



EFFECTS OF A BREASTFEEDING EDUCATIONAL INTERVENTION ON SECONDARY SCHOOL STUDENTS AFTER 6 MONTHS

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SUMMARY – Breastfeeding attitudes are already being formed in the years of preadolescence-adolescence, which means that the educational program should be focused on this age group. For this purpose, many authors suggest that school should be used as an established educational institution and therefore they are developing different education programs. The authors offered an educational program adapted to the cultural, sociological, legal, health, and other specificities of the community to which the students belong. A questionnaire on breastfeeding intentions and knowledge was used to measure the long-term effects of education (after 6 months) in 155 students. They were divided into two groups: experimental (n=101, Grammar School students) and control (n=54, Bjelovar High School students) groups. The experimental group underwent breastfeeding education program, while control group did not. The study was approved by the Ministry of Education and Science, and co-operation with schools was approved by the School Ethics Committees. Six months after educational intervention, students in the experimental group had significantly improved their breastfeeding intentions and knowledge compared to baseline measurement (before intervention). However, 6 months after the education, their knowledge and intentions were less positive than shortly after education, as described in a previous report. The authors suggest that a team of experts be gathered to design a structured educational program that would be interesting to secondary school students. This program should also be adapted to students' age and interest.

Key words: Breastfeeding education; School

Introduction

While the benefits of breastfeeding are well known, the most effective means to promote breastfeeding is not known¹. For initiation and short-term duration of breastfeeding, the combination of education plus support might be more effective than support alone, but not more effective than education alone². The internet programs are valuable in view of information and support but are not confirmed with significant effect on

breastfeeding outcomes³. Studies in pregnant mothers point out that particular emphasis should be put on the necessity of producing the standard breastfeeding education packages⁴ and confirm facilitators that improve the quality of care, i.e. active and regular interpersonal communication between users and providers, respect, confidentiality, comfort and support during care provision, etc.⁵.

However, the attitudes towards breastfeeding are formed early in life (in preadolescence or adolescence)⁶, which indicates that breastfeeding education should be aimed at preadolescents and adolescents. There are several school interventions that significantly improve the knowledge, attitudes about breastfeeding benefits,

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subjective norms, and intentions, lasting for 2 weeks to 3 months⁷⁻⁹. Improving breastfeeding practices is possible by introducing integrated, progressive and culturally sensitive breastfeeding curricula to schools, which will be precisely designed, consistently implemented, and strictly evaluated^{10,11}.

A group of Croatian authors conducted a research about the effectiveness of 1.5-hour breastfeeding education program that was adapted for the needs of local community¹². They confirmed short-term effect of the program on student knowledge and intentions about breastfeeding. This paper is focused on long-term effects of the previously named program. Precisely, the aim was to examine the effect of the program 6 months after the educational intervention, i.e. to test the effect of time on breastfeeding knowledge and intentions among secondary school students.

Subjects and Methods

Study design

Participants were administered an on-line questionnaire on breastfeeding intentions and knowledge at three different time points, i.e. before educational intervention (pre-education), shortly after the intervention (post-education 1), and 6 months after the intervention (post-education 2).

The short-term effect of the program on student knowledge and intentions about breastfeeding has been evaluated in the previously published work¹². In this study, the effect of educational intervention on student intentions and knowledge 6 months after the education was examined.

Ethical considerations

Ethical approval for conducting the research was given by the Ministry of Science and Education of Croatia. Approval for conducting the research in Bjelovar Grammar School and Bjelovar Medical School was given by the School principal and the School Ethics Committee, respectively. Students were allowed to participate in the study only after they had read the informed consent form and agreed to willingly participate in the study. Parents of the children were also informed about the content and purpose of the research.

Before the students started to fill-in the survey, they were informed about the aim of the study and the

modalities of participation and information they would need to obtain from their parents. They were informed about the possible risks, as well as the measures to safeguard the participant rights^{13,14}. Anonymity of the student data was granted. School personnel who participated in the study did not have access to study results and the author of the study (who is the only one with access to the data) did not have any information about student identity. We insisted on completing the questionnaire on school computers to prevent the participant home computer IP address disclosure. While logging into a computer, the students created their passwords by their personal preferences. The students were not in any way rewarded for taking part in the study, nor was their arrival in any way noted.

Participants

All students in the intervention group participated in baseline measurement (before education) and both follow-up measurements (shortly after education and six months after education). A pilot study was carried out in one grammar school, one craft school and one technical school (261 participants) in order to estimate student compliance. The greatest interest and compliance were shown by grammar school students, and for that reason they were selected for the study. The authors sampled fourth-graders since they reached maturity (18-year-old). The study was conducted in Bjelovar as it was most convenient for principal investigator to organize education there, since it is close to the principal investigator's place of work. Initially, there were 104 participants; three of them were excluded because they used their identity codes improperly.

Control group consisted of 54 fourth-grade secondary medical school students (medical students). These students did not participate in educational intervention. They were chosen by design since they often encounter the issue of breastfeeding through their theoretical and practical education, even though breastfeeding as a separate topic is not included in secondary-school curriculum.

Instrument

Data were collected using a questionnaire. The questionnaire was modeled on the existing Iowa Infant Feeding Attitude Scale (IIFAS) questionnaire¹⁵. Factorial analysis showed it to be justified to use a scale

total score as a measure of breastfeeding intention. The questionnaire is free of charge and it is available online¹⁶. The study of reliability and validity of our questionnaire has been completed and is the subject of another paper¹⁷.

Concerning formation of questions, there were two versions, i.e. one for men and another one for women. The questions about breastfeeding in the version for men were formulated regarding their support of the women's decision. The questionnaire consisted of two parts; the first part encompasses the intention to breastfeed (establishing breastfeeding after delivery, breastfeeding when the father does not support it, breastfeeding in public, joint decision making on breastfeeding, breastfeeding after returning to work, breastfeeding after the child's first and second year of life, and breastfeeding recommended by doctors regardless of the family's attitude). The second part includes knowledge about breastfeeding (the contents of breast milk, the advantages of breast milk, exclusive breastfeeding, father's support, medication and breastfeeding, and milk formula). The answers to the questions regarding the intention to breastfeed are graded from 1 to 5, i.e. 1 and 5 denoting total acceptance and total unacceptance ("I totally agree/disagree") of the intention, respectively. "True" or "False" are the possible student responses to the questions which test student knowledge of the subject.

The questionnaire was used to collect general and social information (age, gender, and school achievement), breastfeeding exposure item (yes/no), and desire to learn about breastfeeding at school (yes/no).

Experimental and control groups were matched for the variables of being breastfed as a child and desire to learn more about breastfeeding at school, which were found to be important for breastfeeding intentions and knowledge among participants in several previous studies.

Data collection

The study was conducted in Bjelovar in April and October 2017. The students were previously informed about the content and purpose of the questionnaire, the information they would need to obtain from their parents, and the participation timetable. Everyone who arrived at the scheduled time had the option to fill-in the questionnaire, but none of the students was obliged to do so. Students completed the question-

naires on computers. While logging into a computer, the students entered no personal information or any other kind of data that could identify the person who completed the questionnaire. Participants created their passwords by their personal preferences. However, they were advised to use a combination of digits from their date of birth in their own way (i.e. to increase the real date of birth by 5, 10 or 11, etc.). Because of their participation in further study, we emphasized the importance of recognizing and memorizing the password in a note. Before questionnaire application, participants were informed about the following constructs: exclusive breastfeeding, milk formula, public breastfeeding, and emotional attachment. In the first phase, participants completed the questionnaire shortly before the breastfeeding module. In the second phase of the survey, the respondents completed the questionnaire after completing the education. In phase three, they completed the questionnaire 6 months after baseline measurement, where they were identified by the same personal password from the first and second phases. Educational intervention was not conducted in control group.

Intervention

Educational intervention followed right after completion of the first on-line survey. It was performed in one session with each class and lasted for two class periods. It was carried out by the principal investigator. It consisted of five parts. First part included presentation which comprised eight slides. The slides contained items from the questionnaire about intentions to breastfeed. After presentation, students were randomly divided into two numerically equal groups, one of which represented positive breastfeeding intentions (group A) and another which defended negative breastfeeding intentions (group B). Subsequently, with coordination from the principal investigator, students had a debate about each item from the questionnaire. During second class period, the principal investigator held a short lecture on the topics that appeared in the test about breastfeeding knowledge. Upon completion of the lectures, students were randomly divided into three groups (groups were again equal by number of students *per* group), for which the principal investigator organized a game, i.e. knowledge quiz. Students had to compete for the best ranking in quiz. The winner group was given a symbolic present. The last (fifth)

part of educational intervention included a brief resume and final thoughts from the principal investigator. Students were also given principal investigator's contact information and invitation for voluntary participation in breastfeeding promotion activities within the For a Healthy and Happy Childhood association. Breastfeeding education programs for secondary schools, part of which describes educational intervention, will be presented in a different paper due to the size of its contents.

Data analysis

The principal investigator was the only person who had access to on-line results from completed questionnaires. Software was nominally recording responses and, in that way, they were downloaded to the principal investigator's personal computer, saved as .xls format. Data on Google disc were deleted. After that, participant responses at five-level ordinal breastfeeding intentions were transformed to a numerical scale. In the breastfeeding intention questionnaire, the answer „Strongly agree“ was rated 5 points, „Agree“ 4 points, „Neither agree nor disagree“ 3 points, „Disagree“ 2 points, and „Strongly disagree“ 1 point. Reversibly rated questions were re-coded. For questions about knowledge, correct response was marked with 1 point and incorrect with 0 point.

Student responses were organized in three groups, i.e. before education, shortly after education, and 6 months after education. Intervention group was analyzed first; it was examined whether there was a difference between baseline and two follow-up measurements among grammar school students. To make more reliable conclusions, results of the control group (medical students) were thereafter compared with results of the intervention group.

On statistical analysis, sociodemographic data were expressed as frequencies and percentages (Table 1).

Two repeated measures ANOVAs were used to examine the effect of educational intervention among grammar school students. One was used for intentions and the other for knowledge. As assumption of sphericity has been violated, Greenhouse-Geisser correction was used in result presentation.

Two paired samples T-tests were used to test the effect of time among medical school students (one for intentions and the other one for knowledge). All preconditions for paired samples T-tests were met.

Table 1. Demographic characteristics and experiences of study participants (N=155)

	Grammar school		Medical school	
	n	%	n	%
Gender:				
Man	42	41.6	13	24.1
Woman	59	58.4	41	75.9
School achievement in previous school year				
Excellent	50	49.5	11	20.4
Very good	42	41.6	36	66.7
Good	8	7.9	7	13
Insufficient	1	1	0	0
Have you been breastfed as a baby?				
Yes	96	95	47	87
No	5	5	7	13
Would you like to learn more about breastfeeding at school?				
Yes	60	59.4	24	44.4
No	41	40.6	30	55.6

Four independent T-tests were used to determine whether the intervention and control groups differed regarding intentions and knowledge at baseline and follow-up measurement 6 months after educational intervention, two for intentions and two for knowledge.

Aim and hypothesis

The aim of the study was to examine the potential impact of educational intervention on student breastfeeding intentions and knowledge 6 months after its implementation. To attain the aim, it is necessary to answer several research questions under which the following hypotheses were formulated:

1) Within the first research question, the authors wanted to examine whether intervention group students had more positive intentions and better knowledge 6 months after educational intervention in comparison to their intentions and knowledge before education. It is presumed that this kind of effect exists and that students will achieve statistically significantly better result in the knowledge test and express significantly more positive intentions in the breastfeeding intention questionnaire 6 months after education in comparison to baseline measurement. At the same time, it is assumed that their intentions questionnaire

Table 2. Arithmetic mean of intentions and knowledge before and after education

	School	Intentions			Knowledge		
		M	SD	n	M	SD	n
Pre-education	Grammar	26.98	4.07	101	9.84	1.84	101
	Medical	25.33	3.67	54	9.67	1.85	54
	Total			155			155
Post-education 1	Grammar	31.18	4.11	101	13.6	0.15	101
	Medical	/	/	/	/	/	/
	Total			101			101
Post-education 2	Grammar	28.86	4.11	101	12.11	1.75	101
	Medical	25.18	2.65	54	10.42	1.85	54
	Total			155			155

Table 3. Results of measurement of knowledge and intentions of the experimental group subjects 6 months after education (repeated measures ANOVA) (N=101)

Dependent variable	Independent variable	Wilks' Lambda	F	df	Sig.	Partial η^2
Breastfeeding intentions	Time: before education, shortly after education, 6 months after education	0.41	32.82	1.55	0	0.24
Breastfeeding knowledge	Time: before education, shortly after education, 6 months after education	0.23	132.33	1.89	0	0.57

and knowledge test results 6 months after education will be significantly lower in comparison to the results achieved shortly after educational intervention, since it is possible that some information acquired during education will be lost with time.

2) The second research question refers to control group results. As control group was not included in educational intervention, one could expect they would not show improvement in their knowledge and intentions over time. However, the authors deliberately decided to choose medical school students as a control group because of their exposure to breastfeeding topics through theoretical and practical education. Consequently, it is hypothesized that medical students will significantly improve their intentions and knowledge about breastfeeding over time even though they were not exposed to educational intervention.

3) Finally, within the third research issue, the authors wanted to test whether intervention and control group would differ regarding their breastfeeding intentions and knowledge 6 months after educational intervention. It is expected that grammar school students, due to their exposure to educational intervention, would have more positive intentions and better

knowledge of breastfeeding than medical students 6 months after education.

Results

To test the hypothesis that the mean pre-education, post-education 1 and post-education 2 breastfeeding intentions and knowledge would differ, two repeated measures ANOVAs were performed, one for intentions and the other one for knowledge results. The results regarding breastfeeding intentions are presented first.

Breastfeeding intention questionnaire results

Prior to ANOVA, a sphericity assumption was tested. Mauchly's test of sphericity indicated that the assumption of sphericity was violated ($\chi^2(2)=34.13$, $p=0.00$). Therefore, we used Greenhouse-Geisser correction later in the analysis.

Results in Tables 2 and 3 show a significant effect of education module on student breastfeeding intentions ($F(1.55)=32.83$, $p<0.00$). This effect was significant throughout the different time points. Before educational intervention, students had less positive inten-

tions ($M=26.98$, $SD=4.07$, $p<0.01$) than shortly after education ($M=31.18$, $SD=4.11$). Before education, they also had less positive intentions than 6 months after education ($M=28.86$, $SD=4.11$, $p<0.05$). However, 6 months after education their intentions were less positive than shortly after education ($p<0.01$).

As the aim of the study was to test long-term effects of educational intervention, control group was tested only at two time points. Therefore, paired samples T-test was used to examine whether there was a significant difference between pre- and post-education scores in breastfeeding intentions.

Prior to conducting analysis, the assumption of normally distributed difference scores was examined. As the skew and kurtosis levels were estimated at -1.36 and 4.38 , the assumption was considered satisfied. It will also be noted that the correlation between two conditions was estimated at $r=0.83$ ($p<0.001$), suggesting that the paired samples T-test was appropriate in this case. The hypothesis of equal means regarding breastfeeding intentions was confirmed ($t(53)=0.53$, $p=0.60$). Students had the same breastfeeding intentions before and 6 months after educational intervention.

To examine whether there was a significant difference regarding intentions among the students from different schools before and 6 months after education, the independent sample T-test was used. It showed that the two groups of students did differ according to their breastfeeding intentions ($t(153)=2.39$, $p<0.05$). Grammar school students had more positive intentions before education ($M=26.92$, $SD=4.07$) than medical school students ($M=25.33$, $SD=3.67$). Six months after education, grammar school students again achieved more positive intentions ($M=28.86$, $SD=4.11$) than medical students ($M=25.18$, $SD=2.65$), but this time difference was more obvious.

Knowledge test results

Prior to ANOVA, a sphericity assumption was tested. Mauchly's test of sphericity indicated that the assumption of sphericity was borderline ($\chi^2(2)=6.08$, $p=0.05$). However, Greenhouse-Geisser correction was used later in the analysis.

Results presented in Tables 2 and 3 show a significant effect of education module on student knowledge about breastfeeding ($F(1.89)=132.33$, $p<0.00$). Pairwise comparisons showed significant effect between each measurement time points. Students achieved the

best result shortly after education ($M=13.6$, $SD=0.15$) in comparison to the test before education ($M=9.84$, $SD=0.18$) and 6 months after education ($M=12.11$, $SD=0.17$; $p=0.00$ all comparisons). Furthermore, students achieved significantly better results 6 months after education than before education ($p=0.00$).

Prior to conducting analysis for the control group, the assumption of normally distributed difference scores was examined. As the skew and kurtosis levels were estimated at -1.669 and 3.179 , the assumption was considered satisfied. It should also be noted that correlation between the two conditions was estimated at $r=0.86$ ($p<0.001$), suggesting that the paired samples T-test was appropriate in this case. Control group also showed improvement in breastfeeding knowledge between the two testing time points. Paired samples T-test showed significant results ($t(53)=-5.752$, $p<0.01$). Medical students had better breastfeeding knowledge 6 months after education ($M=10.42$, $SD=1.85$) than before education ($M=9.67$, $SD=1.85$).

Independent T-test between grammar school and medical school students revealed a significant difference between these two groups regarding the knowledge test score 6 months after education ($t(153)=5.6$, $p<0.01$). Grammar school students showed better knowledge ($M=12.11$, $SD=1.75$) than medical students ($M=10.42$, $SD=1.85$). Before education, these two groups of students did not differ statistically significantly according to knowledge ($t(153)=0.56$, $p>0.05$), i.e. medical students had the same breastfeeding knowledge ($M=9.67$, $SD=1.85$) as grammar school students ($M=9.84$, $SD=1.84$).

Discussion

Many adolescents already have an opinion on breastfeeding; however, they still describe themselves as undecided about feeding choice, which provides an opportunity to educate and influence their future decisions¹⁸. Attitudes towards breastfeeding can be modified during adolescence to create a lasting, more positive view of breastfeeding¹⁹. The intention to behave in a certain way is an important link between attitude and behavior²⁰, and strongly predicts future behavior²¹, which is why we focused specifically on intentions in our research. Several studies have confirmed the effectiveness of a school-based intervention on change in breastfeeding knowledge, attitudes and in-

tentions, with the effect lasting for three⁷ to six months²². Due to cultural differences, the previously mentioned educational interventions may not apply to areas beyond which they are being examined^{23,24}.

The authors offered their own breastfeeding education program adapted to their cultural, historical, economic, legal, health, and other specificities, and tested its effectiveness in the fourth-grade grammar school students. The intervention was focused on positive cognitive (knowledge) and emotional-behavioral changes (expressed as intention)²⁵. The effect on the knowledge component was achieved by selecting recent, scientific and argumentative information provided by an eminent expert in this area, which is a significant factor in successful persuasion²⁶. Given that adolescents at that age already had some opinions about breastfeeding, our aim was to cause cognitive dissonance, which refers to mental discomfort (psychological stress) that is experienced by a person who simultaneously holds two or more contradictory beliefs, ideas, or values. The occurrence of cognitive dissonance is a consequence of a person performing an action that contradicts personal beliefs, ideals, and values; and also occurs when confronted with new information that contradicts the said beliefs, ideals, and values²⁷. Cognitive change is a necessary component of behavior change, but on its own, it is not sufficient to bring about behavior change²⁸. The research suggests that predicting emotions (affective forecasting) is an important component of decision-making (in addition to cognitive processes). Therefore, the content and form of presentation was age-adjusted to the interests of the target group.

Since behavioral intention could not be exclusive determinant of behavior where an individual's control over behavior is incomplete, respondents were offered to gain experience by engaging in real health programs designed to promote breastfeeding, through volunteering in the For a Healthy and Happy Childhood association. Some students accepted this offer and took part in the activities (songs and recitals about their mothers during the breastfeeding week).

With regard to the activities aimed at changing attitudes, one should be aware that a person is susceptible to a change of attitude around the age of 18, and possibly up to 25 years of age. After the age of 25, attitudes are more stable and resistant to change^{29,30}.

The results of intervention were satisfactory. Students in the experimental group showed significantly

more positive breastfeeding intentions and better knowledge both shortly and 6 months after the educational intervention, compared to baseline measurement (before educational intervention). Their knowledge and intentions were less positive 6 months after education than shortly after education. Zarevski says that there are four possible causes of forgetting, i.e. gradual fading of memory trace, inability to find stored information, repression, and interference³¹. Which of these four causes will be most pronounced depends on the material and learning situation, type of memory, retention time, etc. According to the results of this study, deterioration of the intervention effect is acceptable. However, we recommend that educational interventions be conducted two times during the semester in order to reduce decay or fading of information, e.g., to maintain memory trace (engram). It is crucial to use the learned material, e.g., to renew memory trace so it would be maintained.

Students in the control group (medical students) showed improvement in breastfeeding knowledge between two measurement points, but had the same breastfeeding intentions before and 6 months after educational intervention. The expectation of increased knowledge and development of positive breastfeeding intentions in medical school students results from the assumption of breastfeeding education that is organized in these schools. However, this is not entirely true; numerous studies have identified a deficit in breastfeeding education in nursing and physician education programs³². The studies that investigated the relationship between student knowledge and attitudes in undergraduate nursing studies at the beginning and completion of their clinical education found that only the knowledge-item scores increased at a significant level within the attitude items^{33,34}. The authors performed analysis of six different nursing textbooks published in the last 15 years and found the textbooks used by nursing students to contain inaccurate information. Even the research in university medical students warns that their knowledge is low and mixed with several misconceptions, and emphasizes the necessity of curricular changes aiming to promote breastfeeding and correcting the ingrained misconceptions³⁵.

Before education, control group students (medical students) and experimental group students (grammar school students) did not differ statistically significantly according to knowledge, but 6 months after the inter-

vention, students in the experimental group showed better knowledge and more positive intentions. Even in health care schools, the strategy for promoting public health is often overlooked in intervention plans and standards³⁶. Spear found that most baccalaureate nursing students who had successfully completed their obstetric nursing course did not know that breastfeeding is recommended for the first year of an infant's life³⁷. Studies in Western countries have revealed insufficient knowledge of breastfeeding among nursing students, but studying knowledge and attitudes among Egyptian nursing students also showed poor knowledge of breastfeeding and neutral breastfeeding attitudes³⁸. For 20 years, experts have warned that positive effects on knowledge, intentions, attitudes, and later successful breastfeeding have only those breastfeeding education programs that are implemented in schools in a structured, continuous and coordinated way³⁹. Quality education for young people is not possible without a single breastfeeding education plan implemented in the curriculum⁴⁰.

Additionally, the ideal breastfeeding promotion program in schools would not only be limited to the curriculum, but would also include breastfeeding education of school personnel, breastfeeding room for personnel and school visitors, participation of school personnel in breastfeeding promotion activities, etc.¹⁰. Education of school personnel is necessary because teacher's knowledge, attitudes and behavior in relation to breastfeeding are crucial factors in the successful transfer of breastfeeding information to students⁴¹.

School-based health education in many countries is part of mandatory state/national curriculum architectures (e.g., Australia, Denmark, Finland, New Zealand), in other countries it finds itself vying for a place in official curriculum structures whilst being relegated to the status of non-statutory⁴²⁻⁴⁵. Breastfeeding programs require a place in school education by competing with other valuable health care education programs^{46,47}, where the impression of the author is that breastfeeding issue is frequently neglected in schools. Health education in Croatia is not intended to be a separate school subject, yet its program should be integrated into biology or physical education classes, school projects, and other school activities. In the health education curriculum for primary and secondary school⁴⁸, there is no mention of the word 'breastfeeding'; however, in the

National Curriculum on Health Subject proposed, breastfeeding is mentioned in the context of knowledge regarding responsible parenthood which participants need to acquire during their education⁴⁹.

Conclusion

Numerous studies have drawn attention to the non-existing or inadequate breastfeeding education in schools, and even in medical schools. It is necessary to create a structured breastfeeding education program for secondary school students. The breastfeeding education program offered for secondary school students is effective over a period of 6 months. It is necessary to create and quality evaluate continuous educational programs for secondary school students. The authors point to the necessity of cooperation of a number of experts to accelerate the process, with the need of using a well-elaborated, graduated, professional and structured education program and a unique process of standardized evaluation of results.

References

1. Horta BL, Victora CG. Long-term effects of breastfeeding – a systematic review [Internet]. Geneva: World Health Organization; [updated 2013 Mar 28; cited 2019 Sept 14]. <https://apps.who.int/iris/bitstream/handle/10665/79198/97892?sequence=1>
2. Guise JM, Palda V, Westhoff C, Chan BK, Helfand M, Lieu TA. The effectiveness of primary care-based interventions to promote breastfeeding: systematic evidence review and meta-analysis for the US Preventive Services Task Force. *Ann Fam Med*. 2003;1(2):70-8, <http://dx.doi.org/10.1370/afm.56>
3. Pate B. A systematic review of the effectiveness of breastfeeding intervention delivery methods. *J Obstet Gynecol Neonatal Nurs*. 2009;38(6):642-53, <http://dx.doi.org/10.1111/j.1552-6909.2009.01068.x>
4. Kamran A, Shrifirad G, Mirkarimi SK, Farahani A. Effectiveness of breastfeeding education on the weight of child and self-efficacy of mothers – 2011. *J Edu Health Promot*. 2012;1:11, <http://dx.doi.org/10.4103/2277-9531.98569>
5. Nair M, Yoshida S, Lambrechts T, Boschi-Pinto C, Bose K, Mason EM, Mathai M. Facilitators and barriers to quality of care in maternal, newborn and child health: a global situational analysis through metareview. *BMJ Open*. 2014;4(5):e004749, <http://dx.doi.org/10.1136/bmjopen-2013-004749>
6. Goulet C, Lampron A, Marcil I, Ross L. Attitudes and subjective norms of male and female adolescents toward breastfeeding. *J Hum Lact*. 2003;19(4):402-10, <http://dx.doi.org/10.1177/0890334403258337>

7. Bottaro SM, Giugliani ER. Effectiveness of an intervention to improve breastfeeding knowledge and attitudes among fifth-grade children in Brazil. *J Hum Lact.* 2009;25(3):325-32, <http://dx.doi.org/10.1177/0890334409337248>
8. Zeller LC. Effects of education on breastfeeding knowledge and attitudes among middle school students. *Health Educ J.* 2015; 75(4):501-10, <http://dx.doi.org/10.1177/0017896915597531>
9. Seidel AK, Schetzina KE, Freeman SC, Coulter MM, Colgrove NJ. Comparison of breast-feeding knowledge, attitudes, and beliefs before and after educational intervention for rural Appalachian high school students. *South Med J.* 2013;106(3):224-9, <http://dx.doi.org/10.1097/SMJ.0b013e3182828b8f>
10. Glaser DB, Roberts KJ, Grosskopf NA, Basch CH. An evaluation of the effectiveness of school-based breastfeeding education. *J Hum Lact.* 2016;32(1):46-52, <http://dx.doi.org/10.1177/0890334415595040>
11. Leffler D. US high school age girls may be receptive to breastfeeding promotion. *J Hum Lact.* 2000;16(1):36-40, <http://dx.doi.org/10.1177/089033440001600107>
12. Čatipović M, Marković M, Grgurić J. Educational intervention about breastfeeding among secondary school students. *Health Educ.* 2018;118(4):339-53, <http://dx.doi.org/10.1108/HE-10-2017-0057>
13. Child participation in research [Internet]. Vienna: European Union Agency for Fundamental Rights; 2016 [cited 2019 Sept 14]. Available from: <http://fra.europa.eu/en/theme/rights-child/child-participation-in-research>.
14. Sample Consent Form for Online Surveys [Internet]. Decatur: Agnes Scott College; 2016 [cited 2019 Sept 14]. Available from: <https://www.agnesscott.edu/irb/files/documents/Sample-Consent-Form-for-Online-Surveys.doc>
15. Mora A, Russel D, Dungy CI, Loch M, Dusdieker L. The Iowa Infant Feeding Attitude Scale: analysis of reliability and validity. *J Appl Soc Psychol.* 1999;29(11):2362-80, <http://dx.doi.org/10.1111/J.1559-1816.1999.TB00115.X>
16. Čatipović M, Grgurić J, Marković M. The breastfeeding intentions, attitudes and knowledge questionnaire for students [Internet]. Bjelovar: Za zdravo i sretno djetinjstvo; [updated 2016 Mar 28; cited 2019 Sept 14]. https://docs.google.com/forms/d/e/1FAIpQLScxagaMZuF-oDb_ILfU01XKPSTBT-wsWOK7pWEwaUkPkwF6HUw/viewform?fbzx=5056183884729506544
17. Čatipović M, Marković M, Grgurić J. Development and validation of breastfeeding intentions, attitudes and knowledge questionnaire in a sample of Croatian secondary- school students. *Children.* 2018;5(5):56, <http://dx.doi.org/10.3390/children5050056>
18. Swanson V, Power K, Kaur B, Carter H, Shepherd K. The impact of knowledge and social influences on adolescents' breastfeeding beliefs and intentions. *Public Health Nutr.* 2006;9(3): 297-305, <http://dx.doi.org/10.1079/PHN2005845>
19. Reifsnider E, Eckhart D. Prenatal breastfeeding education: its effect on breastfeeding among WIC participants. *J Hum Lact.* 1997;13(2):121-5, <http://dx.doi.org/10.1177/089033449701300212>
20. Kim MS, Hunter JE. Relationships among attitudes, behavioral intentions, and behavior: a meta-analysis of past research. Part 2. *Commun Res.* 1993;20(3):331-64, <http://dx.doi.org/10.1177/009365093020003001>
21. Ratkajec Gašević G, Dodig Hundrić D, Mihić J. Willingness to change behavior – from an individual to a family paradigm. *Kriminol Soc Integr.* 2016;24(1):50-83, <http://dx.doi.org/10.31299/ksi.24.1.3>
22. Giles M, Millar S, Armour C, McClenahan C, Mallett J, Stewart-Knox B. Promoting positive attitudes to breastfeeding: the development and evaluation of a theory-based intervention with school children involving a cluster randomised controlled trial. *Matern Child Nutr.* 2015;11(4):656-72, <http://dx.doi.org/10.1111/mcn.12079>
23. Shinwell ES, Churgin Y, Shlomo M, Shani M, Flidel-Rimon O. The effect of training nursery staff in breastfeeding guidance on the duration of breastfeeding in healthy term infants. *Breastfeed Med.* 2006;1(4):247-52, <http://dx.doi.org/10.1089/bfm.2006.1.247>
24. Osman H, El Zein L, Wick L. Cultural beliefs that may discourage breastfeeding among Lebanese women: a qualitative analysis. *Int Breastfeed J.* 2009;4(1):12, <http://dx.doi.org/10.1186/1746-4358-4-12>
25. Aronson E, Wilson TD, Akert RM. *Socijalna psihologija.* 4th edn. Zagreb: Matej; 2005.
26. Wood W. Attitude change: persuasion and social influence. *Annu Rev Psychol.* 2000;51(1):539-70, <http://dx.doi.org/10.1146/annurev.psych.51.1.539>
27. Festinger L. *A theory of cognitive dissonance.* Evanston: Row & Peterson; 1957.
28. Koerber A, Burns JL, Berbaum M, Punwani I, Levy S, Cowell J, Flay B. Toothbrushing patterns over time in at-risk metropolitan African-American 5th-8th graders: a brief communication. *J Public Health Dent.* 2005;65(4):240-3, <http://dx.doi.org/10.1111/j.1752-7325.2005.tb03024.x>
29. Krosnick JA, Alwin DF. Aging and susceptibility to attitude change. *J Pers Soc Psychol.* 1989;57(3):416, <http://dx.doi.org/10.1037//0022-3514.57.3.416>
30. Sears DO. Life-stage effects on attitude change, especially among the elderly. In: Kiesler SB, Morgan JN, Oppenheimer VK, March JG, editors. *Aging: Social Change.* New York: Academic Press; 1981. p. 183-204.
31. Zarevski P. *Psychology of memory and learning.* Jastrebarsko: Naklada Slap; 1997.
32. U.S. Department of Health and Human Services. The surgeon general's call to action to support breastfeeding; [cited 2017 Dec 27]. Available from: <http://www.surgeongeneral.gov/library/calls/breastfeeding/calltoactiontosupportbreastfeeding.pdf>
33. Vandewark AC. Breastfeeding attitudes and knowledge in bachelor of science in nursing candidates. *J Perinat Educ.* 2014;23(3):135, <http://dx.doi.org/10.1891/1058-1243.23.3.135>

34. Philipp B, McMahon M, Davies S, Santos T, Jean-Marie S. Breastfeeding information in nursing textbooks needs improvement. *J Hum Lact.* 2007;23(4):345-9, <http://dx.doi.org/10.1177/0890334407307576>
35. Amin, TT, Abdulrahman, AG, Al Muhaidib, NS, Al Hamdan, OA. Breastfeeding attitudes and knowledge among future female physicians and teachers in Saudi Arabia. *J Health Sci.* 2014;8(1):102-15.
36. Dodgson JE, Tarrant M. Outcomes of a breastfeeding educational intervention for baccalaureate nursing students. *Nurse Educ Today.* 2007;27(8):856-67, <http://dx.doi.org/10.1016/j.nedt.2006.12.001>
37. Spear HJ. Baccalaureate nursing students' breastfeeding knowledge: a descriptive survey. *Nurse Educ Today.* 2006;26(4):332-7, <http://dx.doi.org/10.1016/j.nedt.2005.10.014>
38. Ahmed A, El Guindy SR. Breastfeeding knowledge and attitudes among Egyptian baccalaureate students. *Int Nurs Rev.* 2011;58(3):372-8, <http://dx.doi.org/10.1111/j.1466-7657.2011.00885.x>
39. Dykes F, Griffiths H. Societal influences upon initiation and continuation of breastfeeding. *Br J Midwifery.* 1998;6(2):76-80, <http://dx.doi.org/10.12968/BJOM.1998.6.2.76>
40. Lassi ZS, Mansoor T, Salam RA, Das JK, Bhutta ZA. Essential pre-pregnancy and pregnancy interventions for improved maternal, newborn and child health. *Reprod Health.* 2014;11(1):S2, <http://dx.doi.org/10.1186/1742-4755-11-S1-S2>
41. Singletary N, Chetwynd E, Goodell LS, Fogleman A. Stakeholder views of breastfeeding education in schools: a systematic mixed studies review of the literature. *Int Breastfeed J.* 2016;12(1):14, <http://dx.doi.org/10.1186/s13006-017-0106-0>
42. Fitzpatrick K, Tinning R. Considering the politics and practices of health education. In: Fitzpatrick K, Tinning R, editors. *Health Education: Critical Perspectives.* London: Routledge; 2014. p. 1-13.
43. Simovska V, Mannix-McNamara P. *Schools for Health and Sustainability: Theory, Research and Practice.* Dordrecht: Springer; 2015.
44. Leahy D, Burrows L, McCuaig L, Wright J, Penney D. *School Health Education in Changing Times: Curriculum, Pedagogies and Partnerships.* London: Routledge; 2016.
45. Leahy D, Simovska V. Critical perspectives on health and well-being education in schools. *Health Educ.* 2017;117(5):430-3, <http://dx.doi.org/10.1108/HE-06-2017-0034>
46. Barry MM, Clarke AM, Dowling K. Promoting social and emotional well-being in schools. *Health Educ.* 2017;117(5):434-51, <http://dx.doi.org/10.1108/HE-11-2016-0057>
47. O'Toole C. Towards dynamic and interdisciplinary frameworks for school-based mental health promotion. *Health Educ.* 2017;117(5):452-68, <http://dx.doi.org/10.1108/HE-11-2016-0058>
48. Curriculum of health education for primary and secondary schools [Internet]. Zagreb: Croatian Education and Teacher Training Agency; 2017 [cited 2018 Dec 29]. Available from: http://www.azoo.hr/index.php?option=com_content&view=article&id=5014:nastavni-plan-i-program-zdravstvenog-odgoja-za-osnovnu-i-srednju-kolu-&catid=442:zdravstveni-odgoj&Itemid=438
49. The National Curriculum of Health – Suggested [Internet]. Zagreb: Ministry of Education and Science of Republic of Croatia; 2017 [cited 2018 Dec 29]. Available from: https://mzo.hr/sites/default/files/migrated/zdravlje_nakon_strucne_rasprave.pdf

Sažetak

UČINCI IZOBRAZBE O DOJENJU NA UČENIKE SREDNJE ŠKOLE 6 MJESECI NAKON IZOBRAZBE

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Stavovi o dojenju formiraju se već u predadolescentnoj-adolescentnoj dobi pa je potrebno obrazovne programe o dojenju usmjeriti na tu dobnu skupinu. Većina autora s tim ciljem predlaže uporabu škole kao etablirane obrazovno-odgojne ustanove te razvijaju različite obrazovne programe. Autori su ponudili obrazovni program prilagođen kulturološkim, sociološkim, zakonskim, zdravstvenim i drugim specifičnostima sredine kojoj ispitanici pripadaju. Upitnik o namjerama i znanju primijenjen je kako bi se izmjerili dugotrajni učinci izobrazbe (nakon 6 mjeseci) na skupini od 155 učenika. Ispitanici su podijeljeni u dvije skupine: eksperimentalnu (n=101, gimnazija) i kontrolnu skupinu (n=54, Medicinska škola Bjelovar). Eksperimentalna skupina je pohađala program izobrazbe o dojenju, a kontrolna nije. Studiju je odobrilo Ministarstvo obrazovanja i znanosti, a suradnju sa školama etička povjerenstva škola. Šest mjeseci nakon izobrazbe o dojenju učenici u eksperimentalnoj skupini znatno su poboljšali svoje namjere i znanje o dojenju u usporedbi s početnim rezultatima (prije izobrazbe). Međutim, 6 mjeseci nakon izobrazbe njihovo znanje i namjere bili su manje pozitivni nego nedugo nakon izobrazbe, što je opisano u prethodnom radu. Autori predlažu formiranje tima stručnjaka koji će izraditi strukturirani program izobrazbe o dojenju za učenike srednjih škola, prilagođen dobi i interesima učenika.

Ključne riječi: *Izobrazba o dojenju; Škola*