

Storytelling as a Health Teaching Strategy for Dengue Prevention and Control in the Philippines

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Storytelling is an approach to teaching and learning that develops from the lived experiences of teachers, clinicians, and students. Dengue has been a continuous concern in the country as it persists as a major mortality cause. This study aimed to prove that story telling facilitates learning on Dengue principles and Dengue prevention concepts at the elementary and pre school level. This study, done in a span of two years, followed a one-group pre-test, post-test experimental design. A self-made test was used for the assessment of the respondents' knowledge before and after storytelling. This was done seven times in different groups, five in the elementary level (grades 5 and 6) and two in the preschool level in Quezon City, Metro Manila, and Camarines Sur in Bicol region. Three original storybooks for storytelling were used as teaching-learning materials namely Moskee ang Bampirang Lamok, Dinudugo si Dino, Huwag MOKONG Kagatin (Kwento ng batang na dengue). To determine the difference between the mean scores of the respondents, paired two-tailed T-test was used. All p-values in the seven groups showed values lesser than 0.0001. There is extremely statistically significant difference between the means of pre and post test results of the subjects. The respondent students mentioned that the sessions were fun, and entertaining; they remembered the concepts through story events and characters. It was added that the sessions were not boring, as these were interactive. The whole activity improved memory recall. The faculty members said that the teaching learning strategy using storytelling proved very informative. They also mentioned that the science and health concepts were well embedded in the stories. The research showed that the use of storytelling as a teaching learning strategy is effective for Dengue principle and Dengue prevention concept disseminations.

Key Words: Dengue, elementary level, experimental design, health education, Metro Manila, preschool, storytelling

INTRODUCTION

Storytelling is an approach to teaching and learning that develops from the lived experiences of teachers, clinicians, and students (Koenig and Zorn, 2002). In a 2000 study by Richter and Koppett, it was said that a well told story can bring about a sense of community

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and belonging in learning communities better than most traditional teaching methods. Further, storytelling makes the learners not only hear the information, rather enables listeners to be immersed in the content on a much deeper and enriching level through emotional and personal connections and visual imagery (Morgan & Dennehy, 1997). Because learning experiences associated with emotions are more easily stored and recalled, storytelling

becomes more effective as a teaching tool. (Weiss, 2000).

Case stories contribute authenticity to the classroom, foster involvement, bridge the gap between theory and practice, and illuminate discourse. A conclusion is that the case-study and case-story methods are not mutually exclusive but complementary teaching techniques. Together, the approaches encourage skill development and reflection on practice (Ackerman, and Maslin-Ostrowski, 1995). For centuries storytelling has been used a powerful communication vehicle (Abrahamson, 1998). A known book on storytelling mentioned that the merits of storytelling as a popular leadership tool and method for embracing organizational culture and facilitating organizational changes have long been discovered in many industrial settings (Denning, 2005). Among nutritionists, it was concluded that storytelling develops ways of knowing and dialoguing about issues (Lordly, 2007)

According to Davidhizar, and Lonser (2003), storytelling is also useful to enhance self-esteem (like what one gets from the story of Popoy), develop critical thinking (from the story of Mariang Sinukuan), model behaviors (from the story Duktur ang Nanay ko), and to teach culturally related topics (from the story of Sibuyan) and communication skills. As a teaching-learning technique, storytelling engages learners, organizes information, allows exploration of shared lived experiences without the demands, responsibilities and consequences of practice, facilitates remembering, enhances discussion, problem posing and problem solving (Geanellos, 1996). Storytelling stimulates students to examine their values and attitudes in ways that would be hard or impossible to achieve by other methods. It allows educators to bring the discussion of values and attitudes to where students are most likely to appreciate and understand the message (Hensel and Rasco, 1992).

Aedes Aegypti is the primary vector of dengue while *Aedes albopictus* is the secondary one. The latter spread from Asia to North America and Europe. The spread was because of International trade of tires and goods like lucky bamboo. Bites from infected female dengue mosquito carry the virus. Infected humans carry, allow viral multiplication and serve as viral pool for uninfected mosquitoes. Dengue is normally associated with 40°C/104°F fever. It comes with two of the following symptoms: severe headache, pain behind the eyes, muscle and joint pains, nausea, vomiting, swollen glands or rash. The signs and symptoms usually last for 2–7 days. It is manifested after the introduction of the virus 4–10 days from the time of the bite from infected mosquito/es. Severe dengue may cause death due to plasma leaking, fluid accumulation, respiratory distress, severe bleeding, or organ impairment. There are warning signs 3–7 days after the first symptoms in relation to a decrease in temperature (below 38°C/

100°F). These signs include severe abdominal pain, persistent vomiting, rapid breathing, bleeding gums, fatigue, restlessness, blood in vomit. The critical stage can be lethal (next 24 to 48 hours) hence correct medical care must be in place (WHO, 2015)

The dengue virus infection is the most common arthropod-borne disease worldwide (Day-Yu Chao, 2000). It is an infectious tropical disease caused by the dengue virus. It is transmitted through the bite of an infected female *Aedes* mosquito. Anyone can be infected with dengue regardless of age, sex or socio-economic status. In the *Philippines*, as in most part of the Asian region, *Dengue* is reported as a leading cause of childhood hospitalizations and mortality (WHO, 2015).

In the Philippines, deaths due to Dengue are steadily increasing. As early as 1956, Dengue Type 3 claimed Filipino lives. In 1988, it killed 1800 people and in 1996, 1608 dengue cases were recorded from January to July alone (DOH, 1996). In 2013 at least 42,207 dengue cases, 193 of them fatal, had been recorded from January to the first week of June. Metro Manila had 3,073 cases or 6,208 fewer cases - a 67-percent decrease, with Quezon City having 617 cases or a 77-percent decrease; Manila with 542 cases or a 65-percent decrease; Caloocan with 345 cases or a 67-percent decrease; Parañaque with 188 cases or a 67-percent decrease; and Valenzuela with 186 cases or a 62-percent decrease (GMA News, 2013).

The three (3) original storybooks introduced in this study focused on the necessary information that people need to know about Dengue. Dengue transmission and prevention (Storybook 1), symptomatology and pathophysiology (Storybook 2) and general care of Dengue patients (Storybook 3) were presented in a manner that will be understood by elementary level children through stories. With the guidance of a responsible and knowledgeable adult, the storybooks can be used effectively for preschool children as well. The results of the study will improve the manner of disseminating health and science information among Elementary and preschool children in Public Schools and Day Care Centers in the metropolis particularly in dengue-prone areas. Students are hoped to relay the information they gathered to family members, friends and to other community members. The approach is from bottom to top which will enhance dengue prevention and management.

This study in general aimed to prove that story telling facilitates learning on Dengue principles and Dengue prevention concepts in the elementary and pre school levels. Specifically it aimed to determine if quiz scores improved with the incorporation of storytelling. Also the study aimed to obtain the views of students and faculty members regarding its use in their classes.

This study hypothesized that storytelling as a teaching learning technique increased the take home knowledge of students on Dengue and its prevention as shown by the increased scores in the post test versus the pre test results administered per group.

METHODOLOGY

This study followed a one-group pre-test, post-test experimental design. This was done seven times in different groups, five in the elementary level (grades 5 and 6) and two in the preschool level. Three original storybooks were used for the teaching-learning materials namely *Moskee ang Bampirang Lamok*, *Dinudugo si Dino*, *Huwag MOKONG Kagatin* (*Kwento ng Batang na Dengue*).

To ensure consistency of the storytelling for all groups, only one group of resident storytellers (composed of 3 storytellers) did the storytelling for the entirety of the study. The storytellers were the two (2) authors of the books who are both in the health profession and educators with training in storytelling and a former theater actress and a champion storyteller. The three (3) original storybooks were used as the guide for the story telling and the all the storytellers did a return demonstration of the storytelling procedure to make sure that similar story telling techniques were used by the team. Questions to be asked of the study participants were likewise pre-identified to avoid discrepancies between groups.

The basic procedure of the storytelling sessions is as follows:

1. Introduction to the session and setting of expectations
2. Administration of pre-test
3. Introduction to Dengue and *Aedes Aegypti*
4. Song on Dengue mosquito
5. Story: “*Moskee, Ang Bampirang Lamok*”
6. Q & A on *Aedes Aegypti* and introduction to the pathophysiology and symptomatology of Dengue
7. Story: “*Dinudugo si Dino*”
8. Q & A on the pathophysiology and symptomatology of Dengue and introduction to management of Dengue
9. Story: “*Huwag MOKONG Kagatin, Kwento ng Batang Na-Dengue*”
10. Q & A on the management of Dengue
11. Conclusion and recap of the story telling session
12. Administration of Post-test

The study was conducted in a span of two (2) years from

2011-2013. Quezon City, Metro Manila is considered as a Dengue hot spot having recorded the most number of Dengue cases in the Philippines in the last few years (DOH, 1996). Barangay Old Balara, Quezon City is one of the communities with the highest incidence of Dengue in the City so it was chosen as the main area of the study. All day care pupils (N=182) in Villa Beatriz, Old Balara, Quezon City and all morning shift Grade 5 students (N=291) of Old Balara Elementary School, Quezon City, Metro Manila were included in the study. As a basis for comparison, Camarines Sur in the Bicol Region, being an area with low incidence of Dengue was selected. All the elementary students (N=41) of the multi-grade learning institution, Jesus The Loving Shepherd School in Camarines Sur in Bicol Region were included in the study as representative samples for the non-Dengue risk population.

A self-made paper and pencil test was administered before and after storytelling for elementary and preschool students. Elementary students were given the 25-item test and day care pupils were given the 10-item paper-and-pencil test. The 25-item test for elementary students were validated by 3 elementary health and science expert teachers for its content and form and was pilot-tested in 10 elementary students of a select public school in Manila. The 10-item color and tick picture test was devised for day care pupils in collaboration with 2 seasoned day care teachers and was pilot-tested in 10 day care pupils.

To determine the significant difference between the pretest and posttest mean scores of the respondents, the paired two-tailed T-test was used.

RESULTS AND DISCUSSION

After the administration to elementary students (N=332; 291 from OBES and 41 from JTLSS) and day care pupils (N=182) of the pre-test for dengue principles and concepts on dengue prevention and management, the participants were given health information appropriate information using storytelling as the teaching-learning strategy (Figure 1). The three original storybooks namely “*Moskee ang Bampirang Lamok*”, “*Dinudugo si Dino*”, “*Huwag MOKONG Kagatin: Kwento ng batang na dengue*” (Figure 2) were used in all dissemination activities for elementary students. The first book is about how dengue is acquired and how one can prevent its spread. Ways of killing *Aedes Aegypti* were elucidated through that storybook. The second material, spoke of the symptomatology and pathophysiology of dengue. The last one talked about the general view on dengue and how it must be managed when acquired.



Figure 1. Storytelling used as teaching learning activities for dissemination of Dengue prevention at (A). Old Balara Elementary School and (B) Day Care Centers from Old Balara Quezon City brought to Barangay Villa Baetriz.



Figure 2. Original Storybooks on Dengue prevention that was used in the study A). Moskee Ang Bampirang Lamok, B).Dinudugo si Dino, C). Huwag MOKONG Kagatin: Kwento ng Batang Na-dengue”.

For preschoolers, additional teaching learning materials were used: the Dengue ReMoVe Workbook, Dengue Slayer Information Book and Dengue Slayer Coloring Book (Figure 3). The workbook is envisioned to also educate the parents of the pre school students since they helped in answering the book. The Dengue Slayer Information Book talked about original cartoon characters and how they helped preventing dengue outbreaks. The Dengue Slayer Coloring Book is an exact replica of the information material to impress on the minds of the preschool children the cartoon characters preventing dengue in the community.

Paper and pencil pretest and posttests were given to the subjects. The mean scores of the pre and post tests are

reflected in Table 1. The mean scores of the post tests taken by the students in both elementary and preschool levels were higher than the pre test results.

Table 1 reflects the mean scores of the pre and post test of the subjects from Quezon City and Camarines Sur where storytelling was employed as a health teaching strategy in the prevention and control of Dengue. It can be seen that there were increases in the mean scores of all the experimental groups. Elementary groups showed an increase of 1 to 4 points while the preschool groups showed improvement in score by at least 2 to 3 points. Employing the two-tailed paired T test, all p values in the seven groups were lesser than 0.0001 (Table 2). Hence, it can be said that given the scores of the respondents,



Figure 3. Books for preschoolers to prevent dengue entitled (A) Ang Dengue Slayers the Information Book, (B) Dengue ReMoVe Workbook for Preschoolers, and (C) Ang Dengue Slayers the Coloring Book

Table 1. Mean scores of pre and post tests given to elementary students and preschools of Old Balara, Quezon City, and Camarines Sur.

Subjects	p-values
Elementary 1	<0.0001
2	<0.0001
3	<0.0001
Preschool 1	<0.0001
2	<0.0001

Table 2. P values from Two Tailed Paired T-test.

Subjects	Mean Scores	
	Pre-test	Mean Scores Post-test
Grade V-1 Old Balara	14.71	17.31
Grade V-2 Old Balara	15.22	18.47
Grade VI-1 Old Balara	16.93	20.94
Grade VI-2 Old Balara	16.38	21.48
Mixed (IV to VI) Grade Camsur	15.37	19.68
Preschool 1 Villa Beatriz	3.387	6.699
2 Villa Beatriz	3.730	6.798

there is an extremely significant difference between the pretest mean scores and post test mean scores of the subject pupils.

It is believed that the history of the human race shows storytelling was used to teach key concepts in various social groups (Brady, 1997 and Mac Donald, 1998). On the other hand, there is an assertion that in many cultures without written language, cultures, values and folktales were transferred from generation to generation using storytelling (Egan, 1989). Evidences of the use of storytelling as a medium of information dissemination can be seen in various health disciplines as dentistry, and general medicine (Whipp, et al, 2000; Churchill & Churchill, 1989).

The data from this study shows that storytelling is a good health education strategy in the area of public health particularly that of dengue prevention and control in the elementary and preschool levels.

A study on storytelling as an instructional method asserted that the identification and organization of mental life is done by the brain mainly through associating structures, events, experiences or contexts into a meaningful whole (Andrews, et al, 2009). The organization of these structures and concepts aids in human ability to prepare for and act in succeeding contexts. Consequently, the mind encounters a series of ordered stimuli and applies information about the patterns of events and effects existing in the world. Storytelling allows the recognition

of patterns and events related to a phenomenon and thus making learning easy through storytelling. A study on the effectiveness of storytelling among adults in management supervision concluded that storytelling is effective in adults (Elk, 2006).

Storytelling is a way of engaging young learners with varied topic discussions. Stories normally entertain and relax the students, which lowers anxiety and so allow them to be participative. With active participation in discussions, concepts are better clarified which in turn facilitates learning. For hard to understand subjects like anatomy and physiology in the elementary level, storytelling will facilitate the learning.

Further, students were asked to provide feedback on their experiences with regard to the use of storytelling as a teaching-learning strategy. The students mentioned that the sessions were fun, and entertaining. They remembered the concepts through story events and characters. The sessions were not boring, as these were interactive. The whole activity improved memory recall. The faculty members said that the teaching learning strategy using storytelling proved very informative. They also mentioned that the science and health concepts were well embedded in the stories.

SUMMARY AND CONCLUSIONS

The results of the study showed that the use of storytelling as a teaching learning strategy is effective for disseminating information about Dengue and Dengue prevention and control. After the use of the said teaching-learning strategy, the post test scores of the students improved relative to the pre tests. The students and faculty members who became part of the sessions gave in positive inputs for the applied teaching learning strategy, storytelling.

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