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EFFECTIVENESS OF DRY PAPAYA SEEDS POWDER ON WORM INFESTATION AMONG CHILDREN

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Abstract: **Background & Objectives: Worm infestation is one of the common health problems, existing world- wide, especially in children. Children are the wealth of the nation, the children of today are the adults of tomorrow, they deserve to inherit a safer, fairer and healthier world. The present study aims to assess the effectiveness of dry papaya seeds powder on worm infestation among children**

Materials and methods: Quantitative Research with Pre-Experimental Research Design using a one-group pre-test post-test design among children. Data collection was done in Kondancherry Village, for a period of 1 week with sample size of 60 by non-probabilityconvenient sampling. Demographic variables and pretest was conducted with the symptoms of worm infestation by observational checklist. Stool examination was done to check ova/ cyst positive cases. The oval cyst positive cases waspapaya seeds powder was given for seven days in the empty stomach every morning. Post-test observational rating scale and stool examination was done to evaluate the effectiveness of papaya seeds powder on worm infestation after a week. The data were collected and analyzed by using descriptive and inferential statistics

Results: The pretest mean score of worm infestation was 12.40±3.55 and the post test meanscore was 5.83±3.16. The mean difference score was 6.57. before and after administration of papaya seeds powder approach are highly statistically significant at P≤0.05.

Conclusion: The present study assessed the effectiveness of dry papaya seeds powder on worm infestation among children. Based on statistical findings, it is evident that air dried papaya seeds given as elixir with honey significantly reduced intestinal parasites and reduced the magnitude of worm infestation among children

Keywords: **Dry Papaya Seeds Powder, Worm Infestation, Observational rating scale.**

1. INTRODUCTION

"Children are the wealth of the nation, the children of today are the adults of tomorrow, they deserve to inherit a safer, fairer and healthier world. There is no task more important than safe guarding their environment. Health is an important aspect of life Children are particularly vulnerable to infection because of low immune power, and infection due to intestinal parasite, all common posing serious public health problems in developing countries due to bad hygienic, practices, low social, and economical status, poor sanitation and an unsafe drinking water supply. Children have been regarded as the future hope of nation to nurture and strive for their well being of the massive load of 750 million people In India, 40% are children under the age of 15 years 300 million people which is equivalent to the total population of North America.

Infections by intestinal parasites including the soil transmitted helminths (STH: Ascaris lumbricoides, Ancylostomaduodenale (hookworm) and TrichurisTrichura) and schistosomiasis are an important public health concern. These infections are most prevalent in poor settings of the developing world with the highest burden of infection registered among school-aged children (Crompton DW).They are commonly associated with malnutrition, anaemia, impaired growth, poor school attendance and impaired cognition.

In 2019, the World Health Assembly passed a resolution for endemic countries to implement large-scale mass drug administration (MDA) of school-aged children using albendazole chemotherapy to reduce the burden of STH infection. Components of the tropical fruit, Carica papaya (pawpaw), have been scientifically proven to have potent anthelminthic and antiamoebic properties. Its seeds have been demonstrated in various studies to have anthelminthic properties. Follow-up phytochemical analysis shows that benzyl isothiocyanate is the bio-active anthelminthic ingredient in the seeds.

A study conducted in Nigeria showed that air dried papaya seeds given as elixir with honey significantly reduced intestinal parasites among school children without any side effects. As a food source, with no known harmful effects, the above evidence suggests that papaya seed extracts can be a sustainable candidate for deworming school children

According to the recent report by the Washington Based International Food Polices Research Institute by 2020, Powder of Papaya seeds are good for the blood circulation and blood purification. Papaya has been extensively used by Ayurveda, Unani and Homeopathic Medicine. Papaya seeds elaborate a vast away of biological active components that are chemically diverse & structurally complex. More than 140 components have been in different parts of papaya. All the part of the seeds, trees, leaves flower, fruits and roots & bark have been used traditionally for the treatment of inflammatory, infection, fever, worm infestation and dental caries.

The World Health Organization estimates that a staggering two billion people harbour parasite worm infections. Development of resistance to most of the commercially available anthelmintics became a severe problem worldwide. Moreover, these drugs are unaffordable, inaccessible or inadequately available to the poor peoples in developing countries (PrafulNilkanthGiradkar, Vishal KewaldasLkhande, 2018). In addition to the drug therapies, there are a lot of home remedies available like garlic paste with honey for a week, two carrots daily in the morning in empty stomach, pinch of asafetida with spoon of lemon juice daily in the morning, and one table spoon dry papaya seeds powder add with bitter guard in little ghee and consume it 2to3 times daily, dry papaya seed with milk and consume it with one spoon of castor oil. These home remedies are useful in treating intestinal worm, without significant side effects, papaya seed contain abundant health benefits and medical value, papaya is an excellent Medicare for the human body.

OBJECTIVES

- To assess the pretest and post test level of worm infestation among children.
- To assess the effectiveness of dry papaya seeds powder on worm infestation among children.
- To associate the post test level of worm infestation among children with their selected demographic variable.

2. METHODOLOGY

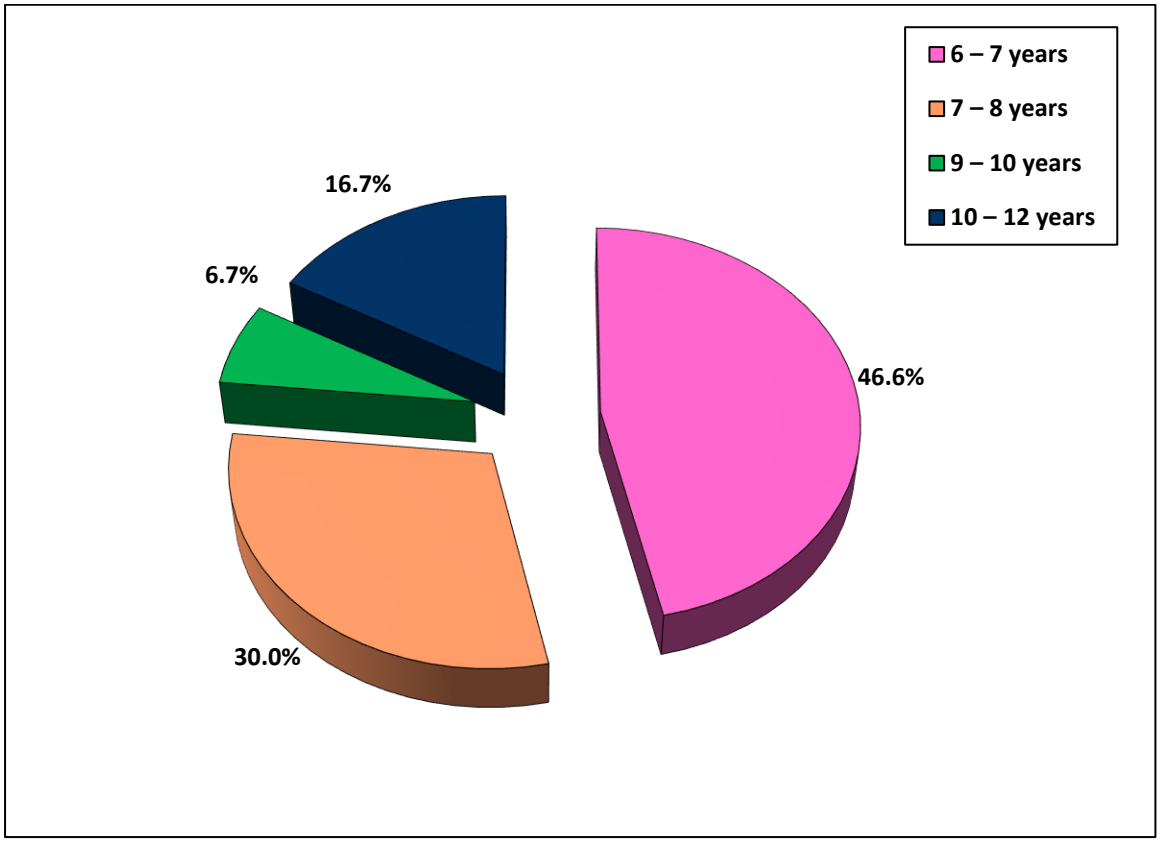
Experimental one group pre test post test, design with convenience sampling technique was adopted. Children with age group 6 to 12 with worm infestation with a sample size of 60 were selected. Out of which 30 children were within the experimental group and 30 children within the control group. The setting of the study was at Kondancherry village, Chennai. Data was collected by using demographic variables and pretest was conducted on the first day by assessing the symptoms of worm infestation by observational checklist. After getting oral consent, stool examination was done to check ova/ cyst positive cases. The oval cyst positive cases had been selected as study participants and written consent was taken from them, papaya seeds powder was given for seven days in the empty stomach every morning. Post-test observational rating scale and stool examination was done to evaluate the effectiveness of papaya seeds powder on worm infestation after a week. The observational self structured rating scale consists of signs and symptoms of worm infestation regarding the health condition of school going children with worm infestation each symptom caries maximum score of 3. The minimum score 1. The obtained data score had been interpreted by the following procedure. The score had been interpreted as follows. Mild - 11 – 16 Moderate - 17 – 23 Severe - 24 – 30.The data were collected and analyzed by using descriptive and inferential statistic

3. RESULTS AND DISCUSSION

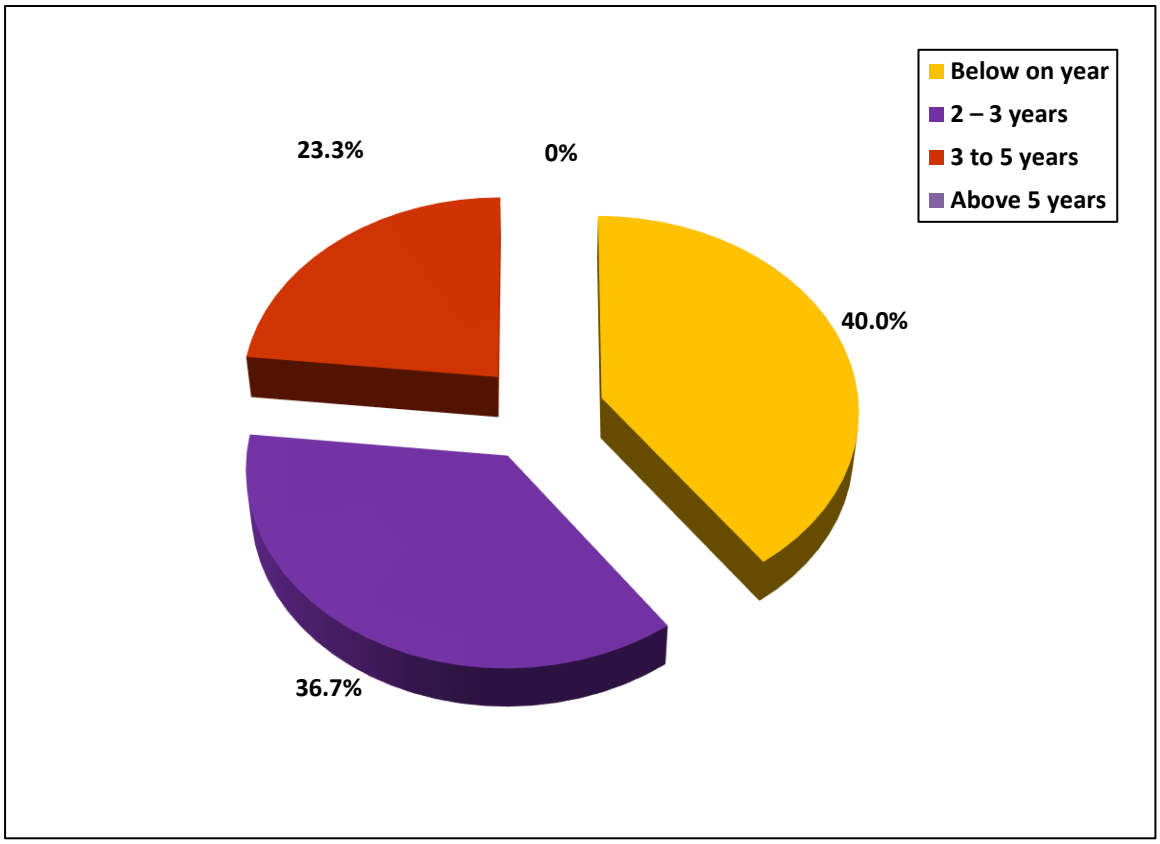
SECTION A: DESCRIPTION OF THE DEMOGRAPHIC OF CHILDREN

Section-A: Sample Characteristics

The sample characteristics shows that most of the children, 14(46.6%) were aged between 6 – 7 years, 16(53.3%) were male, 19(63.4%) were Hindus, 16(53.3%) belonged to upper middle class, 22(73.3%) belonged to nuclear family, 1(46.7%) of fathers had high school certificate, 13(43.4%) of mothers had high school certificate, 15(50%) of fathers were semi-profession, 10(33.3%) of mothers were clerical, shop owner, farmer and 12(40%) had illness for below one year.



Percentage distribution of age of the children with worm infestation



Percentage distribution of duration of illness among children with worm infestation

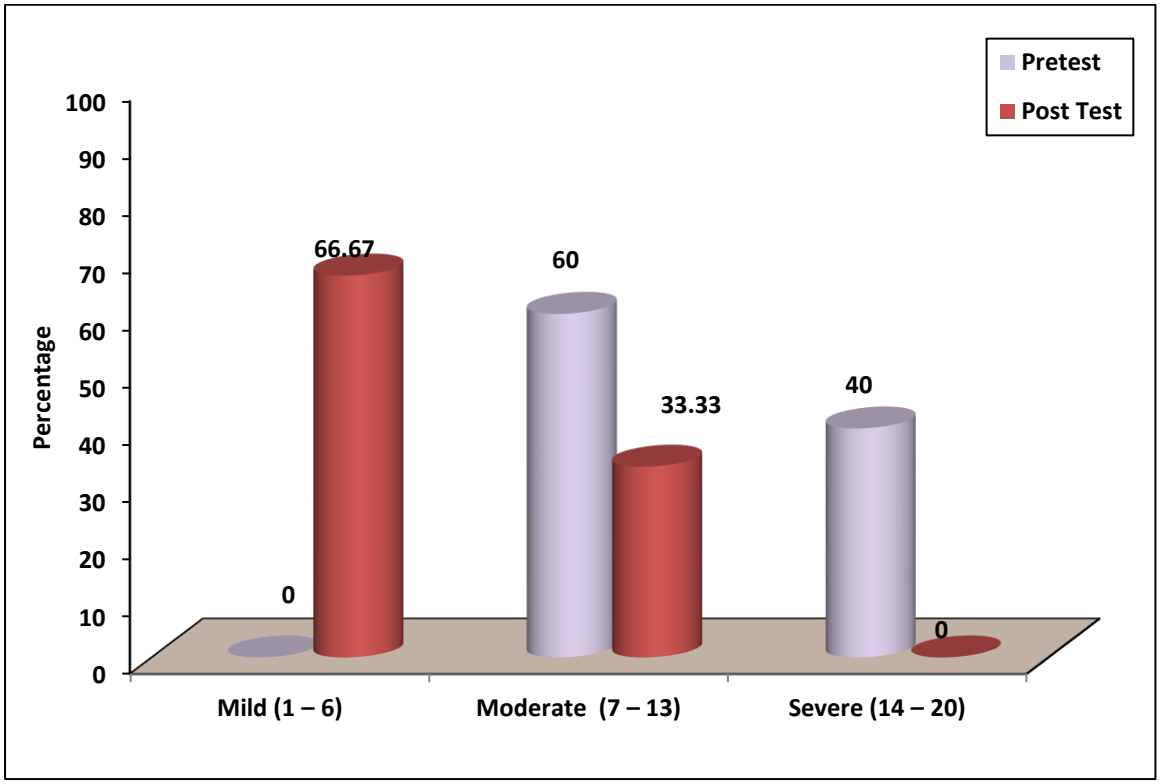
SECTION B: ASSESSMENT OF PRETEST AND POST TEST LEVEL OF WORM INFESTATION AMONG CHILDREN.

Table 1: Frequency and percentage distribution of pretest and post test level of worm infestation among children.

n = 30

Level of worm infestation	Pretest		Post Test	
	Frequency (F)	Percentage (%)	Frequency (F)	Percentage (%)
Mild (1 – 6)	0	0	20	66.67
Moderate (7 – 13)	18	60.0	10	33.33
Severe (14 – 20)	12	40.0	0	0

The above table 1 shows that in the pretest, 18(60%) moderate level of worm infestation and 12(40%) had severe level of worm infestation whereas in the post test, 20(66.67%) had mild level of worm infestation and 10(33.33%) had moderate level of worm infestation.



Percentage distribution of pretest and post test level of worm infestation among children

SECTION C: EFFECTIVENESS OF DRY PAPAYA SEEDS POWDER ON WORM INFESTATION AMONG CHILDREN.

Table 2: Comparison of pretest and post test level of worm infestation among children with selected demographic variables.

n=30

Worm Infestation	Mean	S.D	Mean Difference	Paired 't' test & p-value
Pretest	12.40	3.55	6.57	**t=26.514 p=0.0001, S*** **
Post Test	5.83	3.16		

***p<0.001, S – Significant

The table 2 shows that the pretest mean score of worm infestation was 12.40±3.55 and the post test mean score was 5.83±3.16. The mean difference score was 6.57. The calculated paired ‘’t test value of t = 26.514 was found to be statistically significant at p<0.001 level which clearly infers that dry papaya seeds powder on worm infestation was found to be effective in reducing the level of worm infestation among the children in the post test.

The findings of the study was found to be consistent with the study findings conducted by MaulidilaBrilianaAgarti, et al., (2017) conducted a study to know the influence of Infusa papaya seeds (Carica papaya) against the death of worms Ascarissuum with sharing the right dose and raise the potential of fruit seeds papayas (Carica papaya) as anthelmintic herbal medicine. This research is experimental research laboratories with research design posttest only control group design. The sample is a worm Ascarissuum obtained from the agriculture office of Agriculture and fisheries City of Surakarta. This research uses 9 treatment groups namely NaCl 0.9 % as negative control and Pirantelpamoat 0.2%, 0.3%, 0.4%, 0.5 percent as a positive control as well as the bean infusa papaya with the concentration of 10%, 20%, 30% and 40% as treatment groups. The Data obtained was analysis by One-way ANOVA test. From this research it can be concluded that the infusa of papayas (Carica papaya) seed have anthelmintic power against Ascarissuum in vitro.

SECTION D: ASSOCIATION OF LEVEL OF WORM INFESTATION AMONG CHILDREN WITH SELECTED DEMOGRAPHIC VARIABLES.

Table 3: Association of post test level of worm infestation among children with selected demographic variables.

n = 30

Demographic Variables	**Frequency**	**Chi-Square & p-value**
Age		**χ^2=7.936 d.f=3 p=0.047 S***
6 – 7 years	14	
7 – 8 years	9	
9 – 10 years	2	
10 – 12 years	5	
Sex		χ^2=0.268 d.f=1 p=0.605 N.S
Male	16	
Female	14	
Religion		χ^2=1.926 d.f=2 p=0.382 N.S
Hindu	19	
Christian	7	
Muslim	4	
Others	-	
Economic status		χ^2=1.181 d.f=3 p=0.758 N.S
Upper	6	
Upper middle	16	
Lower middle	5	
Upper lower	3	
Lower	-	
Type of family		χ^2=0.341 d.f=1 p=0.559 N.S
Nuclear family	22	
Joint family	8	
Extended family	-	
Education of father		
Graduate or post graduate	3	χ^2=0.107 d.f=3
Intermediate or post high school diploma	7	

Demographic Variables	Frequency	Chi-Square & p-value
High school certificate	14	p=0.991 N.S
Middle school certificate	6	
Primary school certificate	-	
Illiterate	-	
Education of mother		χ^2=0.404 d.f=3 p=0.939 N.S
Graduate or post graduate	4	
Intermediate or post high school diploma	9	
High school certificate	13	
Middle school certificate	4	
Primary school certificate	-	
Illiterate	-	
Occupation of father		χ^2=5.486 d.f=5 p=0.360 N.S
Profession	3	
Semi-profession	15	
Clerical, shop owner, farmer	7	
Skilled worker	2	
Semi-skilled worker	1	
Unskilled worker	2	
Unemployed	-	
Occupation of mother		χ^2=3.048 d.f=5 p=0.693 N.S
Profession	1	
Semi-profession	7	
Clerical, shop owner, farmer	10	
Skilled worker	8	
Semi-skilled worker	3	
Unskilled worker	1	
Unemployed	-	
Duration of illness		χ^2=0.117 d.f=2 p=0.943 N.S
Below on year	12	
2 – 3 years	11	
3 to 5 years	7	
Above 5 years	-	

*p<0.05, S – Significant, N.S – Not Significant

The table 3 shows that the demographic variable age **(χ^2=7.936, p=0.047)** had shown statistically significant association with post test level of worm infestation among children at p<0.05 level and the other demographic variables had not shown statistically significant association with post test level of worm infestation among children.

4. CONCLUSION

The study determined that the effect of the dry papaya seeds powder on worm infestation among children with signs and symptoms of abdominal pain.review show that the worm invasion is a significant medical condition looked by school going children which needa non - pharmacological recuperating approach, Organization of papaya seeds powder is straightforward and simple to execute, effectively accessible no striking aftereffects and generally by acknowledged to diminishthe degree of worm infestation among school children.the result supported that the incorporation of papaya seeds powder administration among school going children is the best intervention to treat worm infestation

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AUTHORS CONTRIBUTION

All the authors actively participate in the work of study. All the authors read and approved the final manuscript.

CONFLICT OF INTEREST

The authors declare no conflict of interest

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