

Protective Health Education

Ganime AYDIN*

Suggested Citation:

Aydin, G. (2016). Protective health education. *Eurasian Journal of Educational Research*, 65, 277-294
<http://dx.doi.org/10.14689/ejer.2016.65.16>

Abstract

Problem Statement: As a result of wars, starvation, traffic accidents, homicide, infectious diseases, insufficient adult protection, migration, and inadequate legal reforms the mortality rate of children has become a serious problem in the world. Protective health education contributes to a child's physical and social health. In this case, the main problem of research is 'How does the production and applications of educational materials affect the protective health knowledge level of prospective pre-school teachers? '.

Purpose of the Study: The aims of this study are, to increase the health knowledge level of prospective teachers, to produce protective health education materials for children and to experience the applications of produced materials with these children.

Method: The present study was used partially mixed sequential equal status design model. The quantitative data from the protective health knowledge level test including 20 open-ended questions were combined with qualitative data from interviews who (n=131) were the pre-school prospective teachers. The qualitative data that were gathered from face to face interviews with 22 of the sample group. The interventions of research including theoretical and production of protective health education tools took place 12 weeks then prospective teachers applied tools on children. T-test and content analysis techniques were used to analyze the data.

Findings: There was a significant difference in the protective health knowledge level test scores of participants ($t(131) = 10.53, p < .00$) before and after the research. There was a significant difference between the mean values of pre-test and post-test results on the immunity ($t(131) = 5.51, p < .00$), traffic ($t(131) = 1.53, p < .00$), nutrition ($t(131) = 6.38, p < .00$), hygiene ($t(131) = 5.83, p < .00$), mental health ($t(131) = 4.05, p < .00$). There

* Assist. Prof. Dr. Ganime Aydin, Istanbul Aydin University, ganime31@gmail.com

was no significant difference between the mean scores of the pre-test and post-test of tooth health ($t(131) = 1.53, p > .00$) and physical activities ($t(131) = 1.53, p > .00$). The difficulties during the production of materials, the difficulties during the applications with students and the experiences of prospective teachers were obtained as themes from the qualitative data.

Conclusion and Recommendations: Protective health education should be given to all prospective teachers in all subjects including practical as well as conceptual knowledge. In the future they can use this knowledge and these practices to decrease the mortality rate of countries as a teacher, as an individual in a society or as a parent.

Keywords: Health education, teacher education, health education tools, children, mixed method.

Introduction

Health education is intended to protect people from diseases and accidents by providing them with knowledge and basic preventive skills, thus reducing the risk of illness and injury. Personal health and social health are the top two priorities. According to the Turkish Statistical Institute (TUIK, 2015), 40.4 percent of countrywide deaths in 2014 occurred due to circulatory system disorders while it was 39.6 percent in 2013. The other death ratios in 2014 were 20.7 percent from malign tumors, 10.7 percent from respiratory disorders, 5.1 percent from endocrine-nutrition-metabolic disorders, 4.3 percent from open wounds and poisoning, and 4.4 percent from nervous and sensory organ disorders. Unfortunately, people between 0-14 years old died from open wounds and poisoning consisting 5.26 percent of the total death ratio in 2014. In Turkey, according to data gathered from newspaper and television reports (Report, 2013) a total of 609 children died in 2012, 20 in workplaces, 28 from violence in the family, 20 in schools, 4 from peer violence, 16 from homicides, 11 in hospitals, 114 from traffic accidents, 47 from other accidents, 15 from electric shocks, and 40 children of foreign parents died from various causes. Among children under six years old, in the first half of 2012, the most common health problems reported in Turkey were from nasal infections (27.6 percent), infectious diseases (11.7 percent), anemia (9.2 percent), and dental and mouth disorders (8.7 percent). Even though in Turkey the number of infant deaths has decreased from 17,552 to 13,900 from 2009 to 2013 (TUIK, 2014), these figures are far away from the millennium goals (Lozano et al., 2011) like being aware of the 73 percent of diarrhea deaths under the age 5 from the developing countries including total 75 percent diarrhea deaths and 17 percent of total child deaths (Hammig, Ogletree & Wycoff-Horn, 2011; Boschi-Pinto, Velebit & Shibuya, 2008). The circulatory diseases and neoplasms were the most prevalent causes of death. The occurrence of fatal disorders in Europe in 2010, in order of frequency, was respiratory, digestive, and nervous system disorders (Urhausen & Pace, 2013). In Korea, the total mortality rate has decreased in both genders of low educated people since 1995. This trend was more prominent among those aged between 30-44 years. However, the suicide in younger

females (30–44 years) and cerebrovascular disease in older males (45–59 years) have increased. In addition, death ratio in low education level, especially in females between 30–44 years of age has increased, (Lim et al., 2015). In the USA 70% of injuries that could be prevented at preschools occur on the playground (Schwebel, Pennefather, Marquez & Marquez, 2014).

The mortality rate of the population could be decreased by increasing the education level of the population. Most of the health behaviors are correlated with health knowledge. An increase in the standardized health knowledge index is associated with a reduction in the probability of smoking and has positive effects on exercise. Better health knowledge is also associated with a healthier diet, as measured by higher fruit, vegetable, fish and white meat consumption, lower red meat consumption, and choice of healthier bread and milk options and also higher socio-economic level was positively correlated with health knowledge level (Johnston, Lordan, Shields & Suziedelyte, 2015). Böckerman & Maczulskij (2016) found that the relation between education of people from high school or basic tertiary education have the strongest positive health effects on men and they suggested that school dropout affecting social health should be prevented. The knowledge and traits acquired during the education of people affect the decisions of people like smoking, the types of food to eat, the type of contraceptive technique to use (Li & Powdthavee, 2015; Grossman, 2005). The other research which used data from 21 European populations indicated that the effect of education on mortality is lower in the southern European populations and much higher in central/eastern European populations (Kulhanova et al., 2015). However, in many studies, other than the positive effect of education level on health behavior, there was no significant relation between education and healthy life styles, especially on smoking, mortality rate, eating healthy and exercise (Li & Powdthavee, 2015; Clark & Royer, 2013; Braakmann, 2011; Kenkel, Lilard & Mathios, 2006). Cutler, Huang and Lleras-Muney (2015) explained the reasons for different results related with education level and health rates of societies finding the relation between unemployment rates upon the graduation period of people. According to Miller (1996), family planning education to protect adolescents from unintended pregnancies, parental education, increasing the number of early childhood programs in support of working women, and new legal regulations to prevent young people from guns, fireworks, and bicycle accidents were all responses to 86 percent increase in the death rate between the years 1968 and 1992. However, Miller also pointed out that not one single approach would suffice; educational programs, protective public health services, legal regulations, and fiscal supports should be used collectively. It was proposed that collaboration between universities and urban schools to provide health education, and professional health and social workers in schools should work with families, teachers, administrators, and mental health professionals to nurture the health and safety of young people (Berzin, O'Brien, Frey, Kelly, Alvarez & Shaffer, 2011; Butler, Fryer, Reed & Thomas, 2011).

The policy makers and funds like The United Nations Children's Fund (UNICEF), the United Nations Educational, Scientific and Cultural Organization

(UNESCO) and other agencies drew attention to school - based health education programs that improve sustainable behavioral change for health and well-being of adults and societies. Health education in schools consists mostly of information and theory (Marx & Wooley, 1998) rather than skill-based application to daily life. Increasing demands on teachers' time, political pressures to improve student performance on standardized tests (Bryn Austin, Cohen-Bearak, Wardle, Fung & Cheung, 2006), inadequate health education materials, limited competence of teachers and school environment are all restricting influences on the effectiveness of health education. The school environment is an important component of effectiveness that requires hygienic conditions, nutritious food and safety features to reduce accidents. Nevertheless, when health education is taught by well-trained professionals, positive results can be obtained. An increase in the knowledge level of 513 students was obtained after 1 hour of instruction about hepatitis (Geckil, Savas, Sahin, Kutlu & Yologlu, 2010). Education about healthy nutrition of primary school students in 4th grades medicine students in 1st and 6th grades had positive effects at 24 percent of medicine students and 19.4 percent of primary school students (Hassoy, Mandiracioglu, Ergin, Durusoy & Davas, 2011). Hammig et al., (2011) discovered that the number of delivered contents and education hours in the health classes rather than combined classes by professional teachers were higher than non-certificated or untrained teachers. In this research, different from other studies, protective health education was given to prospective pre-school teachers by multidisciplinary methods, in which they produced education materials and practiced them with children rather than applying specific courses and theoretical instruction.

In Turkey, since 1996, health education has been given two hours a week in the 9th grade curriculum of all secondary schools. After 2013, the curriculum was changed by the addition of some new topics such as mental health and the first aid unit was shifted to the traffic curriculum in 12th grade. Pre-school teacher candidates in schools of education learn about first aid and mother-child health and primary school teacher candidates have a required unit on first aid. This minimal introduction might not be sufficient. Considering that the average educational level of the Turkish population in 2012 was only up to 6th grade and considering the Turkish mortality rate at the same time, it is obvious that more effective health education is desperately needed. Apart from some films for use in first aid and traffic units and some additional films about obesity and addiction recently prepared by the Ministry of Education, learning tools for health education in schools are insufficient. Up-to-date videos and video games might be available elsewhere, but these are not obtainable in Turkey. In this research, students have the opportunity to apply their learning and experience its effects on their own performance (Bransford, Franks, Vye & Sherwood, 1989, 188). Accordingly, these prospective teachers were given the opportunity to use health education materials, which they had developed themselves with the pre-school students, for whom the materials were intended. If knowledge has no apparent application, it may not be perceived as meaningful nor readily transferred to other situations (Wicklein & Schell, 1995).

The Aims of Research

In this research, the aims were to increase the health knowledge level of prospective teachers, to produce protective health education materials for children and to experience the applications of produced materials with these children.

Research Questions

How does the production and application of educational materials affect the protective health knowledge level of prospective pre-school teachers? Specifically:

1) What were the effects of production and application of educational materials/tools on prospective pre-school teachers' knowledge level of protective health knowledge level, including immunity, nutrition, traffic rules, mental health, physical activities, tooth health and hygiene?

2) What strengths and weaknesses of the applications can inform the development of new methods of teaching health education?

Method

Research Design

The research was carried out by mixed method. Creswell and Clark (2007) defined mixed methods research as a set of designs and procedures, in which both quantitative and qualitative data are collected, combined, and analyzed in a single study or series of studies. Doyle, Brady and Byrne (2009) also defined mixed method as one, in which a variety of approaches are used to answer research questions that cannot be addressed using a singular method. In this study, the mixed method was used to answer two different research questions and to make inferences synthesizing the answers for these questions. The study employs partially mixed sequential equal status design. In this case, the quantitative method was used to examine the effect of production and application of protective health education materials on prospective pre-school teachers using the Protective Health Knowledge Level Test. The qualitative method was used for documents of interview of the prospective teachers. Then the results were mixed to discuss and conclude and finally to produce implications regarding child death rate and healthy societies. The integration of quantitative and qualitative data may take many forms including connecting results from one data set to the collection of data from another; juxtaposing quantitative and qualitative results for comparison; transforming one form of data to facilitate the other form of analysis or forming interpretations from the two sets of results (Clark et al., 2014).

Research Working Group

Participants (n=131) were selected from 3rd grade prospective pre-school teachers. Two of them were males and the others were females taking the Education Technologies and Materials Development course taught by the author at University. They were considered suitable for this research because their program of study

included mother-child health, first aid and human anatomy and physiology. In the quantitative part of research there were participants, in the qualitative part 22 of them were randomly selected.

Research Instruments

The protective health knowledge level test was composed of 20 items. There were some examples of open-ended questions:

Give one example of foods in the first level of the food pyramid.

What is the first letter of code that indicates chemical additives in food?

Which kinds of foods should be given to children for the muscular development of intestines?

Why should we drink water?

Write one of the ways of activity for children's mental health.

How long can a tooth brush be used?

When do children start brushing their teeth?

There are three items about immunity, three about traffic rules, two about tooth health, three about hygiene, five about nutrition, three about exercise and one about mental health. There were definite correct responses for each item. Correct responses were coded as 1 and incorrect or blank responses were coded as 0. The reliability of measurement was found to be KR20 = 0.64 for the pre-test and 0.82 for the post-test. At the end of treatment, randomly selected prospective pre-school teachers (n = 22) were used to respond to the following two prompts:

1) Where did you have difficulties in the applications and where did you feel satisfied?

Explain.

2) State what you learned in a review and evaluation of your work.

Procedure

The plan of application was structured on the base of behavioral science theory principles for health education that were indicated by Jackson (1997):

"... acquiring new behaviors is a process, not an event, and often entails learning by performing successive approximations of the behavior" (p.3) and "... the more beneficial or rewarding an experience, the more likely it is to be repeated; the more punishing or unpleasant an experience, the less likely it is to be repeated" (p.4). Other than content knowledge of protective health, practicing knowledge by producing learning tools for children and usage of tools with them in the schools were the main purposes of applications. Prospective pre-school teachers from three sections of the Education Technologies and Materials Development course were

given protective health knowledge level pre-test and then they were separated into groups. Each group was assigned a topic at the beginning of the fall semester: hygiene, tooth health, immunity, healthy nutrition, traffic rules, physical activity and mental health. The treatment lasted for 12 of the 15 weeks of the semester. Each lecture period per week was 4 hours. For a period of 2 weeks, the researcher explained the relevant theories and demonstrated the preparation and use of effective visual materials like power point, video, films for 4 to 6 year-old children. The following week, the prospective teachers' prepared visual materials related to their topics and tried them out among their classmates. As they worked, the author offered advice, usually related to conceptual accuracy and appropriate cognitive level. The next week, selection criteria and appropriate use of books were discussed and decided, whereupon the students prepared books related to their topic and tried them in class. Similar activities continued for 12 weeks with the preparation and use of puppets, games, songs, scientific experiments, dance, cartoons and concept maps. Finally, after some corrections, modifications and adaptations, each group practiced using its set of materials with 4 to 5 year-old children in 8 kindergarten classrooms, a trial period lasting for one month. Finally a post-test was given to the prospective teachers two weeks after the trial teaching had ended.

Data Analysis

The qualitative data obtained from Protective Health Knowledge Level Test was analyzed by referring to the answer key. The author and another expert checked the pre-test and post-test by assigning 1 for each correct response and 0 for each incorrect or blank response. The total correct possible score of the test items was 20. The mean of each sub units was calculated by the total score of items related to sub-unit and then divided to the number of questions. For example, the scores of 5 items about nutrition were added and then divided into 5 to execute the process t-tests. The quantitative data were analyzed by using the SPSS 17 statistics program for paired sampled t-tests. The qualitative data from randomly selected 22 participants were encoded by the author and another expert to test for validity and to generate the themes presented in the results section of this paper. The results of interviews were analyzed by the method of content analysis (Yildirim & Simsek, 2008). The themes and codes are displayed in Table 1. Using the formula $\text{Reliability} = \frac{\text{Consensus}}{\text{Consensus} + \text{Dissidence}} \times 100$ (Miles & Huberman, 2008), the researcher found inter-coder reliability for codes and themes to be 92 percent similar. All codes were compared and discrepancies were discussed until 100 percent agreement was reached. The reason for mixing quantitative data (results from the Protective Health Knowledge Level Test) and qualitative data (from structured interview) is that neither method by itself is sufficient to meet the needs of this study. When used in combination, quantitative and qualitative data yield a more complete analysis (Creswell et al., 2004).

Table 1.*Themes and Codes of Interview*

<i>Codes for participants</i>	<i>Themes 1 and codes</i>	<i>Theme 2 and codes</i>	<i>Theme 3 and codes</i>
	Difficulties during the preparation of protective health education materials	Difficulties during the practice use of the materials with children in schools	What the prospective teachers learned
*G1: Girl occupied the first order in the lecture list.	*MC: Misconceptions	*CM: Class Management	*GW: Group work of children interest.
*MP 32: Male occupied the 32 nd order in the list.	*NPME: Not having prepared education materials	*TM: Time management	*RA: Realization of their own abilities.
	*ICK: Insufficient content knowledge	*AKQ: Answering children's questions	*EM: Effect of media
	*GW: Group work	*LPK: Lack of pedagogical knowledge	*ImCK: Important of content knowledge.
			*LPK: Learning by practicing with children

Results

Results of Protective Health Knowledge Level Test

The comparison of differences between the protective health knowledge level pre-test and post-test mean scores is displayed in Table 2.

Table 2.

The Pre-Test and Post-Test Results of PHKL of Prospective Pre-School Teachers

	<i>n</i>	\bar{x}	<i>S</i>	<i>sd</i>	<i>t</i>	<i>p</i>
Pre-test	131	9.19	3.36	131	10.53	0.00*
Post-test	131	12.17	2.57			

* $p < 0.005$

Depending on Table 2, the mean score of the post-test was greater ($\bar{x} = 12.17$) than the mean score of pre-test ($\bar{x} = 9.19$). According to the paired sample t-test, there was a significant difference between the mean values of the pre-test and post-test ($t(131) = 10.53, p < .00$).

Table 3 shows the paired sample t-test results of the protective health knowledge level pre-test and post-test depending mean scores of sub units. There was a significant difference between the mean values of pre-test and post-test results on the immunity ($t(131)=5.51$, $p<.00$), traffic ($t(131)=1.53$, $p<.00$), nutrition ($t(131)=6.38$, $p<.00$), hygiene ($t(131)=5.83$, $p<.00$), mental health ($t(131)=4.05$, $p<.00$). There was no significant difference between the mean scores of the pre-test and post-test of tooth health ($t(131)=1.53$, $p>.00$) and physical activities ($t(131)=1.53$, $p>.00$).

Table 3.

Paired Sample t-test Results of PHKL Pre-Test and Post-Test Depending on Sub-Units

Sub-units		<i>n</i>	\bar{x}	<i>S</i>	<i>sd</i>	<i>t</i>	<i>p</i>
Immunity	Pre-test	131	0.53	0.25	129	5.51	0.00*
	Post-test		0.68	0.23			
Traffic	Pre-test	131	0.52	0.33	131	1.53	0.00*
	Post-test		0.75	0.32			
Nutrition	Pre-test	131	0.52	0.22	131	6.38	0.00*
	Post-test		0.65	0.18			
Hygiene	Pre-test	131	0.41	0.29	131	5.83	0.00*
	Post-test		0.58	0.30			
Mental Health	Pre-test	131	0.02	0.15	131	4.05	0.00*
	Post-test		0.16	0.36			
Tooth Health	Pre-test	131	0.43	0.33	131	1.53	0.12
	Post-test		0.48	0.32			
Physical Activity	Pre-test	131	0.43	0.33	131	1.53	0.12
	Post-test		0.48	0.32			

* $p<0.005$

Results of Content Analysis

Theme 1: Difficulties during the preparation of protective health education materials. Most of the participants ($f=14$) stated that they had acquired knowledge about protective health by listening to what other people, generally family elders, said, advice that had often been wrong and to change these received opinions was difficult. Most of them ($f=13$) could not find enough pre-prepared health education materials. Ten of the participants indicated that they had difficulty producing materials because they did not have sufficient accurate content knowledge. Eight of them described problems in group work that is, doing the work on time and agreeing about decisions. The samples were:

G58ICN: Now I understand why I failed in anatomy and physiology lecture. When we were playing the game related with place of organs, I got confused again.

G13MC: The guiltiest person is my grandmother; she always said remove your head back when your nose is bleeding.

G7NPEM-GW: We look for existing educational material in many places and nobody could find them; then we prepared by fighting with each other to meet at the same decision.

Theme 2: Difficulties during the practice use of the materials with children in schools. Most of the students had problems of class management ($f=20$). Eighteen had problems of time management and could not finish the planned activities. Also, some of them ($f=8$) had problems when answering student questions and three of the participants noted their lack of pedagogical know-how that led to behavior problems in a class attended by handicapped students.

G31AQ: One of the kids asked the protection number of the sun crème but I didn't know the correct number for kids.

G5AQ Before this lecture I didn't know the tooth polish and two of kids showed polished teeth in the kindergarten.

G7 TM: We couldn't finish most of the activities on planned time.

G7LPK-CM-TM: When the kids were hungry and sleepless, they couldn't concentrate on the lecture. Our practice hour was before lunch time and they always asked about the kinds of food in the lunch. We have two handicapped kids in our class and we had problems for the agreement and controlling them into the activities.

Theme 3: What the prospective teachers learned. Most of them ($f=18$) claimed that they were learning about protective health as they taught the children. These prospective teachers ($f=15$) learned the advantages of team work. Some of them ($f=12$) discovered that when the materials encouraged activity, evoked wonder or were very colorful, the students enjoyed learning. For example, one of the groups was surprised by the effects of a game with the first-aid bag. In fact, they did not think it would be attractive for the children but the game about first aid bag was funny for them. Some ($f=8$) discovered abilities they had not known they had. The importance of content knowledge was emphasized by 4 participants. 3 of them realized the effect of media on children's learning. They indicated that children generally gave the answer 'lung' when asked about protecting organs of the body from addictions. When the student teachers asked, G31EM: Why lung? They were told about films explaining the harmfulness of cigarettes that the children had watched on television. Some examples of themes:

G12LPK: We learned protective health better than in our lectures when we were practicing with children.

G5RA: We wrote and composed very good songs and also it was very funny and we can produce an album with our new abilities that we believed we discovered.

G71GW: We learned to work in an organization, problem solving, defining responsibilities and the importance of setting deadlines. Brainstorming causes production of creative materials.

G43ImCK: Having information about the content in detail was providing easy production of materials and answering students' questions

The participants ($f=8$) made recommendations:

Doing this activity after the education of class management would increase the effectivity of activities.

Discussion and Conclusion

To reduce the mortality rate in the world is one of the main issues of most of the countries. Especially infant mortality rate, circulatory disorders, cancer, suicides, obesity, smoking, alcohol and drug addictions are the main problems (Lim et al., 2015; Urhausen & Pace, 2013; Boschi-Pinto et al., 2008; Hammig et al., 2011; Lozano et al., 2011; Heron & Tejada-Vera, 2009). In this research, protective health education was given to prospective pre-school teachers to increase their health knowledge level with the applications. The results of the protective health knowledge level tests displayed that prospective pre-school teachers learned and increased the knowledge level about protective health by theoretical and practical education. The education level of people affects the health knowledge level (Grossman 2006; Johnston et al., 2015; Li & Powdthavee, 2015). Health education about the selected units for students, teachers or citizens affects the knowledge level of participants in a positive way as indicated in the results of researches of Hassoy et al., (2011), Hammig et al., (2011) and Geckil et al., (2010). The interviews of participants showed that these prospective pre-school teachers experienced and learned from innovative approaches in health education. Even though the participants had taken many lectures about health education during their secondary school or university period that consisted of information and theory rather than skill-based applications or adaptations to daily life, the research results showed the importance of practicing the learned knowledge (Bransford et al., 1989; Wicklein & Schell, 1995; Marx et al., 1998). Results of the protective health knowledge level tests show that they understood concepts embedded in their production of instructional materials even though the results also reveal significant differences between their knowledge of concepts related to immunity, traffic, nutrition, hygiene, mental health and concepts regarding tooth health and physical activities. The reasons for this can be inferred from the sentence in one of interviews, 'Before this lecture I didn't know the tooth polish and two of kids showed polished teeth in the kindergarten'. Also, the groups dealing with dental health found prepared educational materials such as models, videos, and games and consequently did not spend much effort to produce new materials. The same applies to physical activity, because ready-made educational materials about physical activity were also available. If the teacher candidates had not exercised their knowledge and not done any brainstorming, their learning would have been deficient. As indicated, doing brain storm causes production of creative materials. The most important outcome of the interviews in relation to new methods of teaching about health was the claim made by the participants that learning theoretical knowledge through the production of teaching materials was effective,

even though negotiation and decision making in a group were sometimes difficult. Most of the participants agreed that they were learning about protective health when they were practicing their teaching with children. Koshino, Kojima and Kendera (2013) also indicated that students are interested in the materials and that they learned the contents in an efficient manner. The participants in the research also learned what made materials attractive and what activated the children's learning. They discovered their unforeseen abilities and learned about the impact of media on children's learning. Problems of class management and insufficient pedagogical knowledge were the main problems experienced during the treatment, yet these problems helped the prospective teachers to identify many of the skills they needed to learn in order to become competent teachers. The universities should collaborate with schools, teachers and families as indicated by Butler et al., (2011) and Berzin et al., (2011) to provide health education to decrease mortality rate and for health and safety for young people and the society.

Conclusion

In this research, the production and application of educational materials affected the increase of the protective health knowledge level of prospective teachers. They learned the concepts related with immunity, nutrition, traffic rules, mental health, physical activities, tooth health and hygiene when they were preparing the educational materials. They also modified their previous knowledge that they had learned from their environment like their grandparents and friends. In the future they can use this knowledge and these practices to decrease the mortality rate of countries as a teacher, as an individual in a society or as a parent. They can contribute to increase the number of healthy infants and healthy people. Using the mixed method approach the researcher also obtained the weak and strong sides of applications; the importance of conceptual learning, pedagogical knowledge during practicing with kids, experiences with group working, their realizing their abilities and what they need during material development. Video recording, fewer participants, and a longer application period would have been advantageous improvements.

Recommendations

Teacher education. Even though the sample group in the research was selected from prospective teachers who had taken some health courses such as first aid, mother-child health and human anatomy and physiology, they needed to learn more about protective health. Protective health education should be given to prospective teachers in all subjects including practical as well as conceptual knowledge. Although there are social workers and medical personnel in schools, teachers are the most important components of health education because they know the students' abilities, cognitive levels, personal and social needs. Through teacher education programs, teachers gain the pre-requisite knowledge of learning theories and teaching methods and through classroom experience they develop the skills to apply them.

Protective health education in schools. Schools should raise family awareness of protective health and make appropriate materials and facilities available to families in collaboration with universities, institutes, the government, civil societies. In addition publicity in the media can provide information about protective health education.

Acknowledgements

The authors would like to thank all the pre-school teacher candidates who contributed to this work, as well as the school administrators, teachers, and students who participated in the research for their support and assistance.

References

- Bryn Austin, S., Cohen-Bearak, A., Wardle, K., Fung, T. T., & Cheung, L. W. Y. (2006). Facilitating change in school health: a qualitative study of schools' experiences using the School Health Index. *Journal of School Health, 3*(2), A35.
- Berzin, S. C., O'Brien, K. H. M., Frey, A., Kelly, M. S., Alvarez, M. E., & Shaffer, G. L. (2011). Meeting the social and behavioral health needs of students: Rethinking the relationship between teachers and school social workers. *Journal of School Health, 81*(8), 493-501.
- Boschi-Pinto, C., Velebit, L., & Shibuya, K. (2008). Estimating child mortality due to diarrhea in developing countries. *Bulletin of the World Health Organization, 86*(9), 710-717. Retrieved May 7, 2013 from <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2649491/pdf/07-050054.pdf>
- Braakmann, N. (2011). The causal relationship between education, health and health related behaviour: Evidence from a natural experiment in England. *Journal of Health Economics, 30*(4), 753-763.
- Bransford, J. D., Franks, J. J., Vye, N. J., & Sherwood, R. D. (1989). New approaches to instruction: Because wisdom can't be told. In *Similarity and analogical reasoning* (pp. 188). Newyork, Cambridge University Press.
- Butler, J., Fryer, C. S., Reed, E. A., & Thomas, S. B. (2011). Utilizing the school health index to build collaboration between a university and an urban school district. *Journal of School Health, 81*(12), 774-782.
- Böckerman, P., & Maczulskij, T. (2016). The Education-health Nexus: Fact and fiction. *Social Science & Medicine, 150*, 112-116. Retrieved 2 March 2013 from <<http://www.gundemcocuk.orgbelgeler/yayinlarimiz/raporlar>>
- Clark, D., & Royer, H. (2013). *The effect of education on adult mortality and health: Evidence from the United Kingdom*. American Economic Review. USA, American Economic Association Press, 103; 6, 2087-2120.

- Clark, V. L. P., Huddleston-Casas, C. A., Churchill, S. L., Green, D. O. N., & Garrett, A. L. (2008). Mixed methods approaches in family science research. *Journal of Family Issues*, 29(11), 1543-1566.
- Clark, V. L. P., Anderson, N., Wertz, J. A., Zhou, Y., Schumacher, K., & Miaskowski, C. (2014). Conceptualizing longitudinal mixed methods designs: A methodological review of health sciences research. *Educational Psychology Papers and Publications*. Retrieved August 31, 2014 from <<http://digitalcommons.unl.edu/edpsychpapers/160>>
- Creswell, J. W., Fetters, M. D., & Ivankova, N. V. (2004). Designing a mixed methods study in primary care. *The Annals of Family Medicine*, 2(1), 7-12.
- Creswell, J.W. & Clark, V.L.(2007). *Designing and conducting mixed methods research*. Thousand Oaks, CA: Sage.
- Cutler, D. M., Huang, W., & Lleras-Muney, A. (2015). When does education matter? The protective effect of education for cohorts graduating in bad times. *Social Science & Medicine*, 127, 63-73.
- Doyle, L., Brady, A. M., & Byrne, G. (2009). An overview of mixed methods research. *Journal of Research in Nursing*, 14(2), 175-185.
- Grossman, M. (2006). Education and nonmarket outcomes. *Handbook of the Economics of Education*, 1, 577-633. Retrieved January 2015 from <http://core.ac.uk/download/pdf/6708284.pdf>>
- Geckil, E., Savas, R., Sahin, T., Kutlu, F. T., & Yologlu, S. (2010). Evaluation of the efficiency of training programs given to second stage primary school students on hepatitis. *Journal of Hacettepe Faculty of Nursing*, 17(1), 030-030.
- Hammig, B., Ogletree, R., & Wycoff-Horn, M. R. (2011). The relationship between professional preparation and class structure on health instruction in the secondary classroom. *Journal of School Health*, 81(9), 513-519. Retrieved April 8, 2014 from, <http://jsn.sagepub.com/content/29/1/10.full.pdf+html>>.
- Hassoy, H., Mandiracioglu, A., Ergin, I., Durusoy, R., & Davas, A. (2011). School health education program of medical student, Ege University School of Medicine. *TAF Prev Med Bull*, 10(6), 649-656. Retrieved March 1, 2013 from <http://www.scopemed.org/?mno=4086>>.
- Heron, M., & Tejada-Vera, B. (2009). Deaths: leading causes for 2005. National vital statistics reports: from the centers for disease control and prevention, national center for health statistics. *National Vital Statistics System*, 58(8), 1-97. Retrieved January 10, 2013 from <http://www.cdc.gov/nchs/products/nvsr.htm>>.
- Jackson, C. (1997). Behavioral science theory and principles for practice in health education. *Health Education Research*, 12(1), 3- 4.

- Johnston, D. W., Lordan, G., Shields, M. A., & Suziedelyte, A. (2015). Education and health knowledge: evidence from UK compulsory schooling reform. *Social Science & Medicine*, 127, 92-100. Retrieved March 10, 2015 from www.elsevier.com/locate/socscimed.
- Kenkel, D. S., Lillard, D. R., & Mathios, A. D. (2006). *The roles of high school completion and GED receipt in smoking and obesity* (No. w11990). National Bureau of Economic Research.
- Koshino, M., Kojima, Y., & Kanedera, N. (2013). Development and evaluation of educational materials for embedded systems to increase the learning motivation. *US-China Education Review A*, 3(5), 305-313.
- Kulhánová, I., Hoffmann, R., Judge, K., Looman, C. W., Eikemo, T. A., Bopp, M., ... & Wojtyniak, B. (2014). Assessing the potential impact of increased participation in higher education on mortality: Evidence from 21 European populations. *Social Science & Medicine*, 117, 142-149. Retrieved April 15, 2015 from www.elsevier.com/locate/socscimed.
- Lim, D., Kong, K. A., Lee, H. A., Lee, W. K., Park, S. H., Baik, S. J., ... & Jung-Choi, K. (2015). The population attributable fraction of low education for mortality in South Korea with improvement in educational attainment and no improvement in mortality inequalities. *BMC Public Health*, 15, 313. Retrieved April 5, 2015 from <http://dx.doi.org/10.1186/s12889-015-1665-x>.
- Li, J., & Powdthavee, N. (2015). Does more education lead to better health habits? Evidence from the school reforms in Australia. *Social Science & Medicine*, 127, 83-91.
- Lozano, R., Wang, H., Foreman, K. J., Rajaratnam, J. K., Naghavi, M., Marcus, J. R., ... & Lopez, A. D. (2011). Progress towards Millennium Development Goals 4 and 5 on maternal and child mortality: An updated systematic analysis. *The Lancet*, 378(9797), 1139-1165. Retrieved June 5, 2014 from www.thelancet.com.
- Marx, E. E., & Wooley, S. F. E. (1998). *Health is academic: A guide to coordinated school health programs*. New York, NY: Teachers College Press.
- Marx, R. W., Blumenfeld, P. C., Krajcik, J. S., & Soloway, E. (1998). New technologies for teacher professional development. *Teaching and teacher education*, 14(1), 33-52.
- Miller, A. (1996). Editorial: A contract on America's children. *American Journal of Public Health*, 86(4), 473-474.
- Miles, M., & Huberman, A.M. (2008). *Qualitative data analysis*. Thousand Oaks, CA: Sage.
- Report (2012). *Child's right to life in Turkey report 2012*. Retrieved March 2, 2013 from <http://www.gundemcocuk.org/belgeler/yayinlarimiz/raporlar>

- Schwebel, D. C., Pennefather, J., Marquez, B., & Marquez, J. (2014). Internet-based training to improve preschool playground safety: Evaluation of the Stamp-in-Safety Programme. *Health Education Journal*. 0017896914522030.
- Turkish Statistical Institute (TUIK), (2015). *Causes of death statistics*. Retrieved April 22, 2015 from, http://www.tuik.gov.tr/PreTablo.do?alt_id=1083.
- Turkish Statistical Institute (TUIK). (2014). *Causes of death statistics, 2014*. Retrieved September 3, 2013 from <http://www.tuik.gov.tr/PreHaberBultenleri.do?id=15847>>
- UNICEF and IRC. (2015). *Water, sanitation and hygiene education for schools: Roundtable proceedings and framework for action*. UNICEF, New York.
- UNESCO (2014). *Monitoring & Evaluating school health programmes*. Retrieved October 10, 2015 from <http://www.unesco.org/new/en/education/themes/leading-the-international-agenda/health-education/health-education-key-resources/>
- Urhausen, J. & Pace, M. (2013). *Causes of death in the EU28 in 2010*. Retrieved January 2014 from, http://epp.eurostat.ec.europa.eu/cache/ITY_PUBLIC/3-28112013-AP/EN/3-28112013-AP-EN.PDF.
- Wicklein, R. C., & Schell, J. W. (1995). Case studies of multidisciplinary approaches to integrating mathematics, science, & technology education. *Journal of Technology Education*, 6, 680.
- World Health Organization (WHO). (2003). *Skills for health: skills-based health education including life skills: an important component of a child-friendly*. Retrieved November 20, 2015 from <http://apps.who.int/iris/handle/10665/42818>.
- Yildirim, S. & Simsek, H. (2000). *The qualitative research method*. Ankara: Seckin Press.

Koruyucu Sağlık Eğitimi

Atf:

- Aydin, G. (2016). Protective health education. *Eurasian Journal of Educational Research*, 65, 277-294
<http://dx.doi.org/10.14689/ejer.2016.65.16>

Özet

Problem Durumu: Savaşlar, açlık, trafik kazaları, bulaşıcı hastalıklar, çocuk cinayetleri, çocuk işçiliği, okul, ev kazaları, çocuk ve genci koruma yasalarının yetersizliği gibi birçok nedenden dolayı dünyadaki çocuk ölümleri ciddi bir problemdir. Ölüm

oranlarının azaltılmasında alınacak önlemlerden bir tanesi koruyucu sağlık eğitimidir. Sağlık eğitiminin amacı, bilgi ve temel becerilerle donanımlı kişilerin hastalıklardan, kazalardan, yaralanmalardan ve ölümlerden korunmasını sağlamaktır. Bu bağlamda yapılan araştırmanın etkisinin sürdürülebilir olması için çalışmanın ana problemi, “ Koruyucu sağlık eğitim materyallerinin üretimi ve okul öncesi öğrencilerine bu materyallerle yapılan uygulamaların okul öncesi öğretmen adaylarının koruyucu sağlık bilgi düzeylerine nasıl etkilemektedir? “ Araştırmanın alt problemleri şunlardır: Hijyen, bağışıklık, beslenme, trafik kuralları, zihin sağlığı, fiziksel aktivite ve diş sağlığı konularında eğitim materyallerinin hazırlanması ve uygulanması okul öncesi öğretmen adaylarının koruyucu sağlık bilgi düzeylerine etkisi nedir? Sağlık eğitiminde yeni öğretim yöntemlerin geliştirilmesi için uygulamaların güçlü ve zayıf yönleri nelerdir?

Araştırmanın Amacı: Okul öncesi öğretmen adaylarının öğretim teknolojileri ve materyal geliştirme dersinde öğrendikleri teorik bilgileri kullanarak koruyucu sağlık öğretim materyalleri üretmeleri, bu materyalleri kullanarak okul öncesi öğrencilerine koruyucu sağlık eğitimi vermesi ve tüm bunların sonucunda öğretmen adaylarının koruyucu sağlık bilgi düzeylerinin artırılması araştırmanın amacıdır.

Araştırmanın Yöntemi: Araştırma sıralı eş zamanlı karma yöntem deseninde gerçekleştirilmiştir. Amaçlı örneklem olarak seçilen 131 okul öncesi öğretmen adayına, uzman görüşüne başvurulmuş araştırma tarafından geliştirilen koruyucu sağlık bilgi düzeyi ölçeği nicel veri elde etmek için kullanılırken, bu örneklem gruptan seçilen 22 öğretmen adayıyla yapılan yüz yüze görüşmede elde edilen veriler nitel veriler için kullanılmıştır. Nicel ve nitel verilerin birleştirilmesiyle elde edilen sonuçların yorumlanmasıyla çocuk ölümlerinin azaltılması ve sağlıklı bir toplum için bir eğitim modeli önerilmeye çalışılmıştır. Koruyucu sağlık bilgi düzeyi ölçeği 20 açık uçlu sorudan oluşmaktadır. Her doğru cevaba 1, yanlış veya boş bırakılmış soruya 0 puan verilerek değerlendirilmiştir. Ölçeğin güvenilirliği ön test sonuçlarına göre KR20 = 0.64 ve son test sonuçlarına göre KR20 = 0.82 olarak bulunmuştur. Nitel veri kaynağı olarak 2 açık uçlu sorudan oluşan yapılandırılmış görüşme formu araştırmanın uygulamaları sonunda kullanılmıştır. Araştırma, öğretim teknolojileri ve materyal geliştirme dersine devam eden 2. sınıf okul öncesi öğretmen adaylarıyla 12 haftada gerçekleştirilmiştir. Öncelikle dersin içeriğine uygun teorik bilgiler ve uygulamalar araştırmacı tarafından öğretmen adaylarına verilmiş ve gruplar halinde öğretmen adaylarına verilen koruyucu sağlık konularında materyal üretmeleri ve bunları sınıf ortamında sunmaları istenmiştir. Bilgisayar oyunları, filmler, yap bozlar, drama, kuklalar, boyama, deneyler ve hikaye okumaları gibi bir çok çeşitte materyal öğretmen adayları tarafından üretilmiştir. Sınıf ortamındaki öneriler ve eklemelerle materyal ve materyallerin okul öncesi öğrencilerine uygulama planları hazırlanmıştır. Daha sonra tüm öğrenciler yakın çevredeki bir anaokulunda 4-5 yaş grubu öğrencilerin yer aldığı 4 sınıfta 2 hafta sürede materyalleri kullanarak uygulamalarını gerçekleştirmişlerdir. Koruyucu sağlık bilgi düzeyi ölçeği son test olarak uygulandıktan sonra, gönüllülük esasında seçilen 22 öğretmen adayıyla nitel veriler için görüşmeler gerçekleştirilmiştir. Nicel verilerde SPSS istatistik 17 programı kullanılarak ön test, son test karşılaştırması t-

test ve görüşme sonuçları araştırmacı ve 2 uzman tarafından kodlar verilerek (Miles and Huberman = 0.92 güvenilirlik) gerçekleştirilen içerik analiziyle temalar belirlenerek değerlendirilmiştir.

Araştırmanın Bulguları: Yapılan t- testi ile koruyucu sağlık bilgi düzeyi ölçeği son test ortalaması (= 12.17) ön test ortalamasından (=9.19) daha yüksek bulunmuştur. Dolayısıyla yapılan t testi sonucu ön test ve son test arasında anlamlı bir fark (t (131) = 10.53, p<.00) elde edilmiştir. Koruyucu sağlık eğitiminin alt boyutlarında ise bağışıklık (t(131)= 5.51, p <.00), trafik kuralları (t (131)=1.53, p <.00), beslenme (t (131) = 6.38, p <.00), hijyen (t (131) = 5.83, p<.00), zihin sağlığı (t (131)=4.05, p<.00) konularında anlamlı bir fark elde edilirken, diş sağlığı (t (131) = 1.53, p >.00) ve fiziksel aktivitelerde (t (131) =1.53, p >.00) anlamlı bir fark elde edilmemiştir. Nitel veriler sonucu; koruyucu sağlık eğitim materyali hazırlarken karşılan güçlükler, uygulamada yaşanan güçlükler ve öğretmen adaylarının öğrenme deneyimleri şeklinde 3 tema elde edilmiştir.

Araştırmanın Sonuçları ve Önerileri: Koruyucu sağlık eğitim materyallerinin üretilmesi, materyallerin derslerde kullanılması, okul öncesi öğretmen adaylarının bağışıklık, beslenme, trafik kuralları, zihin sağlığı, hijyen konularında koruyucu sağlık bilgi düzeylerinde anlamlı bir artışa neden olmuştur. Öğretmen adaylarının kavram yanlışları, konu içerik bilgilerindeki eksiklikler ve henüz 2. sınıf olmalarından kaynaklı sınıf yönetimi, zaman yönetimi, pedagojik bilgilerindeki yetersizliklerinden dolayı uygulamalarda bazı güçlükler yaşamışlardır. Ancak yapılan tüm uygulamalar sonucu konuları daha anlamlı öğrendikleri, kendi yaşamlarında uyguladıkları, kavram bilgisinin ne kadar önemli olduğu, takım çalışmasının önemini, oyun, film gibi farklı eğitim materyallerinin öğrencinin derse motivasyonunu nasıl etkilediği uygulamalarla deneyimlemişlerdir. Çalışmanın sonucunda, geleneksel gösteri yöntemi ve düz anlatım yönteminden farklı olarak uygulamalı olarak yapılacak koruyucu sağlık eğitiminin, tüm öğretmen adaylarına uygulamalı olarak verilmesi, onların bir öğretmen, aile ve toplumda bir birey olarak çocuk ölümlerinin azaltılmasında ve sağlıklı bir toplum olmamızda önemli rol oynadığı düşünülerek önerilmektedir.

Anahtar Kelimeler: Sağlık eğitimi, öğretmen eğitimi, sağlık eğitim materyali, çocuk, karma yöntem.