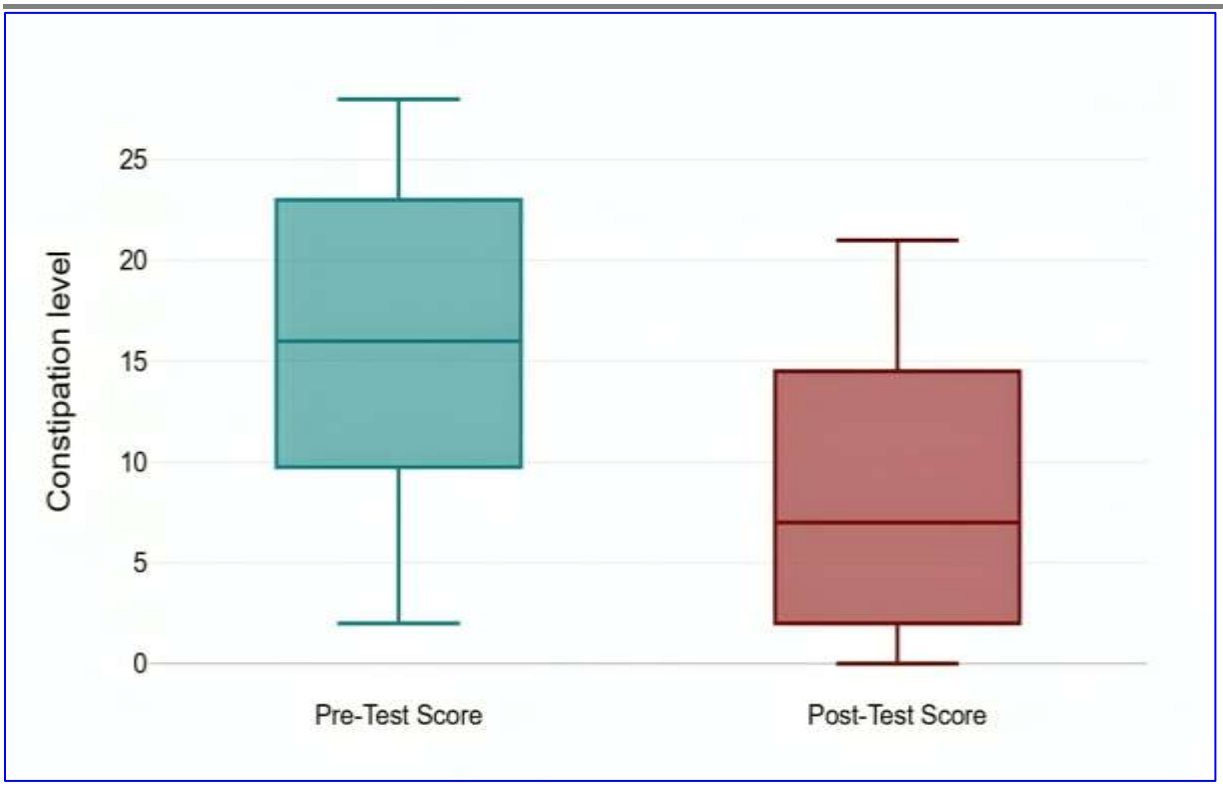
The findings of the present study are partially supported by previous complementary therapy studies that demonstrated improvement in bowel comfort and digestive well-being following non-pharmacological interventions.

However, due to methodological limitations such as absence of a control group, purposive sampling technique, small sample size, and short intervention duration, the results cannot establish a direct causal relationship between oil pulling and constipation reduction. Therefore, further randomized controlled studies are recommended to confirm the effectiveness and physiological basis of oil pulling in constipation management.



Assessment the effectiveness of oil pulling in level of Constipation among adolescent students

The calculated paired t-value was 8.12 with a p-value of 0.001, indicating a statistically significant reduction in constipation scores after the intervention. The findings suggest that oil pulling may have contributed to improvement in constipation symptoms among the participants. However, due to the limitations of the study design, including the absence of a control group, further randomized controlled studies are recommended.



MAJOR FINDINGS

- The study included 60 adolescent nursing students aged between 18 and 19 years residing in the hostel of PPG College of Nursing.
- Lifestyle assessment revealed that several participants had inadequate dietary fiber intake, reduced water consumption, irregular bowel habits, frequent junk food intake, limited physical activity, and disturbed sleep patterns, which may contribute to constipation among adolescents.
- During the pre-test assessment, 19 (31.7%) participants had mild constipation and 41 (68.3%) had moderate constipation. None of the participants had normal bowel function before the intervention.
- Following four weeks of oil pulling intervention, improvement in bowel function was observed. In the post-test assessment, 8 (13.3%) participants achieved normal bowel function, 38 (63.3%) had mild constipation, and only 14 (23.4%) had moderate constipation.
- The mean constipation score decreased from 1.85 in the pre-test to 0.75 in the post-test.
- The calculated paired t-value was 8.12 with a p-value of 0.001, indicating a statistically significant reduction in constipation scores following the intervention.
- Significant associations were observed between post-test constipation levels and selected variables such as dietary fiber intake, water consumption, physical activity, and previous history of constipation.
- No statistically significant association was found with variables such as age, religion, family income, duration of hostel stay, or type of diet.
- The findings suggest that oil pulling may be a supportive complementary practice for improving bowel comfort and bowel regularity among adolescent students.
- However, due to the absence of a control group and other methodological limitations, the findings should be interpreted cautiously.

Recommendations for Further Study

- Future studies may be conducted with larger sample sizes and in multiple settings to improve generalizability.
- Randomized controlled trials with comparison groups are strongly recommended to establish stronger scientific evidence regarding the effectiveness of oil pulling on constipation management.
- Studies with longer intervention and follow-up periods may help assess the long-term effects of oil pulling on bowel health.
- Comparative studies between oil pulling and other non-pharmacological interventions such as dietary modification, hydration therapy, probiotics, yoga, and physical activity are recommended.
- Further research may explore the possible physiological mechanisms linking oil pulling, autonomic nervous system activity, stress reduction, and gastrointestinal motility.
- Future studies may include objective measures of bowel function and gastrointestinal health in addition to self-reported constipation scales.

Nursing Implications: The present study has implications for nursing practice, nursing education, nursing administration, and nursing research.

Nursing Education: Nursing students and educators should be made aware of evidence-based complementary and non-pharmacological approaches that may support bowel health management. Educational programmes can include information regarding healthy dietary habits, hydration, physical activity, stress management, and supportive complementary practices such as oil pulling.

Nursing Administration: Nursing administrators may organize health promotion programmes related to bowel health among students and patients in educational and clinical settings. Awareness programmes focusing on dietary practices, hydration, physical activity, stress reduction, and bowel hygiene may help reduce constipation-related problems among adolescents.

Nursing Practice: Nurses play an important role in promoting healthy bowel habits through patient education, counselling, and supportive care. Nurses may guide adolescents regarding lifestyle modifications that support digestive health, including adequate hydration, fiber-rich diet, regular physical activity, stress reduction, and safe complementary practices.

Nursing Research: The present study contributes preliminary evidence regarding the possible supportive role of oil pulling as a complementary approach for constipation management. Further rigorous research studies with stronger methodological designs are required to establish its effectiveness, safety, and physiological mechanisms.

Limitations

- The study was conducted among only 60 participants from a single institution, which limits the generalizability of the findings.
- The study used a pre-experimental one-group pre-test post-test design without a control group, limiting the ability to establish causality.
- The intervention period was limited to four weeks, and long-term effects were not assessed.
- Constipation levels and lifestyle factors were assessed using self-reported data, which may be subject to reporting bias.

- Other factors influencing constipation, such as dietary intake, hydration status, stress level, sleep pattern, and physical activity, could not be completely controlled during the study period.
- The study used purposive sampling technique, which may limit external validity of the findings.

CONCLUSION

The findings of the present study demonstrated a statistically significant reduction in constipation scores among adolescent students following the oil pulling intervention. Improvement was observed in bowel regularity and reduction in constipation severity after four weeks of oil pulling practice. The findings suggest that oil pulling may be a simple, safe, low-cost, and supportive complementary practice for improving bowel comfort and bowel regularity among adolescents. Possible contributing mechanisms may include relaxation response, development of healthy morning routines, stress reduction, and indirect support of gastrointestinal motility. However, due to methodological limitations such as absence of a control group, small sample size, short intervention duration, and limited scientific evidence regarding physiological mechanisms, the findings should be interpreted with caution. Further randomized controlled studies with larger sample sizes and longer follow-up periods are recommended to confirm the effectiveness and scientific basis of oil pulling in constipation management.

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Conflict of Interest

The authors declare that there is no conflict of interest related to the study.

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