

# Pilot Study on the Improvement of the Health-education and Psychological Competencies of Education Students in the Context of Epidemic/Pandemic Circumstances

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## Abstract

*Research study:* According to the World Health Organization, six out of ten global health problems are related to the domain of infectious diseases (WHO, 2019), which inevitably confronts us with an increasing risk of pandemic situations. The global health system has identified solid solutions, with prevention being essential in these situations (Bloom & Cadarette, 2019). Prevention is far better and cheaper, regardless of whether it is a specific prophylaxis (vaccination) or non-specific preventive measures (Bloom & Cadarette, 2019). Therefore, it is crucial that initial education includes prevention against the most common infectious diseases, as well as initial knowledge about them. Numerous preventive measures include patterns of behavior that can be practiced with children of a preschool and early school age, through the immediate educational process. In addition, at this time children successfully develop habits and adopt demonstrated patterns of behavior, via observational learning (Bandura, 1977; Greer, Singer-Dudek, & Gautreaux, 2006). For that reason, it is important that preschool and primary school teachers have awareness of their role in this complex process, as well as enough knowledge, skills and experience regarding psychological protection and mental empowerment of children while preparing them for various epidemic risks. It is crucial to enhance teachers' capabilities to implement holistic pedagogies and healing-informed teaching (Hill, et al., 2020), in order to mitigate the epidemic/pandemic effects on children. All sudden and unexpected events are opportunities that enable us to address current problems in each crisis and to consider new and innovative approaches in teachers' education (Mutton, 2020).

*The aim of the research* was to evaluate the health-education and psychological competencies of future teachers regarding the circumstances of epidemic/pandemics, and subsequently, using different workshop activities, to improve those competencies and skills. Thus, to enable them to encourage children, through learning and demonstration, to practice behaviours that contribute to the health maintaining and social-emotional wellness.

*Research methods:* Besides the theoretical research and literature review, the realisation of the project began with the construction of a research instrument designed as a survey questionnaire. The survey contained 18 questions intended to examine the levels of knowledge (3 questions) and attitudes (15 for self-assessment of mentioned competencies, according to the Likert-type scale). The questionnaire was anonymous, completed in a paper form and used as an initial test and retest (after the workshop).

*Conclusion and recommendations:* 32 students of education participated in the workshop. They deepened their understanding of the most common infectious diseases, their pathogenesis, Vogralik's chain of infection, the concepts of epidemics/pandemics, and especially the prevention of different infectious diseases, with an emphasis on the current pandemic situation. Their

psychological competencies were also improved, including the development and strengthening of resilience and readiness to face various challenges caused by the epidemic threats. The students were presented with ideas, in the form of stories, movies, posters, messages, etc. how, directly in their daily educational praxis to encourage children to practice behaviours that contribute to health maintenance as well as how to preserve mental components of their health during epidemic crises. In that sense, the knowledge on the retest was significantly enhanced by 32.09% ( $p=0.00000$ ), while positive opinion on the examined competencies was increased by 14.84% ( $p=0.00001$ ). Furthermore, it was observed that knowledge was considerably improved when compared to attitudes ( $p=0.0064$ ), in a comparative analysis of the health-education vs psychological attitudes.

Taking into account the results in our pilot study and the seriousness and global nature of some health problems, health education is becoming a priority and should be emphasised in an initial education. Since the content in curricula for teachers' education is inadequate, we believe that, either similar workshop activities or curricula development, can significantly improve their competencies in these domains.

**Keywords:** infections, wellbeing, epidemics/pandemics, health-educational/psychological competencies, teachers

## Пилотное исследование по развитию медико-санитарных и психологических компетенций студентов в условиях эпидемии/пандемии

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### Аннотация

По данным Всемирной организации здравоохранения, шесть из десяти глобальных проблем со здоровьем связаны с инфекционными заболеваниями (WHO, 2019), поэтому риск оказаться в условиях пандемии очень велик. Национальные системы здравоохранения определили пути решения этой проблемы, и профилактика среди них играет ключевую роль (Bloom & Cadarette, 2019). Профилактика является эффективным и наименее затратным средством, независимо от того, является ли это специфической профилактикой (вакцинацией) или неспецифическими профилактическими мерами (Bloom & Cadarette, 2019). Крайне важно, чтобы в педагогическом образовании были предусмотрены возможности для профилактики наиболее распространенных инфекционных заболеваний, а также популяризация базовых знаний о них. Сюда входят модели поведения, которые необходимо вырабатывать у детей дошкольного и младшего школьного возраста в рамках образовательного процесса. Дети успешно приобретают полезные привычки и модели поведения посредством наблюдения (Bandura, 1977; Greer, Singer-Dudek, & Gautreaux, 2006). Поэтому важно, чтобы учителя дошкольных и начальных образовательных учреждений обладали необходимыми знаниями, навыками

и опытом по психологической защите детей в условиях эпидемиологических рисков. Внедрение комплексной педагогики (Hill et al., 2020) способно смягчить воздействие эпидемии/пандемии на детей. В кризисной ситуации решать текущие проблемы нередко помогают незапланированные мероприятия, и это открывает инновационные подходы к образованию учителей (Mutton, 2020).

Цель исследования – оценить медико-санитарные и психологические компетенции будущих учителей, способствовать развитию их навыков с помощью семинаров, направленных на освоение детьми моделей поведения, необходимых для сохранения их здоровья и социально-эмоционального благополучия.

Помимо теоретической части и обзора литературы, исследование включало разработку специального опросника: анкета содержала 18 вопросов, выявляющих уровень знаний участников (3 вопроса) и их отношение к проблеме (15 пунктов для самооценки упомянутых компетенций, по типу шкалы Лайкерта). Опрос носил анонимный характер и был разработан в бумажной форме. Анкета использовалась в качестве первоначального теста и на этапе повторного тестирования (после семинара).

В семинаре приняли участие 32 студента. Они получили более глубокое представление о наиболее распространенных инфекционных заболеваниях, их патогенезе, механизме распространения эпидемии/пандемии и способах профилактики. Анализ показал, что студенты повысили уровень своих психологических компетенций, в том числе готовность противостоять вызовам, связанным с эпидемиологическими угрозами. В форме рассказов, фильмов, плакатов и сообщений студентам были представлено, как в их повседневной образовательной практике можно поощрять детей к поведению, сохраняющему здоровье, как во время эпидемий сохранять психическое здоровье. Повторное тестирование показало, что уровень знаний вырос на 32,09% ( $p=0,00000$ ), в то время как положительное мнение о компетенциях увеличилось на 14,84% ( $p=0,00001$ ). Кроме того, в ходе сравнительного анализа санитарного просвещения и психологических установок было установлено, что знания значительно улучшились по сравнению с отношением ( $p=0,0064$ ).

Принимая во внимание результаты настоящего исследования, серьезность и глобальный характер медицинских проблем, значение и роль санитарного просвещения в педагогическом образовании возрастает. Аналогичные мероприятия или разработка новых учебных программ могут значительно повысить компетентность учителей в этом вопросе.

**Ключевые слова:** инфекции, благополучие, эпидемия, пандемия, санитарные/психологические компетенции, учителя.

## Introduction

The World Health Organization states that six out of ten global health problems are related to the domain of infectious diseases (WHO, 2019), which inevitably confronts us with an increasing risk of pandemic situations. In the conditions of increased epidemic/pandemic risks in the educational context, the development of health-education and psychological competencies of future primary school and preschool teachers has a special importance. The development of these competencies contributes to the protection of the wellbeing of children and adults who participate in the educational process in circumstances when epidemic threats are high. In addition, these competencies are a prerequisite for the successful realization of the educational process, whether it is about teaching that takes place online or about activities carried out in school or kindergarten.

Global health systems find solid solutions, with prevention being essential in these situations (Bloom & Cadarette, 2019). Prevention is far better and cheaper, regardless of whether it is a specific prophylaxis (vaccination) or non-specific preventive measures (*ibid*). Therefore, it is crucial that initial education includes prevention against the most common infectious diseases, as well as initial knowledge about them. Numerous preventive measures include patterns of behaviour that can be practiced with children of a preschool and early school age, through the immediate educational process.

Psychological competencies imply certain psychological knowledge, skills, abilities and personal characteristics of future teachers, which enable them to successfully and efficiently face various professional challenges caused by unknown epidemic threats. These

competencies are a requirement for the successful educational work during the epidemic, prevention of infection and mental difficulties in children, as well as development of personal capacities for overcoming.

In preschool and early school age, children predominantly develop habits and adopt demonstrated patterns of behaviour, by model learning (Bandura, 1977; Greer, Singer-Dudek & Gautreaux, 2006). For this reason, it is important that teachers have a developed awareness of their role in this complex process, but also enough knowledge, skills and experience on how to psychologically protect children and mentally strengthen and prepare them for various epidemic risks. Therefore, it is crucial to enhance teachers' capabilities to implement holistic pedagogies and healing-informed teaching (Hill, *et al.*, 2020), in order to mitigate the impact of epidemic/pandemic trauma on the children. Considering this, these sudden and unexpected events are opportunities that enable us to address current problems in each crisis and to consider new and innovative approaches in teachers' education (Mutton, 2020).

### Methods and Instruments

To achieve the aim of the study a theoretical research and literature review were performed mainly searching through the Google Scholar database. Subsequently, a research instrument was constructed, designed as a survey questionnaire containing 18 questions intended to examine the levels of knowledge and attitudes (Appendix 1). A 5-point Likert's type scale, created for the purposes of this research, was used to measure the self-assessment of health-education and psychological competencies of future primary school and preschool teachers. It comprises 3 questions on the infectious disease topics and 15 statements that represent certain competencies: education on health, competencies for work with children in conditions of potential epidemics, the ability to adapt educational work to changed circumstances, psychological knowledge and skills that provide psychological support to children, competencies to prevent negative emotional reactions and inappropriate behaviour in children, competencies that allow successful cooperation with parents, as well as personal resilience in dealing with stressful experiences. The expression of these competencies is assessed by the respondents on a 5-scale (the continuum ranges from 1- *I think I do not have a developed given characteristic* to 5- *I think I have a developed given characteristics to a large extent*). The questionnaire was completed anonymously by 32 students of Education, in a paper form and used as an initial test and retest (after the workshop). The data were analysed using Microsoft Excel statistical software; Student's t-test was used to compare the data and a p value < 0.05 was considered statistically significant.

The workshop took the form of interactive presentations focusing on in-depth understanding of the most common infectious diseases, pathogens that cause them, Vogralik's chain of infection, the concepts of epidemics/pandemics, and especially the prevention of intestinal and respiratory infectious diseases, with an emphasis on the current pandemic situation. Psychological competencies were also highlighted, including the development and strengthening of resilience and readiness to face various challenges posed by epidemic threats. Furthermore, students were presented with ideas, in the form of stories, movies, posters, messages, etc., how to encourage children to practice behaviors that contribute to health maintaining as well as how to preserve the mental components of health during epidemic crises.

### Results and Discussion

This pilot study showed that both, health-education and psychological competencies of students, which are important for educational work in conditions of epidemic risks,

can be developed and shaped through workshops. The score of students' knowledge and self-assessment after their engagement in a short program, which aimed to improve mentioned competencies for educational work in epidemic risks, showed that both, levels of knowledge and self-assessment of their own education, skills and capacities, improved significantly, and that they perceive themselves much more competent in those domains, in a relation to the initial assessment. On the retest students' knowledge was significantly enhanced by 32.09% ( $p=0.00000$ ), while positive opinion on the examined competencies was increased by 14.84% ( $p=0.00001$ ). When analysed separately, each of two categories of self-assessed competencies demonstrated substantial increases; health-education by 15.15% ( $p=0.00003$ ) and psychological by 11.32% ( $p=0.0009$ ). Additionally, it was observed that knowledge was considerably improved when compared to self-assessed competencies ( $p=0.0064$ ), whereas comparative analysis of health-education vs psychological competencies revealed no significant difference among these two categories ( $p=0.056$ ).

The data demonstrated that focused workshop activities were very helpful, contributing to the improvement of students' initial knowledge regarding infectious diseases and their consequences. Education students gained more confidence in defining and understanding epidemic and pandemic phenomena, as well as the pathogens that cause certain infections. In addition, in their opinion, they significantly improved their competences concerning ways of transmission and prevention measures of some infectious diseases. These skills are very important since it is expected that teachers should be able to provide support for the pupils while developing strategies to mitigate and manoeuvre the stressors and challenges of epidemic/pandemic jeopardy, as well as to stay positive during this time. This is of crucial importance since outbreaks and epidemics are almost guaranteed to continue in the future (Bloom & Cadarette, 2019).

Furthermore, the study showed that the general self-evaluation of the development of psychological competencies in students became more positive. They feel more competent to adapt standard ways of working during the epidemic threats and have more developed psychological knowledge and skills that enable psycho-educational support to children. Students also improved their competencies for prevention of negative emotional reactions and inappropriate behaviour in children, as well as competencies that enable successful cooperation with parents, what is essential throughout crisis periods, as proved by recent study during COVID-19 pandemic (Hodges, Kerch & Fowler, 2020). Moreover, in the students' opinion, they have further developed personal resilience to cope with stressful experiences.

Given that primary school and preschool teachers are people who spend a significant part of time with children and who largely shape children's patterns of behaviour and habits, it was very important to examine how their psychological competencies work under increased risks and changed circumstances in epidemic conditions, how they change over time and how they can improve. Every unknown and unpredicted situation in the educational context sets teachers a specific challenge and requires adaptation to the new working conditions, so it is important that they themselves are resilient, emotionally stable and ready for changes in their current way of working. Also, they are, at the same time, a significant example and role model for children (Bandura, 1977; Greer, Singer -Dudek, & Gautreaux, 2006). Through direct messages and implicit guidance, they give guidelines on how children behave in conditions of sudden threat and imminent health danger. Thus, it is important to continuously encourage their awareness of their own role in this process, to strengthen them with carefully planned educational content and prepare them for action and work in conditions of increased risks of various kinds. A recent study has revealed teachers' adaptability and readiness to introduce social-

emotional learning contents and activities in their lecturing for the purpose of students' wellbeing (Hadar, Alpert & Ariav, 2020), what is possible only when teachers are well educated in the domain of mental health and whose psychological competences are strong and durable.

## Conclusion

Taking into account the results in our pilot study, workshops and project teaching/activities are especially suitable for application in educational work, with the aim of protecting and improving the wellbeing of children during epidemic risks. The expected effects are reflected in the domain of cognition, emotions and behaviour of children, by expanding knowledge about infections and epidemics/pandemics, threats and their consequences, reducing the occurrence of negative emotions, and replacing dysfunctional behaviour with constructive and protective patterns. Considering the seriousness and the global nature of the current health issues, the health education is becoming a priority and should be emphasised in initial education. The landscape of teaching and learning should be more responsive and flexible, and because of that, transformed either through curricula for teachers' education or similar workshop activities.

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## Appendix 1

### Assessment and self-assessment of health-educational and psychological competencies in the context of potential epidemic risks

Index number: \_\_\_\_\_

Year of study: \_\_\_\_\_

Gender: \_\_\_\_\_

Average grade during the study (circle the interval): 6-7 7-8 8-9 9-10

Completed high school (circle): \_\_\_\_\_ medical school grammar school other

Read each question carefully and give the answer you think is correct.



1. Please define the terms:

Epidemic \_\_\_\_\_

Pandemic \_\_\_\_\_

2. Causes of infectious diseases can be: \_\_\_\_\_

3. Please link the infectious disease to the pathogen that causes it (enter the appropriate numbers in the blanks).

	COVID-19	1. Influenza virus
	Measles	2. Tapeworm
	Influenza	3. Poliovirus
	Infantile paralysis (Poliomyelitis)	4. Rhinoviruses
	Cold	5. Coronaviruses
		6. Morbillivirus
		7. Sars-CoV 2
		8. HIV
		9. Mycobacterium tuberculosis

Please read each statement carefully and, by circling the appropriate number next to it, indicate the degree to which you assess that the given competence is expressed in your case, where the numbers have the following meanings:

- 1- *I think that I do not have a developed characteristic at all*
- 2- *I think I have developed a given characteristic to a small extent*
- 3- *I consider that I have developed a given characteristic of approximately intermediate level*
- 4- *I consider that I have developed a given characteristic to a significant extent*
- 5- *I think I have developed a given characteristic to a great extent*

1. I have adequate health and educational competencies for work with children in conditions of potential epidemic risks. 1 2 3 4 5

2. I am familiar with the ways of how respiratory infectious diseases are spread. 1 2 3 4 5

3. I am familiar with the ways of how intestinal infectious diseases are spread. 1 2 3 4 5

4. I have the appropriate knowledge of prevention measures against respiratory infectious diseases. 1 2 3 4 5

5. I have the appropriate knowledge of prevention measures against intestinal infectious diseases. 1 2 3 4 5

6. I think I have acquired the necessary knowledge about infectious diseases (causes, ways of spreading, prevention) during my primary school and secondary school education. 1 2 3 4 5

7. I think I need an additional education on current issues related to infectious diseases necessary to work with children in conditions of increased epidemic risks. 1 2 3 4 5

8. I have appropriate psychological competencies for working with children in conditions of increased epidemic risks. 1 2 3 4 5

9. I think I would adapt appropriately to the changed methods of educational work, caused by extraordinary epidemic circumstances. 1 2 3 4 5

10. I have the appropriate psychological knowledge, which allows me to understand the role and importance of appropriate psychological support for children in conditions of increased epidemic risks. 1 2 3 4 5

11. I have developed appropriate psychological skills to provide adequate psycho-educational assistance to children facing an epidemic threat. 1 2 3 4 5

12. I have developed competencies that allow me to prevent negative emotional responses in children (increased worry, fears, grief), caused by a potential epidemic threat. 1 2 3 4 5

13. I have developed competencies that allow me to teach children prevent the appearance of negative patterns of behaviour (retreat, avoidance, aggressive reactions), caused by potential epidemic threat. 1 2 3 4 5

14. I have the appropriate competencies that are a prerequisite for appropriate cooperation with the parents of the children in conditions of increased epidemic risks. 1 2 3 4 5

15. At the psychological level, I can successfully overcome personal challenges and increased stress in conditions of sudden epidemic risks. 1 2 3 4 5

THANK YOU FOR COOPERATION!