A Survey of the Effect of Washing Hands as a Health Habit in the Incidence of Parasites among Public School Children*

by
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Man has always been infected by parasites. Parasitism has caused countless suffering and death. Children have been retarted mentally and physically by these organisms.

To counteract the spread of these dreadful organisms, man resorted to their irradication through medication. But it appears that the worms after some time develop drug resistance and chemical tolerance. Thus, the new approach is concentrated on preventive measure – the betterment of living conditions of man, intensive health education, eradication of breeding places of pests.

The purpose of this study is to determine the effect of handwashing on the parasitism and physical growth of school children. This attempt was made to determine the effect of the practice of washing hands with or without the supplemental use of antihelmintics on the growth of children and the development of some health habits.

THE EXPERIMENT

1. The study made use of 360 Grade IV pupils of Montes Elementary School. The teachers and parents of the pupils cooperated with the study. These pupils were divided into three groups: Group I,

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the control group, was not given any instruction on handwashing, neither were they given any deworming medicine. Group II was made to perform thorough handwashing while Group III was given deworming medicine at the start of the experiment and was made to perform thorough handwashing as in Group II.

2. Instructions were given to teachers of Group II and III who motivated and encouraged frequent handwashing in children.

3. Letters were sent to parents to inform them of the project. Their responses were wholehearted cooperation. A monthly checklist was also sent to teachers and parents to help assure a follow-up program and close supervision of the pupils.

4. Sample pictures of children, school and home facilities were taken.

5. The weights of the children were taken every month. However, only the first and last weighing were utilized for comparative analysis.

6. A questionnaire of twenty five questions were sent to the parents and teachers at the beginning and end of the study. The teachers filled a questionnaire for each pupil. It was hoped that this will determine the development of health habits of children. To facilitate the determination, points were assigned to each kind of response. *"Never"* was given I point; *"Seldom"* was given 2 points; *"Often"* was given 3 points and *"Always"* was given 4 points.

7. The Iloilo Regional Health Center and the Life Sciences Department, Central Philippine University were of great help with regard to the stool examination. Examination was done at the beginning and at the end of the study. The smear method was used.

RESULTS AND DISCUSSIONS

The data gathered from the three experimental groups revealed that the factors handwashing and deworming introduced to Group II and III brought about significant changes in the parasitism, weight and health practice of the children.

Group I:

The parasite infestation of the samples very slightly reduced. The prevalence at the beginning and at the end of the experiment are the following: Ascaris – 99.16%-98.15%; hookworm – 9.16%-7.4%; Trichocephalus – 97.5%-97.22%; Strongyloides – .83%-0; Endamoeba – 15.83%-15.74%; Trichomonas – 1.66%-1.84%; Giardia – 1.66%-

.92%. This reduction may be due to the slow process of fecal elimination.

The change in weight of the samples in this Group ranged from -1 to 13 pounds. The total increase was 527 pounds.

$$x \text{ equals } \frac{527}{108} \text{ equals } 4.78$$

$$a = \frac{1,627.7}{108} = 15.07 = 3.88$$

The increase in weight is part of the normal growth of children. But decrease in weight may be due to lack of food, metabolic disturbances due to the presence of parasites.

The health habits of the children very slightly improved. The responses at the beginning were: *"Never"* 186 or 186 points; *"Seldom"* 1,424 or 2,848 points; *"Often"* 953 or 2,859 points and *"Always"* 462 or 1,848 points. There was a total of 7,733 points. The responses at the end of the study were as follows: *"Never"* had 162 responses or 162 points; *"Seldom"* had 1,067 responses or 2,134 points; *"Often"* had 1,040 or 3,120 points; and *"Always"* had 494 or 1,976 points. The total points obtained is 7,392.

$$x \text{ equals } \frac{7,733}{120} \text{ equals } 64.4$$

$$x \text{ equals } \frac{7,392}{108} \text{ equals } 68.4$$

$$\text{equals } \frac{23,204.00}{120} = 193.4 = 13.9$$

$$a \text{ equals } \frac{22,930.16}{108} = 212.31 = 14.5$$

Group II:

The parasite infestation had significantly reduced. The prevalence at the beginning and at the end of the experiment are the following: Ascaris: 98.33%-78.5%; Hookworm: 8.33%-1.81%; Trichocephalus: 99.16%-94.64%; Strongyloides: .83-0, Endamoeba: 12.5%-89%; Trichomonas: 1.66%-89%; Giardia 2.5%-0. Reinfection was minimized through frequent handwashing since there was a marked reduction in the worm burden at the last stool analyses.

The change of weight of the samples ranged from -1 to 13 pounds.

The total increase was 559 pounds.

$$x \text{ equals } 4.99$$

$$a \text{ equals } \frac{1,325}{112} = 11.83 = 3.44$$

This increase in weight as a group could be due to the removal of the numerous parasites.

The pupils showed prominent progress in the development of

their health habits. At the beginning of the experiment, *"Never"* had 159 responses or 159 points; *"Seldom"* had 1,302 or 2,604 points; *"Often"* had 1,095 or 3,264 points; *"Always"* had 341 or 1,364 points. This gives a total of 7,412 points. At the end of the experiment, *"Never"* had 10 responses or 10 points; *"Seldom"* had 120 or 240 points; *"Often"* had 1,222 or 3,666 points; and *"Always" had* 1,312 or 5,248 points. The total responses were 9,164 points.

$$x \text{ equals } \frac{7,412}{120} = 61.76$$

$$x \text{ equals } \frac{9,164}{110} = 82.71$$

$$a = \frac{25,471.23}{120} = 212.26 = 14.5$$

$$a = \frac{12,810}{112} = 114.38 = 10.69$$

Group III:

The parasite infestation in this group had significantly reduced. The prevalence at the beginning and at the end of the study are as follows: Ascaris: 99.16%-74.54%; hookworm: 7.5%-.9%; Trichocephalus: 98.33%-90.9%; Strongyloides: 1.66%-.9%; Endamoeba: 8.33%-5.45%; Trichomonas: .88%-0; Giardia: 0-3.63%. This prominent reduction of the parasitic worms could no doubt be due to the deworming process and the care and attention the children gave to their body and food.

The weight of the pupils increased from 0-22 pounds. The total increase in weight was 1,007 pounds.

$$x = \frac{1,007}{110} = 9.15$$

$$a = \frac{2,417.8}{110} = 21.98 = 4.68$$

The children developed and acquired better health habits. The responses at the beginning of the study were as follows: *"Never"* had 134 responses or 134 points; *"Seldom"* had 1,207 responses or 2,414 points; *"Often"* had 1,444 or 4,332 points; and *"Always"* had 297 or 1,188 points. There was a total of 7,962 points. At the end of the study, *"Never"* had 19 responses or 19 points; *"Seldom"* had 407 responses or 814 points; *"Often"* had 839 or 2,517 points and *"Always"* had 1,479 or 5,916 points. There was a total of 9,266 points. This dramatic change was due to the consciousness of children of microorganisms and their infection.

$$x \text{ equals } \frac{7,962}{120} = 66.3$$

$$x \text{ equals } \frac{9,266}{110} = 84.2$$

$$a = \frac{25,479.37}{120} = 212.27 = 14.5$$

$$a = \frac{10,248}{110} = 93.17 = 9.6$$

CONCLUSIONS

The foregoing investigation gave evidence to support the following conclusions:

1. Frequent handwashing can help eradicate the parasitic worms from the human body as demonstrated in the experiment with children.

2. Handwashing alone can not bring about effective eradication.

3. Handwashing practice, when supplemented with deworming treatment, brings about very effective eradication of intestinal worms.

4. With the removal of intestinal worms due to handwashing practice and deworming treatment, there was a decided increase in weight.

5. Handwashing brings about development of better health habits.

RECOMMENDATIONS

The high prevalence of internal parasites and their deadly effects on the school children have led the researcher to make the following recommendations:

1. The investigator claims that the study was not long enough to allow the worms to reach their life span. She believes that a more intensive study, sustained program of deworming, and acquisition of handwashing as a habit would reduce if not eradicate internal parasitic worms.

2. This study with all its significant aspects should be printed in the School Teacher's Magazines and other publications.

3. A request be made to the Secretary of Education that mimeographed letters be sent to teachers, administrators, and librarian of the elementary schools of the Philippines to make them aware of the worm infestation and their deleterious effects on school children and focusing their attention to handwashing as among the cheapest preventive measure against intestinal worms.

The investigator would like to recommend the following programs be practiced in our elementary school:

1. There should be a thorough cleaning of classroom and classroom equipment every day.

2. Stool examination be required of all elementary school children at the beginning of school

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3. A deworming program using an effective antihelmintics be pushed through once or twice a year.

4. That arrangement be made to provide the children with adequate supply of soap even for just classroom use.

5. Every classroom should be provided with running water and proper drainage.

6. A sustained follow-up program on the part of the teacher and parents be directed continually to the development of handwashing as a habit to be practiced both at school and at home. ■