MOTHERS KNOWLEDGE ABOUT IMPROVING CHILDREN'S IMMUNITY AND THE PREFERRED RESOURCES TO GATHER HEALTH INFORMATION

Siti Khuzaiyah[1)], Nur Chabibah[2)]*
[1,2]Midwifery Department, Faculty of Health Science, University of Muhammadiyah Pekajangan Pekalongan, Ambokembang street No.8 Pekalongan, 51173, Indonesia
Email: [1]khuzaiyahpenulis@gmail.com, [2]nchabibah@gmail.com,

Abstract. **Background:** Improving a child's immunity is essential, especially during the COVID-19 pandemic. Mothers who are knowledgeable about how to improve the children's immune system tend to perform better measures to enhance their children's health. Furthermore, understanding the preferred resources to gather health information is essential to provide better service for mothers. This study aimed to explore mothers' knowledge in improving a child's immunity and the preferred resources to gather health information related to immune boosters in children
Methods: This study was a descriptive quantitative exploring mother's knowledge and preferred resources. A number of 107 mothers who had children under five years filled out a questionnaire. The questionnaire was made using google form and distributed to the targeted subject. The data was then analyzed using descriptive-analytic.
Results: The result of this study indicates that almost a half of respondents (47.7%) were non-Knowledgeable and about 52.3 % of respondents were knowledgeable about how to improve a child's immunity during the pandemic of COVID-19. The mean score was 75.23. On the other hand, almost half of mothers (45.8%) preferred using social media to gather information about immune boosters in their children.
Conclusion: Health providers should consider social media as the primary media to deliver health promotion and improve mothers' knowledge level about immune boosters in children, especially during the COVID-19 pandemic.

Keywords: children, mothers, social media, pandemics, COVID-19, health promotion, surveys and questionnaires, child health, immune system

Background

COVID-19 threats not only to the adult community but also to the children community. Although the children population is less affected by COVID-19 [1], they are still susceptible to COVID-19; and there was no significant sex difference [2].

Improving children's immunity is essential, especially during the COVID-19 pandemic, because the immune system protects the host from bacteria, viruses, fungi, parasites [3]. The expert stated that one of the risk factors for the adverse outcome of COVID-19 in children is immunocompromising conditions. The other factors are obesity, diabetes, asthma, chronic lung disease, sickle cell disease, or immunosuppression [4].

If the children have high immunity, it might be beneficial because it could prevent children from being suffered from a coronavirus. Although the study claimed that children have an innate immune system that quickly attacks the virus and protects them from severe COVID-19 [5], the measures to improve children's immunity remain essential because they have an immature immune system. They are usually more prone than the adults to get an infection of microbial and have more severe illness symptoms, particularly for newborns and very young children [6].

Factors that influencing the immune system: perinatal period, cesarean delivery, breastfeeding, and antibiotic abuse. In addition, smoking, exposure to valproate, anticonvulsant drugs, teratogen, and diet also affect the immune system [7]. A study on the impact of several nutrition on the immune system had been conducted. For example, a study mentioned that vitamin C and zinc are essential to maintaining children's immune systems. Lack of vitamin C and zinc adversely affects children's physical and mental growth and impair their immune defenses [8]. Others said that these elements are important to maintain the immune system, including vitamins A, B6, B12, C, D, and folate (vitamin B9) and for the trace elements zinc, iron, selenium, and copper [3]. Moreover, it is claimed that micronutrients, including iron, zinc, vitamins A, C, D, and E exert essential effects on immune system development during the neonatal period [9].

In terms of children, mothers have an essential role in improving their immunity. This condition could be understood because children typically follow the guidance, rule, and suggestion from mothers. If mothers guide children to do or to eat something to improve their immunity, the children's immunity will increase. In contrast, if mothers guide children to do harmful activities and eat less nutritious food, the child's immunity might decrease. Thus, mothers should have a good attitude and role for children regarding improving their immunity.

A study in Nigeria shows that mothers' knowledge of health and nutrition may substitute for education in reducing undernutrition in young children among populations with limited access to formal education [10]. Knowledge has a vital role in developing a good attitude and behavior. This is supported by another study that knowledge has a crucial role in attitude formation and attitude change toward GM foods [11].

Mothers who are knowledgeable about how to improve the children's immune system tend to perform better measures to enhance their children health.

To improve their knowledge, mothers could read an abundance of information provided on the internet. On the other hand, mothers should also consult the health provider and ask them about immune boosters for children. However, during the COVID-19 pandemic, the interaction between health providers and consumers (mothers) is limited due to physical distancing and social restrictions. Therefore, mothers might seek health information using other ways, including search engines, social media, and television. A study reveals that the internet and social media have become essential and trusted sources of parenting and health information and help the parent make infant care decisions [12]. Nevertheless, the internet and social media have a different context. Thus, understanding the preferred sources chosen by mothers leads to a better way of giving them health promotion.

However, the problem is that there is no previous study exploring mothers' knowledge about how to improve a child's immunity and the preferred sources chosen by mothers. This study aimed to explore mothers' knowledge and improve child's immunity and the selected resources to gather health information related to immune boosters in children.

Method

This study was a descriptive quantitative exploring mother's knowledge and preferred resources regarding health information. Many 107 mothers who had children under five years filled out a questionnaire. Inclusion criteria were: mothers who had children under five years, could operate and fill google form, had no physical difficulties, and agreed to participate in this study. The first part of the questionnaire had 10 questions related to improving a child's immunity. The second part questionnaire had a question asking mothers' preference in choosing

resources to gather health information. The questionnaire was made using google form and distributed to the targeted subject via WhatsApp. The process of collecting data was done on July - August 2021. The knowledgeable (K) and Non-Knowledgeable (NK) criteria were determined by looking at the score got by the respondent. If the score is below 80, the respondents belong to Non-Knowledgeable (NK). On the other hand, if the score ≥ 80, the respondents were Knowledgeable (K). The data then were analyzed using descriptive-analytic.

Results

This study obtained data regarding the mother's knowledge and preference in choosing sources of health information. The result can be seen in the table below:

Table 1. Mother's Knowledge

Variable	n	%	N (%)	Min score	Max score	Mean	Std. Deviation
Knowledgeable	56	52.34	107 (100)	50	100	75.23	10.219
Non-Knowledgeable	51	47.3					

Table 1. indicates that almost half of respondents (47.7%) were non-Knowledgeable and about 52.3 % of respondents were knowledgeable about improving a child's immunity during the pandemic of COVID-19. The mean score was 75.23.

At a glance, this study reveals that the proportion between Knowledgeable and Non-Knowledgeable is quite similar. There is a need to expand a mother's knowledge as it is essential both for mother and children. When mothers have a higher level of expertise, it is expected to have a better attitude. In terms of knowledge about a child's immunity, if mothers have a higher level of knowledge about improving a child's immunity, it is expected that mothers will perform better measures in improving their children's immunity. In such a pandemic situation, improving a child's immunity will be beneficial for children to prevent COVID-19 attacks. Even if they suffer from COVID-19, if their immunity level is good, it is unlikely to fall into severe condition. The Centre for Disease Control and Prevention stated that having a weakened immune system can make people more likely to get severely ill from COVID-19 [13]. Thus, mothers should be motivated to expand their knowledge about the immune system and how to improve it.

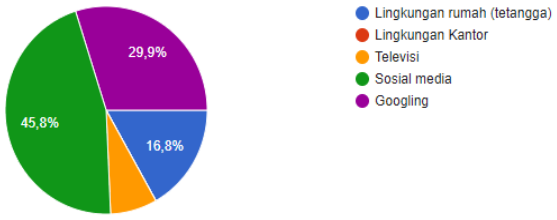

Figure 1. Mother's preference in choosing sources of health information

Looking at the preferred sources in getting health information, diagram 1 indicates that almost half of the mothers (45.8%) preferred using social media as the resource to gather information about immune boosters in their children. It means that social media has a vital role in changing and improving mothers' knowledge. It supported the study that social media culture influences knowledge transfer positively and significantly [14]. Furthermore, social media plays a vital role in changing students' behavior; it has positive and negative impacts [15].

As social media is impactful, the health provider and stakeholder should consider social media as the leading media and method for health education and health promotion. Social media might include but is not limited to Facebook, Instagram, WhatsApp, Tiktok, Twitter, etc.

It is rational that social media provides positive information that will lead people to have a positive attitude. In contrast, if social media perform negative information, it might impact negative attitudes, including mothers. Thus, producing positive and accurate information in social media is necessary.

The other source chosen by a third mother was 'googling'. Googling means that

mothers seek information using a google search engine. Unfortunately, not all information provided on the internet is valid. So, it is rational that people, primarily health care providers and stakeholders, should provide accurate information on the internet, particularly about improving a child's immunity.

Conclusion

Almost half of the mothers were non-Knowledgeable regarding how to improve a child's immunity during the COVID-19 pandemic. The healthcare provider should consider social media as the primary media to promote and improve mothers' awareness about immune boosters in children, especially during the COVID-19 pandemic.

List Of Abbreviations Used

COVID-19: Corona Virus Disease 2019.

Conflict of interest declaration

The authors declare that there is no conflict of interest regarding this paper. All problems that appear related to this paper will be addressed as the regulation.

Authors contribution

1. Siti Khuzaiyah as the primary author, has contributed to designing research, preparing the questionnaire, conducting research, interpreting data, and writing papers.

2. Nur Chabibah, as Co-author, has contributed to preparing the questionnaire, collecting data, and analyzing data.

Acknowledgment

The authors would like to thank all respondents who had participated in this survey. We also thank the Research and Community Office, University of Muhammadiyah Pekajangan Pekalongan, which has funded this research.

References

1. Alsohime, F., Temsah, M. H., Al-Nemri, A. M., Somily, A. M., & Al-Subaie, S. (2020). COVID-19 infection prevalence in pediatric population: Etiology, clinical presentation, and outcome. *Journal of infection and public health*, *13*(12), 1791–1796. https://doi.org/10.1016/j.jiph.2020.10.008
2. Dong Y, Mo X, Hu Y, et al. Epidemiology of COVID-19 Among Children in China. Pediatrics. 2020;145(6): e20200702
3. Chalder, Philip C. Nutrition, immunity and COVID-19. J. Nutrition, Prevention and Health. Volume 3, Issue 1. http://dx.doi.org/10.1136/bmjnph-2020-000085.
4. Lennon, Annie. 2021. How can we prevent the spread of SARS-CoV-2 in children? Medical News Today. https://www.medicalnewstoday.com/articles/how-can-we-prevent-the-spread-of-sars-cov-2-in-children
5. Watkins, Holly. 2020. Immune system protects children from severe COVID-19. https://about.unimelb.edu.au/newsroom/news/2021/february/immune-system-protects-children-from-severe-covid-19
6. Kloc, M., Ghobrial, R. M., Kuchar, E., Lewicki, S., & Kubiak, J. Z. (2020). Development of child immunity in the context of COVID-19 pandemic. *Clinical immunology (Orlando, Fla.)*, *217*, 108510. https://doi.org/10.1016/j.clim.2020.108510
7. Graham A.W.Rook[a]Christopher A.Lowry[b]Charles L.Raison[c]. 2015. Hygiene and other early childhood influences on the subsequent function of the immune system. Brain Research Volume 1617, 18 August 2015, Pages 47-62. https://doi.org/10.1016/j.brainres.2014.04.004
8. S Maggini, S Wenzlaff and D Hornig. 2010. Essential Role of Vitamin C and Zinc in Child Immunity and Health. The Journal of International Medical Research. 38: 386 – 414
9. Paia, U.A., Chandrasekharb, P., Carvalhoc, R.S., Kumard, S. 2018. The role of nutrition in immunity in infants and toddlers: An expert panel opinion. J. Clinical Epidemiology and Global Health. https://doi.org/10.1016/j.cegh.2017.11.004

10. Fadare O, Amare M, Mavrotas G, Akerele D, Ogunniyi A (2019) Correction: Mother's nutrition-related knowledge and child nutrition outcomes: Empirical evidence from Nigeria. PLOS ONE 14(4): e0215110. https://doi.org/10.1371/journal.pone.0215110 View correction
11. Zhu X, Xie X, 2015. Effects of Knowledge on Attitude Formation and Change Toward Genetically Modified Foods. Journal Risk Analysis. Vol 35 Issue 5. https://doi.org/10.1111/risa.12319
12. Moon, R. Y., Mathews, A., Oden, R., & Carlin, R. (2019). Mothers' Perceptions of the Internet and social media as Sources of Parenting and Health Information: Qualitative Study. *Journal of medical Internet research*, *21*(7), e14289. https://doi.org/10.2196/14289
13. CDC. 2021. People with Certain Medical Conditions. https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/people-with-medical-conditions.html
14. *Dahlena Sari Marbun, Azuar Juliandi, Sulaiman Effendi.2020. The Effect of Social Media Culture and Knowledge Transfer on Performance. Budapest International Research and Critics Institute (BIRCI-Journal): Humanities and Social Sciences. Vol 3 No 3.* DOI: https://doi.org/10.33258/birci.v3i3.1234
15. Nthala C. 2019. "The impact of social media on student's behavior Change in higher learning institutions: a case study of Students in selected universities, in lusaka". Cavendish University Zambia: A Research Project Submitted in Partial Fulfillment Of The Requirement For a Bachelor's Degree In Journalism And Mass Communication, At Cavendish University Zambia