

A Quasi Experimental Study to Assess the Effectiveness of Structured Teaching Program on Atal Bhujal Yojana among the School Children with the View of Plantation in a Selected Villages of Khordha District

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Abstract: *This study looks at how a structured teaching programme can shape school students' understanding of the Atal Bhujal Yojana and, through it, the wider concern of groundwater conservation at a time when depletion is no longer a distant worry but a daily reality. Conducted among 50 students of 9th and 10th standard in a government high school in Khordha district, Odisha, the study uses a one-group pre-test-post-test design to assess knowledge levels before and after a planned teaching session on key elements of Atal Bhujal Yojana, water conservation, and community responsibility. In my view, the most telling outcome is the clear movement from largely inadequate awareness in the pre-test to predominantly adequate knowledge after the intervention, with meaningful gains observed across all content areas and supported by statistical testing. It is evident that such focused, age-appropriate teaching, combined with simple tools like structured questionnaires and discussions, can influence how young learners perceive their role in conserving groundwater. This raises another point: while the absence of a control group and the single-school setting limit broader generalisation, the pattern observed here suggests that integrating similar educational modules, linked with practical activities such as plantation drives, can serve as a realistic and low-cost step towards strengthening water literacy and responsible behaviour among future citizens.*

Keywords: Atal Bhujal Yojana, structured teaching programme, groundwater conservation, student awareness, quasi experimental study

1.Introduction

Background of the study:

Atal Bhujal Yojana has been formulated by the Ministry to address the criticality of ground water resources in a major part of the country. The scheme aims to improve ground water management in priority areas in the country through community participation. Funds under the scheme will be provided to the states for strengthening the institutions responsible for ground water governance, as well as for encouraging community involvement for improving ground water management to foster behavioural changes that promote conservation and efficient use of water. Implementation of the scheme is expected to benefit nearly 8350 Gram Panchayats in 78 districts in these states. Funds under the scheme will be made available to the participating states as Grants. [6]

The implementation of the scheme is expected to have several positive outcomes like better understanding of the ground water regime, focused and integrated community based approach for addressing issues related to ground water depletion, sustainable ground water management through convergence of on-going and new schemes, adoption of efficient water use practices to reduce ground water use for irrigation and augmentation of ground water resources in targeted areas.

Need for the study:

The purpose of the study is to assess the knowledge of student on Atal Bhujal Yojana and to give Structure Teaching to create an awareness among students. With the intention of addressing the problem of fast depleting groundwater resources, the government of India has planned to introduce the Atal Bhujal Yojana (ABY). The programme is expected to lay emphasis on the recharge of groundwater resources and a better exploitation of the groundwater resources, with the involvement of people at the local level. [5] To encourage community participation, it has been planned by the government to give 50% of the money to gram panchayats and states as incentives for achieving the groundwater management target.

Statement of problem:

“A quasi experimental study to assess the effectiveness of structured teaching program on Atal Bhujal Yojana among the school children with the view of plantation in a selected village of Khordha district, Odisha”.

Objectives:

Objectives of this study are:

1. To assess the pre test & post test knowledge regarding Atal Bhujal Yojana.
2. To assess the effectiveness of STP.
3. To find out the association between post test knowledge score & selected demographic variables.

4. To do a post research plantation as a part of remedial measures to restore the ground water.

Assumptions:

The study assumes that there is a poor knowledge among school children on Atal Bhujal Yojana. In this study Plantation required for preventing environmental pollution and restore of ground water.

Null Hypothesis:

H01: there will be no significant association between pre-test and post-test knowledge score. H02: there will be no significant association between post-test knowledge and selected demographic variables.

Conceptual Framework:

Individual perception: individual perceptions include the following;

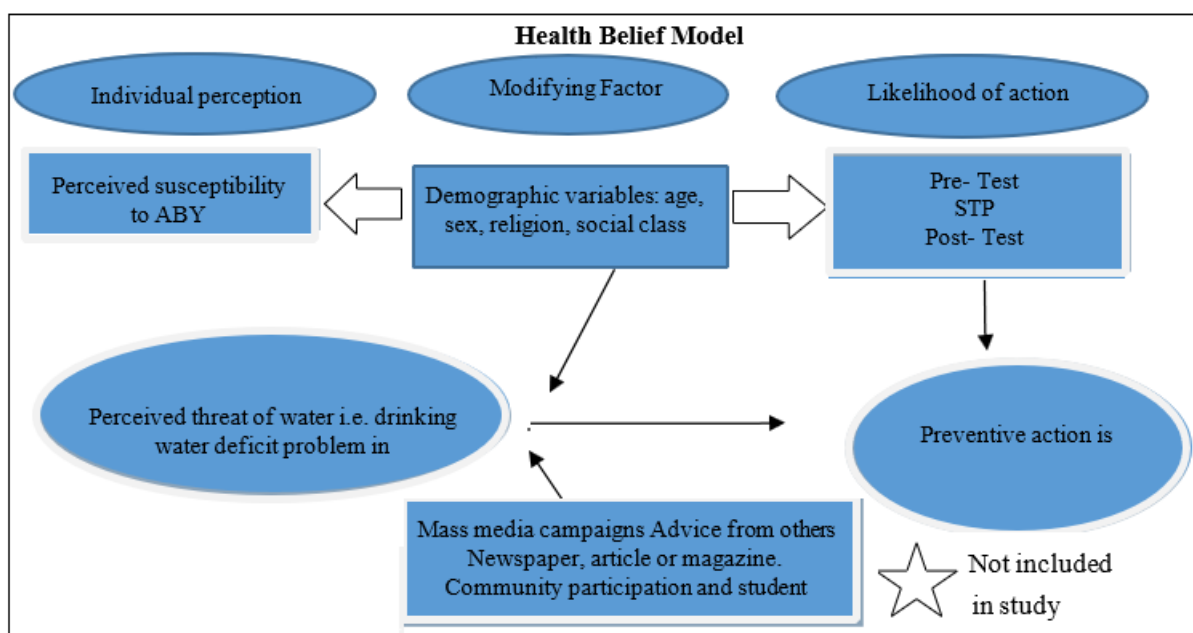
In this study, individual perception regarding Atal Bhujal Yojana and future threat towards water deficiencies.

Modifying factor: factors that modify a person's perceptions include the following;

In this study, demographic variables are 9th and 10th standard school children.

Likelihood of action: In this study, preventive action on perceives threat of water issues regarding ABY. Actions are pre-test, post-test, STP, plantation.

Conceptual Frame Work (Modified Rosen Stock's Health Belief Model)



2. Review of Literature

Atal Bhujal Yojana (Indian filing. com, 2018) has been formulated by the Ministry to address the criticality of ground water resources in a major part of the country. The scheme aims to improve ground water management in priority areas in the country through community participation. Funds under the scheme will be provided to the states for strengthening the institutions responsible for ground water governance, as well as for encouraging community involvement for improving ground water management to foster behavioural changes that promote conservation and efficient use of water.

The Atal Bhujal Yojana (ABY) [The Economics Times, 2019], aimed at improving the ground water table in the country, will soon be sent to the union cabinet for approval, water resources secretary U P Singh said on 10th Oct.2019. [7]

The Atal Bhujal Yojana [gktoday. in, 2019], current status of ground water is alarming, primarily due to non-

uniform ground water development and its over exploitation. According to report published by the Central Groundwater Board (Ground Water Assessment, 2011), out of 6, 607 assessed administrative units, 1071 are over exploited units, 217 units are critical, 697 units are semi - critical and 4, 530 are safe units. Moreover, there are 92 units are completely saline. [6]

Methodology: This chapter describes the adopted to gather valid and reliable data for the study. It includes research approach, research design, setting, sample, sampling technique, development and description of tools, data collection procedure and plan for data analysis: [2]

Research Approach:

Research approach [Sharma SK, 2014] tells the researchers from whom the data is to be collected, how to collect and how to analyse them. It also suggests possible conclusion and helps researcher in answering specific questions in the most accurate efficient way possible. The

research approach of this study is **quantitative approach /experimental approach**.^[2]

Research Design:

Research design [**Polit DF, Beck CT, 2003**] is the overall plan for obtaining answer to the question being studied and for handling some of the difficulties encounter during the research process.^[1]

The present study is quasi-experimental one group **pre-test post-test design**.

Setting of the study;

Present study was conducted in Govt High School Mendhasal District of Khordha, Odisha.

Population:

In the present study population will be school students of 9th and 10th standard of Govt. High School Mendhasal. And accessible population will be the school students those are coming regularly for classes.

Sample In the present study, sample will be students of 9th and 10th standards of Govt High School Mendhasal, of Khordha.

Sample size will be 50 students of 9th and 10th standard. 25 from 9th and 25 from 10th standard.

Sampling is the process of selecting a representative segment of the population under study. [**Sharma SK, 2012**].^[2]

In the present study sample will be selected by **simple probability sampling technique**.

Sampling Criteria;

Inclusion criteria are:

1. Student who are willing to participate.
2. Who are coming school regularly.
3. Students from 9th-10th standard.
4. Students who can read and write Odia.

Exclusion criteria are:

1. Students other than 9th and 10th standard.
2. Irregular students

Variables:

A characteristics or attribute of person or object that differ among the person or objects being studied.

1. Demographic Variables:

In this study demographic variables are age, sex, class, religion, previous knowledge on ABY, occupation of

father and mother, education of parents, income of family, no of sibling.

2. Research Variables:

Independent variables: knowledge

Dependent variables:

In the present study dependent variable was Structured Teaching Programme on Atal bhujal yojana.

Description Of Tools;

Tool-I: Demographic Proforma

Tool-II: Knowledge questionnaire on Atal Bhujal Yojana.

Tool-III: Structured Teaching Programme: lesson plan.

Validity:

Content validity; The prepare tools along with problem statement and objectives given to seven experts from the field of community health nursing, for stabilizing content validity. Necessary changes will be done as per the recommendation and comments the experts. Final tool will prepare based on the expert's suggestion.

Language validity; Language validity will be established by translating tool from English to odia and again from odia to English by language experts. Tool will be validated by M. A, English and M. A, Odia.

Reliability:

Reliability is [**Polit DF, Beck CT, 2003**] the consistency with which the tool measures the target attribute. The reliability of an instrument can be assessed in various way. The method chosen depends on the nature of instrument and on the aspects of reliability of greatest concern. Three key aspects are stability, internal consistency and equivalence. [1]

Instruments will be administered to 20 samples to establish reliability by using split half method.

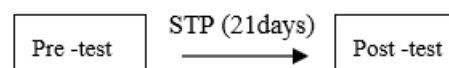
Pilot Study:

This study will be conducted to assess feasibility of the main study.

The pilot study will be conducted among 20 students in near by Chhattaber Govt. School.

Plan for data collection:

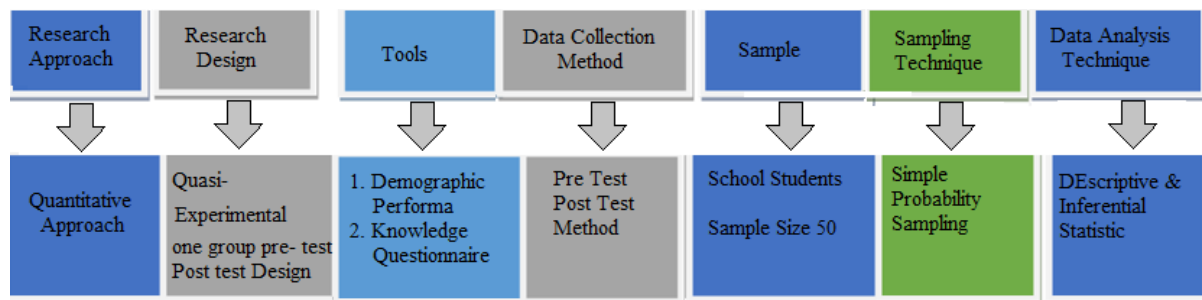
The data will be collected from the sample by means of the tools designed to measure the variables. Data will be collected by self-administered structured questionnaire before STP (pre-test) and after 21 days of STP (post-test).



Plan for data analysis:

hypothesis. Data will be analyzed by **descriptive inferential statistics.**

Analysis is the process of organizing and synthesizing the data so as to answer research questions and test

Research Design Schematic Presentation of the study**Data analysis & interpretation****Table 1:** Aspect wise Pre test Mean Knowledge scores of Respondents on Atal Bhujal Yojana

n=50

No.	Knowledge Aspects	Statements	Max. Score	Knowledge Scores			
				Mean	SD	Mean (%)	SD (%)
I	Importance of conservation water	3	3	1.84	±0.65	61.3	21.7
II	Implement of Atal Bhujal Yojana	6	6	3.36	1.08	56.0	18.1
III	Management of ground water	9	9	5.04	1.34	56.0	14.9
IV	Rapid round question on ABY	5	5	2.86	0.93	57.2	18.5
	Combined	23	23	13.10	2.29	57.0	9.9

Data table-1 describes that mean score of knowledge in section I importance of conservation of water was 1.84 (± 0.65). section II Implement of Atal Bhujal Yojana was 3.36 (± 1.08). section III Management of ground water was 5.04 (± 1.34) and section IV was 2.86 (± 0.93).

Table 3 describes that the mean pre test knowledge score was 13.10 (± 2.29).

Table 2: Aspect wise Post test Mean Knowledge scores of Respondents on Atal Bhujal Yojana

n=50

No.	Knowledge Aspects	Statements	Max. Score	Knowledge Scores			
				Mean	SD	Mean (%)	SD (%)
I	Importance of conservation water	3	3	2.66	0.52	88.7	17.3
II	Implement of Atal Bhujal Yojana	6	6	4.64	1.01	77.3	16.8
III	Management of ground water	9	9	7.02	1.15	78.0	12.8
IV	Rapid round question on ABY	5	5	4.30	0.79	86.0	15.8
	Combined	23	23	18.62	2.05	81.0	8.9

Data table-2 describes that after STP mean score of knowledge in section I importance of conservation of water was 2.66 (± 0.52). section II Implement of Atal Bhujal Yojana was 4.64 (± 1.01). section III Management

of ground water was 7.02 (± 1.15) and section IV was 4.30 (± 0.79). Data table 4 describes that the mean post test knowledge score was 18.62 (± 2.29).

Table 3: Aspect wise Mean Pre test and Post test Knowledge scores on Atal Bhujal Yojana

n = 50

No.	Knowledge Aspects	Respondents Knowledge (%)						Paired ‘t’ Test
		Pre test		Post test		Enhancement		
		Mean	SD	Mean	SD	Mean	SD	
I	Importance of conservation water	61.3	21.7	88.7	17.3	27.3	19.9	9.70*
II	Implement of Atal Bhujal Yojana	56.0	18.1	77.3	16.8	21.3	16.8	8.97*
III	Management of ground water	56.0	14.9	78.0	12.8	22.0	10.9	14.27*
IV	Rapid round question on ABY	57.2	18.5	86.0	15.8	28.8	19.0	10.72*
	Combined	57.0	9.9	81.0	8.9	24.0	6.0	28.28*

* Significant at 5% level, t (0.05, 49df) = 1.96

Table 3 shows that there was significant association between pretest and post test knowledge score in the area of importance of conservation of water ($t=9.70$), Implement of Atal Bhujal Yojana ($t=8.97$), Management

of ground water ($t=14.27$) and Rapid round question on ABY ($t=10.72$), at 0.05 % level of significant $df=49$, $t=1.96$.

Table 4: Association between Demographic variables and Post test Knowledge level on Atal Bhujal Yojana

$n=50$

Demographic Variables	Category	Sam ple	Knowledge Level				χ^2 Value	Table Value
			Moderate		Adequate			
			N	%	N	%		
Age group (years)	14 years	12	6	50.0	6	50.0	0.26 NS	5.991
	15 years	17	7	41.2	10	58.8		
	16 years	21	10	47.6	11	52.4		
Standard	9 th Class	25	15	60.0	10	40.0	3.95*	3.841
	10 th Class	25	8	32.0	17	68.0		
Education of Mother	Below 10 th Std	5	1	20.0	4	80.0	3.59 NS	5.991
	10 th Std	12	8	66.7	4	33.3		
	12 th Std	33	14	42.4	19	57.6		
Education of Father	10 th Std	10	8	80.0	2	20.0	5.82*	3.841
	12 th Std	40	15	37.5	25	62.5		
Occupation of Mother	House wife	39	15	38.5	24	61.5	4.06*	3.841
	Own Business	11	8	72.7	3	27.3		
Occupation of Father	Farmer	28	11	39.3	17	60.7	1.48 NS	7.815
	Government	8	4	50.0	4	50.0		
	Own business	6	3	50.0	3	50.0		
	Private	8	5	62.5	3	37.5		
Combined		50	23	46.0	27	54.0		

* Significant at 5% Level, NS: Non-significant

Table 4 shows that there was significant association between post test knowledge score and standard of education ($\chi^2=3.95$) and 3.841 ($df=1$), post test knowledge score and education of father ($\chi^2=5.82$) and

3.841 ($df=1$), post test knowledge score and occupation of mother ($\chi^2=4.06$) and 3.841 ($df=1$).

This also shows that enhancement association between pre test and post test knowledge score was 24.0 (± 6.0).

Table 5: Association between Demographic variables and Post test Knowledge level on Atal Bhujal Yojana

n=50Demographic Variables	Category	Sample	Knowledge Level				χ^2 Value	Table Value
			Moderate		Adequate			
			N	%	N	%		
Family income/month	<Rs.10000	36	20	55.6	16	44.4	4.73*	(3.841)
	Rs.10000-30000	14	3	21.4	11	78.6		
Prior knowledge on Plantation	Yes	50	23	46.0	27	54.0	0.00 NS	(3.841)
	No	0	0	0.0	0	0.0		
Source of knowledge on Prior knowledge on ABY	Panchayats/Local agent	50	23	46.0	27	54.0	0.00 NS	(3.841)
	Others	0	0	0.0	0	0.0		
Availability of safe drinking source of water supply	Well/Tube well	38	14	36.8	24	63.2	5.35*	(3.841)
	Supply water	12	9	75.0	3	25.0		
Combined		50	23	46.0	27	54.0		

* Significant at 5% Level, NS: Non-significant

Table 5 shows that there was significant association between post test knowledge score and family income ($\chi^2=4.73$) and 3.841 ($df=1$), significant association between post test knowledge score and source of drinking water ($\chi^2=5.35$) and 3.841 ($df=1$).

3. Discussion & Major Findings

Discussions:

This chapter deals about the results of the study interpreted from the statistical analysis. The present study was conducted to evaluate the effectiveness of structure teaching program on atal bhujal yojana among school children of 9th and 10th standards in selected school of

khordha district. The result clearly reveals that in each socio economic and demographic parameter.

Among of the 50 students 24% of students was 14 years of age, 34% of students was 15 years of age and 42% of students was 16 year of age. 50% students from 9th standards and 50% from 10th standards.

Regarding education of parents the majority of educational standards of mother and father was 12th standards i. e 66% for mother and 80% for father.

Regarding occupation of parents the majority of mothers were house wife i. e (78%) and majority of fathers were

farmer i. e (56%). While comparing family income the majority of family income was < 10, 000 i. e (72%).

Regarding prior knowledge on plantation, we found that (100%) students had prior knowledge on plantation. While conduct pre test on atal bhujal yojana ≤ 50 % Score inadequate knowledge & 51-75 % Score moderate. while after given given STP on atal bhujal yojana majority of student 80% had adequate knowledge (> 75 % Score).

Major Findings:

The mean score of knowledge in section I importance of conservation of water was 1.84 (SD: 0.65). section II Implement of Atal Bhujal Yojana was 3.36 (SD: 1.08). section III Management of ground water was 5.04 (SD: 1.34) and section IV was 2.86 (SD: 0.93). while after STP mean score of knowledge in section I importance of conservation of water was 2.66 (SD: 0.52). section II Implement of Atal Bhujal Yojana was 4.64 (SD: 1.01). section III Management of ground water was 7.02 (SD: 1.15) and section IV was 4.30 (SD: 0.79).

While there was significant association between post test knowledge score and standard of education ($\chi^2 = 3.95$) and 3.841 (df=1), post test knowledge score and education of father ($\chi^2 = 5.82$) and 3.841 (df=1), post test knowledge score and occupation of mother ($\chi^2 = 4.06$) and 3.841 (df=1). Also, there was significant association between post test knowledge score and family income ($\chi^2 = 4.73$) and 3.841 (df=1), significant association between post test knowledge score and source of drinking water ($\chi^2 = 5.35$) and 3.841 (df=1).

References

- [1] Polit DF, Beck CT. "Nursing Research-Principles and Methods", 7th ed. Philadelphia: Lippincott; 2003.
- [2] Suresh K Sharma. "Nursing Research and Statistics", 4th ed. New Delhi: Elsevier; 2007.
- [3] Swarnkar K, "Community Health Nursing", 4th edition. N. R. Brother's publishers: M. Y Hospital Road, Indore; 2018.
- [4] Basvanthappa B. T, "Community Health Nursing", 2nd edition. Jaypee medical publishers: New Delhi; 2008.
- [5] India Fillings. atal bhujal yojana. <https://www.indiafillings.com> (accessed 8 August 2018).
- [6] GKTODAY. atal bhujal yojana. <https://currentaffairs.gktoday.com> (accessed 21 October 2019).
- [7] ET primes. atal bhujal yojana. <https://m.economictimes.com> (accessed 3 October 2019).
- [8] BYJU'S. atal bhujal yojana. <https://byju's.com> (accessed October 2019).
- [9] Oxford Dictionary, 2018
- [10] Wikipedia. 2018