

ORIGINAL ARTICLE

The Perception of Students of Health in Banjarmasin on Interprofessional Education (IPE)

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ABSTRACT

Introduction: One of the strategies to reform better health services and to improve teamwork, quality care and focus on patients is the implementation of Interprofessional Education (IPE) in higher education. Therefore, it is necessary to identify the perception students health of IPE. The purpose of this study was to describe the characteristics of age, gender, grade-point average (GPA), previous schools and to describe students' perceptions on IPE based on the characteristics of student. **Methods:** quantitative analytic survey method, cross-sectional design. The number of respondents involved in this study was 127 health students. The data collection used the Readiness for Interprofessional Learning Scale (RIPLS) questionnaire, and analysed descriptive. **Results:** The majority of the respondents were female (90.6%), aged 18-20 years (92.9%), from Non-Nursing High School (92.9%), and had an achievement index of 3.01-3.50 (82%). The majority of respondents were ready for IPE (51.2%). RIPLS questionnaire result in mean score of 77.61 ± 6.97 . Students' perceptions on IPE learning can also be seen from their readiness. Students having participated in IPE were readiness for IPE ($p = 0.001$). Students with organizational experience had readiness for IPE of $p=0.001$. **Conclusion:** Students who have positive perception of IPE, cross-professional learning experiences, and organizations make them have readiness for IPE. Students who have positive perception of IPE, having participated in IPE, and organizations make them have readiness for IPE. Recommendations for health education in the preparation for IPE implementation to prepare health care professionals early on and provide patient care in a collaborative teamwork environment.

Keywords: Interprofessional Education; Student of Health; Perception; Readiness

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INTRODUCTION

IPE is one of the methods offered by the World Health Organization (WHO) to support the collaboration of two health professions and to create the ideal teamwork at the education level and the graduates who are reliable in collaboration so as to improve service quality and patient and family satisfaction with health services (1). The healthcare profession is faced with increasing complex patient problems every day. This requires synergistic skills and knowledge between professionals because in practice, health care providers cannot work alone. They work together with other health professionals who have one goal in meeting patient centered care (PCC) needs

and in solving the problems experienced by patients and their families. Therefore, collaboration between health professions (Interprofessional Collaboration/IPC) is needed to increase patient and family satisfaction with health services (1).

IPC can be improved by introducing other professions to collaborate since the education period through Interprofessional Education (IPE) in higher education institutions. IPE has become an important issue as an innovation that is being explored in the world of health professional education today (2, 3). IPE is a learning activity followed by two or more professions that learn about, from, and with each other to enable effective collaboration and improve health outcomes. The IPE-based learning process has been implemented in 42 countries in the world, for doctors (10.2%), nurses or midwives (16%), nutritionists (5.7%) and other health education (3).

The development of IPE implementation must continue to be carried out by higher education to reform health services towards a better direction (1). The importance of IPE learning through modules for nursing students is as a strategy to improve teamwork (2). The application of IPE to pharmacy and medical students with communication, interviews and prescribing is very effective in collaborative learning (5). IPE opens up learning opportunities for midwifery and residency students, encourages learning from one another, and provides quality patient-focused care (6). To accommodate IPE or cross-professional education, the government, professional institutions and health education institutions must work on it carefully (7).

Readiness is a psychological attitude that a person must have before doing something. Acceptance of students towards understanding other professions is an approach that must be met in the implementation of IPE (8). Acceptance accompanied by student interest in the subject to be studied will maximize the achievement of student learning outcomes (9). Acceptance can be seen through positive perceptions of something that produces real behavior and it is necessary to identify students' perceptions on health.

The results of previous studies stated that there is a statistically significant difference between health care disciplines in students' perception and readiness for IPE ($p=0.019$) (10), but there was no difference between students with different years of study in their perception and readiness for IPE. The results showed that nursing students have a high perception and readiness of IPE. The results of a systematic review of both quantitative and qualitative research regarding the implementation of IPE can be started from the identification of students' perceptions and attitudes towards IPE which can be categorized into three categories, namely readiness for IPE, IPE barriers and IPE facilitators. In addition, the results of the research carried out also showed that IPE can encourage the establishment of productive learning relationships from various health professions (11). The results of the research on perception can be taken into consideration in looking at individual perceptions. Acceptance can be seen through a positive perception of something that produces real behavior and it is necessary to identify the perceptions of health students towards IPE. Readiness for IPE was higher in women than in men (12). The results of previous studies showed that there is a relationship between IPE readiness and age. The higher the age, the more prepared students (final level) were more prepared, those with a high grade-point average (GPA) were more prepared and those who had experience working with students from other study programs were more prepared for IPE. Students are ready to implement IPE because they have a positive perception of IPE (13). The results of previous studies stated that it is important to assess the readiness of students to study IPE, and to implement it because the development of the

IPE learning model at the higher education level needs to involve the role of students including the initial level in order to find out the needs and desires of student learning as early as possible so that it is very important to know students' perceptions on IPE learning (14). The aim of the study is to identify the characteristics of age, gender, grade-point average (GPA) and previous school, identify perceptions on IPE, and student readiness for IPE based on the characteristics of age, gender, GPA and previous school in Banjarmasin.

MATERIALS AND METHODS

This study used a quantitative approach to analytical survey research methods, and the research design was cross sectional. This research was carried out at a higher education institution that had bachelor's degree in nursing, pharmacy and midwifery in Banjarmasin area, namely Sari Mulia University during the even semester of March-July 2021. The population in this study were all new students of Health Faculty for the second semester of 2020/2021 academic year at Sari Mulia University as many as 184 people. The samples used in this study were undergraduate students of nursing, pharmacy, and midwifery from Health Faculty of Sari Mulia University. The number of samples is determined by calculating from the population using the Slovin formula (15), and it was found that the number of samples was 127 students. The researcher collected the number of students from departments of pharmacy, nurse and midwifery and then used the proportional random sampling formula so that the number of each department was obtained. The researcher took randomly and accordingly to the proportion of the number of samples from each department.

Sampling was carried out using proportionate random sampling technique and obtained 35 samples out of 51, 66 out of 95, and 26 out of 38 undergraduate students of nursing, pharmacy, and midwifery, consecutively. The researcher has applied for and obtained a research permit from the research site and a letter of passing the ethics test from the research ethics commission. The research samples have also been given with informed consent regarding the purpose of the study and the procedure for filling out the questionnaire. In addition, the samples have the right to state whether or not they are willing to become research respondents.

The research data collection used Readiness for Interprofessional Learning Scale (RIPLS). The data belongs to ready category if the value > 77 and not ready if the value is 77 . Questionnaire RIPLS which has a high number of validity and reliability was used to measure perceptions of IPE. The questionnaire had r-count validity test of 0.470-0.905 with value of r table of 0.44 and the reliability test result of 0.72. The data collection using questionnaire was conducted online via google form. The researcher provided informed consent

on the front page of the questionnaire. The informed consent given was about the purpose and benefits of the research. It also gave the students the right to choose to be research sample or to refuse it. The data were then analyzed using descriptive data analysis in the form of univariate and bivariate analysis.

Bivariate data analysis was used to determine student readiness for IPE based on the characteristics of age, gender, grade-point average (GPA) and previous school in Banjarmasin. This study used a categorical scale (ordinal), so the researcher decided to use the Chi-Square test.

ETHICAL CLEARANCE

This study was approved by the Research Ethics Committee Board of the Research and Community Service Institute, Sari Mulia University No. 043/KE-LPPM/UNISM/II/2021.

RESULT

The number of samples in this study was 127 people with an enthusiastic response rate in filling out the Readiness for Interprofessional Learning Scale questionnaire, and the response rate was 100% (n= 127). The researcher followed up on the sample so that all respondents were recorded properly.

1. Univariate Analysis

The frequency distribution of the respondents' characteristics is shown in table I.

Table I shows that the majority of respondents aged 18-20 years was 118 people (92.9%), 115 of them were women (90.6%), 104 people had cumulative grade-point of 3.01-3.50 (82%), and 9 people had their recent education in nursing high school (7.1%). Most of the respondents had experience of participating in Interprofessional Education as many as 105 people

Table I Frequency Distribution of Respondents Characteristics

Respondents Characteristics	Frequency (n)	Percentage (%)
Age		
<18 years old	9	7,1
18 – 20 years old	118	92,9
Gender		
Female	115	90,6
Male	12	9,4
Grade-Point Average (GPA)		
> 3,50	6	4,7
3,01-3,50	104	82
2,75-3,00	12	9,4
< 2,75	5	3,9
Previous School		
Nursing High School	9	7,1
Non-Nursing High School	118	92,9

CONTINUE

(82.7%) and those who had organizational experience were 79 people (55.1%).

Table I Frequency Distribution of Respondents Characteristics (cont.)

Respondents Characteristics	Frequency (n)	Percentage (%)
Having Participated in Interprofessional Education		
Yes	105	82,7
No	22	17,3
Organizational Experience		
Yes	70	55,1
No	57	44,9

Source: Primary Data, 2021

Based on table II, it can be viewed that most of the respondents who were ready for Interprofessional Education (IPE) were as many as 65 people (51.2%) and some others who were not ready were as many as 62 people (48.8%).

Table II Respondents Readiness to Interprofessional Education (IPE)

Readiness	Frequency (n)	Percentage (%)
Ready	65	51.2
Not ready	62	48.8
Total	127	100

Source: Primary Data, 2021

Based on table III, RIPLS questionnaire resulted in mean score of 77.61 and standard deviation of 6.97.

RIPLS questionnaire based on each domain averaged over domains 1 (teamwork and collaboration), 2 (professional identity), and 3 (roles and responsibilities) of 39.90/45, 32.16/40 and 5.54/10 consecutively.

Table III The RIPLS Questionnaire Based on Domain

The RIPLS Questionnaire	Mean	Standart Deviation (SD)
Skor RIPLS	77,61	6,97
Domain 1 : Teamwork & Collaboration	39.90	0,13
Domain 2 : Professional Identity	32.16	0,36
Domain 3 : Roles & Responsibilities	5.54	1,41

Source: Primary Data, 2021

2. Bivariate Analysis

Table IV shows that the correlation between the characteristics of age, gender, grade-point average (GPA) and previous school with readiness for IPE obtained the value of each $p = 0.266$; $p=0.371$; $p=0.375$; $p=0.740$; ($\alpha=0.05$). The researcher also conducted a Chi-Square test to determine the correlation between experience

Table IV Analysis of the Correlation between Characteristics of Respondents' and Readiness for IPE of Respondents'

Characteristics of Respondents	Readiness						P Value
	Ready		Not ready		Total		
	n	%	n	%	n	%	
Age							
18 – 20 years	62	48.8	56	44.1	118	92.9	0.266
<18 years old	3	2.4	6	4.7	9	7.1	
Gender							
Woman	60	47.2	55	43.3	115	90.5	0.371
Man	5	4	7	5.5	12	9.5	
Grade-point average							
> 3.50				0.8			0.375
3.01-3.50	5	4	1		6	4.8	
2.75-3.00	53	41.7	51	40.1	104	81.8	
< 2.75	5	4	7	5.5	12	9.5	
	2	1.6	3	2.3	5	3.9	
Previous School							
Nursing High School	4	3.1	5	4	9	7.1	0.740
Non-Nursing High School	61	48	57	44.9	118	92.9	
Having participated in Interprofessional Education							
Yes	60	47.2	45	35.5	118	82.7	0.001
No	4	3.1	18	14.2	9	17.3	
Organizational experience							
Yes	45	35.5	25	19.7	70	55.2	0.001
No	20	15.7	37	29.1	57	44.8	

Source: Primary Data, 2021

of having participated in Interprofessional Education, $p = 0.001$ ($\alpha = 0.05$) and organizational experience with readiness for IPE obtained $p = 0.001$ ($\alpha = 0.05$).

DISCUSSION

90.6% of respondents were female and the majority of respondents were aged 18-20 years. It is because the students were in the first year of their professional program at the Health Faculty on semester 2 (even semester). Age more than 18 years is a period of late adolescence to early adulthood for students so that adaptation is needed to go to the maturation process. Adulthood is generally in the age range of 18-25 years. Students at that age have responsibility for their optimal growth and development, including having to have a sense of responsibility for their lives to enter adulthood (16). Students entering early adulthood also have developmental tasks. The developmental task is

a process that describes the behavior of individuals as human beings in a harmonious social and psychological life in society, in the scope of education as well as in a wider and more complex environment (17). This early adult development phase is very important. Starting from making their vision and mission in life, trying to grow into young adults who are able to take responsibility for themselves and others, starting to pursue and choosing a professional career in the future is everyone's concern, especially young people, including students' of health. They choose to become students in the health study program because it is directly related to their future profession. Students of health must grow and develop into rational individuals because they will face serious challenges later in the professional world, namely human health (18).

The results showed that students aged 18-20 years were mostly ready for IPE compared to those aged <18 years. This is because the total number of students aged 18-20 years is more than those of <18 years. The results of a previous research in Australia also stated that older students showed a ready attitude and became more positive about IPE. Age can affect a person's level of maturity in critical thinking (18, 19).

Some female students are ready for IPE implementation compared to male students. Despite supporting previous research which stated that more women are ready for IPE implementation at 84.39% (20), it also contradicts another previous research results mentioned that men are more prepared for IPE because male students have more practical experiences (19). The different results came from the different respondents in this study and the latter study mentioned. This study recruited first-year and second-semester students. Besides, the proportion of students (20%) came from the midwifery department who were all female.

The results of the study are in line with the previous one, it was also found that students who had a grade-point average (GPA) > 3.00 had a readiness score that tended to be higher so that they were ready for IPE implementation (13). GPA is obtained from the accumulated score of all semesters that have been taken by students, student assessments are carried out by lecturers for professional learning purposes. GPA ratings range from 0-4. Some literature mentions that well-designed student ratings can inform effective teaching practices and can result in an improved students achievement (21). This is possibly because someone with a level of knowledge and understanding of something will be more likely to have a more positive and good attitude and perception. Students who have a GPA > 3.01 can said to have high cognitive abilities so that they are potentially more prepared to study with students from other disciplines by learning IPE.

The majority of the students who had completed

Highschool show more readiness for an IPE compared to those graduated from nursing vocational high school. This happens because the proportion of students who come from nursing high school graduates is very small, those are 9 people out of 127 respondents.

Most students who have attended their Interprofessional Education are ready for IPE. The results of previous studies were different for they found that most of the respondents claimed to have never had an interprofessional learning experience (90.0%) (22). In this study, on the contrary, all respondents were carefully selected to ensure that all have had participated in learning with students from other study programs so that they have gained a cognitive picture of learning from and about their profession and other health professions so that they are ready for IPE. Students who come from high school nursing graduates also have experience in service or field work practices at community health centres and in hospitals so that some are ready for IPE.

Students who participate in organizational activities interact with other students from several health and other study programs so that they can improve their ability to communicate and cooperate which are very necessary for their readiness for IPE at 35.5%. The results of this study are in line with the results of previous studies which found that 19.3% of students who are ready for IPE had worked together with students from other study programs in student organizations on campus. Students who had participated in organizational activities and interacted with other students from several health study programs or others can improve their communication and collaboration skills which are very necessary for their readiness for IPE. By involving themselves in organizational activities that include non-academic activities or extracurricular activities, students can expand their ability to develop interpersonal relationships, increase their self-confidence, increase their tolerance and acceptance of others (23). The results of the previous research in students of health from various study programs and semesters showed that all women have positive perception on the readiness of learning on IPE, interprofessional collaboration with students of other health study programs especially resident students and students having practice in hospitals who have experience in nursing service. Students of health who have learnt about interprofessional are more ready on IPE implementation compared to those who have not (12). Students who are exposed to clinical practice and interact with other health professions will develop positive perceptions as well as negative perceptions of IPE (13).

The results of this study indicate that most of the students of health in the first year of their professional program at the Sari Mulia University have a positive perception and are ready to implement IPE. Students' perceptions on IPE need to be explored because they

have the potential to provide information and provide feedback as a process of evaluating the development of IPE activities implemented at the Sari Mulia University educational institution. The results of this study indicate that students have a positive perception As shown from the total RIPLS score the total RIPLS score (77.61 ± 6.97 on a scale of 95 from a total of 19 question items). The results of this study support previous research from all respondents taken from health students in several health disciplines having a positive attitude measured by the RIPLS total score (80.2 ± 7.4 on a scale of 95) (24).

The results of the previous studies are in line with this study that there is no correlation between the characteristics of age, gender, and recent education graduates with readiness for IPE (13). However, the results are also different from other previous research which claimed a correlation between gender and readiness for IPE and that men were more prepared for IPE (19). This results difference is due to the respondents' different experiences; in some ways that male students have more practical experiences and have been at their final level of study allowing them to get their hands on field practice and collaboration, cooperation, and communication.

The results of this study support the previous research that there is a relationship between the experience of having participated in cross-professional learning with readiness for IPE. It means, students who have experience working with students from other study programs and who have participated in Interprofessional Education with their study programs both in academics and practice -which secure them an idea of the collaboration, cooperation and communication required in the implementation of IPE- are ready for IPE (12, 13).

The results of the study recommend the need to improve professional attitudes among health professions by improving leadership, communication, and collaboration skills so that students are ready to implement IPE in the academic field and apply it in field practice activities. This is done so that students have a positive perception and attitude towards developing innovative IPE implementations, such as by conducting training or providing material about IPE in the form of role models so that there is a change in readiness for Interprofessional education. The provision of training and materials on IPE has led to an increasingly positive perception and behavior towards students' readiness to learn interprofessional cooperation (IPE) (12, 13, 25).

The findings of this study are that it is necessary to increase positive student perceptions of IPE in the academic and field practice stages in order to have readiness for IPE implementation. Perceptions of students from the three study programs toward IPE in the study can indicate readiness for IPE. According to several experts, there are several tips that can facilitate

interprofessional learning and build a positive teamwork function at the level of educational institutions. One of them is the role of lecturers are supposedly ready to act in their professional roles and responsibilities in teams with other health study programs, to design interprofessional learning activities, and to facilitate interpersonal student groups. The involvement of lecturer-student interactions in the initial interaction of IPE learning can encourage the recognition of the need for communication within the health team so that it can prepare students better for interprofessional practice and interprofessional collaboration (13, 26-29). Students who have a positive perception of IPE, cross-professional, and organizational learning experiences will be ready for IPE. It is thus recommended for health education that implements IPE to prepare health workers from an early age and provide patient care in a collaborative team environment. Additionally, all of the aforementioned-previous-research has suggested the importance of the importance of collaborating with other students during clinical experience/rotation settings or field practice such as the world of work in small group sessions or health problem-based interprofessional learning (24). Educators and Decision-makers in education should consider students' attitudes and perceptions in designing interprofessional education curricula by taking into account differences in student groups from their respective health study programs. Readiness for IPE may be caused by cultural or educational background, it is then considered optimal in providing further support on the need for each study program to understand their perceived readiness for IPE before designing the IPE curriculum (30, 31). Therefore, the government's role in encouraging collaboration among health workers is crucial. The collaboration may be initiated from the integration of the Interprofessional education indicators within the accreditation standard of Higher education. This corresponds to the recommendation of the systematic review research that poses the significance of the government's role in promoting collaboration among health practitioners, health educators, managers, or health services practitioners. Interprofessional education through the implementation of IPE generally is well-received which further allows the development of knowledge and skills needed by health students to work collaboratively. It is also serving as the mechanism of quality improvement, practical experiences development, and healthcare service development (32). The limitation of this study is that the researcher did not explore qualitatively items of experience in collaboration with other study programs and school motivation in the health department. It is recommended to more profoundly variables using the mixed-method analysis method related to factors that affect student readiness for IPE such as learning motivation in health study programs and differences in readiness of each health study program in varied semesters using stratified random sampling technique.

CONCLUSION

There is no correlation between the characteristics of age, gender, GPA, and previous school with readiness for IPE, but there is a correlation between experience having participated in Interprofessional Educational and organizational experience with readiness for IPE (p value = 0.001).

It is recommended for health education in preparation of IPE implementation to prepare health care professionals early on and to provide patient care in a collaborative teamwork environment. For the future researcher, it is thus recommended to conduct research on the readiness of each health study program in more varied semesters using a stratified random sampling technique.

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REFERENCES

1. World Health Organization. Guideline: protecting, promoting, and supporting breastfeeding in facilities providing maternity and newborn services. World Health Organization; 2017
2. The Ministry of Health of the Republic of Indonesia (Kementrian Kesehatan Republik Indonesia). Report Basic Health Research (Laporan Riset Kesehatan Dasar). Jakarta : Kemenkes RI.
3. Public health office in Central Java Province. Health profile of Central Java Province in 2019. Dinas Kesehatan Provinsi Jawa Tengah; 2020
4. Isyit'aroh, Rofiqoh, S., & Aktifah, N. Prediktor Kegagalan Menyusui Eksklusif: Studi di Puskesmas Buaran Kabupaten Pekalongan Jawa Tengah Indonesia. *Jurnal Keperawatan Indonesia*. 2019;22(1), 65-73.
5. Yunus, Y., Ratrikaningtyas, P. D., & Ernawati, D. Determinants Of Unsuccessful Exclusive Breastfeeding-A Scoping Review. *European Journal of Public Health Studies*. 2021. 4(2), 59-75. DOI: <http://dx.doi.org/10.46827/ejphs.v4i2.97>
6. Adhiningsih, Y. R. Identification of Acute Rotavirus Diarrhea and Analysis of its Risk Factors in Children Under-5 Years in Surabaya, Indonesia. *Indian Journal of Public Health Research & Development*, 2020;11(6). 1492-1498. DOI: <https://doi.org/10.37506/ijphrd.v11i6.10021>.
7. Dagnew, A. B., Tewabe, T., Miskin, Y., Eshetu, T., Keeling, W., Zerihun, K., ... & Teka, T. Prevalence of diarrhea and associated factors among under-five children in Bahir Dar city, Northwest Ethiopia, 2016: a cross-sectional study. *BMC infectious diseases*. 2019;19(1), 1-7. <https://doi.org/10.1186/s12879-019-4030-3>

8. Kraton general hospital in Pekalongan district. Medical record of Kraton general hospital in 2019. Unpublished raw data
9. Kajen general hospital in Pekalongan District. Medical record of Kajen general hospital in 2019. Unpublished raw data
10. Ministry of Women's Empowerment and Child Protection and the Central Statistics Agency. Profil perempuan Indonesia 2019. Jakarta : Kementerian Pemberdayaan Perempuan dan Perlindungan Anak.
11. WHO. Global nutrition targets 2025 breastfeeding policy brief. http://apps.who.int/iris/bitstream/handle/10665/149022/WHO_NMH_NHD_14.7_eng.pdf?ua=. 2014
12. Wendiranti, C. I., Subagio, H. W., & Wijayanti, H. S. Faktor Risiko Kegagalan ASI Eksklusif (Doctoral dissertation, Diponegoro University). 2017. 241-248. DOI: <https://doi.org/10.14710/jnc.v6i3.16916>
13. Dib, S., Fewtrell, M., Wells, J. C., & Shukri, N. H. M. (2020). The influence of hospital practices and family support on breastfeeding duration, adverse events, and postnatal depression among first-time mothers. *Malaysian Journal of Medicine and Health Sciences*, 2020;16(6), 90-98.
14. Baghel, D., & Singh, A. Determinants of Failure of Exclusive Breast Feeding in Mothers Residing in Satna, Madhya Pradesh. *Journal Of Medical Science and Clinical Research*. 2018. 6(3).1305 - 1308. DOI: <https://dx.doi.org/10.18535/jmscr/v6i3.215>
15. Hawkins, M. A., Colaizzi, J., Rhoades-Kerswill, S., Fry, E. D., Keirns, N. G., & Smith, C. E. Earlier Onset of Maternal Excess Adiposity Associated with Shorter Exclusive Breastfeeding Duration. *Journal of Human Lactation*. 2019;35(2), 292-300. doi: 10.1177/0890334418799057.
16. Theodora, D. Z., & Mc'Deline, R. N. "The kind of support that matters to exclusive breastfeeding" a qualitative study. *BMC Pregnancy and Childbirth*. 2021;21(1), 1-8. DOI: 10.1186/s12884-021-03590-2
17. Brahm, P., & Valdés, V. The benefits of breastfeeding and associated risks of replacement with baby formulas. *Revista chilena de pediatria*. 2017;88(1), 7-14. doi: 10.4067/S0370-41062017000100001.
18. Li S, Yue A, Abbey C, Medina A and Shi Y. Breastfeeding and the Risk of Illness among Young Children in Rural China. *Int. J. Environ. Res. Public Health*. 2019;16, 136. doi: 10.3390/ijerph16010136
19. Apanga PA, Weber AM, Darrow LA, Riddle MS, Tung WC, Liu Y, Garn JV. The interrelationship between water access, exclusive breastfeeding and diarrhea in children: a cross-sectional assessment across 19 African countries. *J Glob Health* 2021;11:0400119. DOI: 10.7189/jogh-11-04001
20. Shen, J., Zhang, B. M., Zhu, S. G., & Chen, J. J. No direct correlation between rotavirus diarrhea and breastfeeding: A meta-analysis. *Pediatrics & Neonatology*. 2018;59(2), 129-135. <https://doi.org/10.1016/j.pedneo.2017.06.002>
21. Lunnerdal, B. Bioactive proteins in breast milk. *Journal of paediatrics and child health*. 2013;49, 1-7. DOI: 10.1111/jpc.12104
22. Ochoa, T. J., Chea-Woo, E., Baiocchi, N., Pecho, I., Campos, M., Prada, A., Valdiviezo, G., Lluque, A., Lai, D., & Cleary, T. G. Randomized double-blind controlled trial of bovine lactoferrin for prevention of diarrhea in children. *The Journal of pediatrics*. 2013. 162(2), 349–356. doi: 10.1016/j.jpeds.2012.07.043
23. Mosca, F., & Gianni, M. L. Human milk: composition and health benefits. *La Pediatria Medica e Chirurgica*. 2017. 9(155), 47-52. doi: 10.4081/pmc.2017.155.
24. Dunne-Castagna, V. P., Mills, D. A., & Lunnerdal, B. Effects of milk secretory immunoglobulin A on the commensal microbiota. *Milk, Mucosal Immunity and the Microbiome: Impact on the Neonate*. 2020;94, 158-168. Doi : <https://doi.org/10.1159/000505335>