Meta Analysis: Factors Relating to Clean and Healthy Living Behaviors (CHLB)

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ABSTRACT

Clean and healthy living behavior (CHLB) is a health program implemented in 1996. It is a social engineering to make as many agents of change from the community as possible to improve their quality of daily life for more clean and healthy. Riskesdas data for 2007, 2013, and 2018 state that CHLB in Indonesia has increased by only 28%, but has yet to reach the Ministry of Health's primary target, around 100% of Indonesians implement CHLB. This study aims to analyze health workers' associated knowledge, attitude, and role with clean and healthy living behaviors (CHLB). This research uses a meta-analysis research design with a correlation meta-analysis research plan. Articles were taken from Google Scholar and PubMed databases. The 12 relevant articles according to the inclusion criteria using Review Manager 5.4. The result of the study showed knowledge is associated with CHLB with p=0.00001 and pOR value= 3.80; CI 95% 2.40-6.02, attitude is associated with CHLB with p=0.00001 and pOR value= 3.12; CI 95% 2.41-4.04 and role of health workers are associated with CHLB p=0.0001 and pOR value= 3.01; CI 95%= 1.93-4.72. Knowledge, attitude and role of health workers are related to clean and healthy living behavior (CHLB).

Keywords: Knowledge, attitude, health worker, clean and healthy living behavior (CHLB)

INTRODUCTION

Clean and Healthy Living Behavior (CHLB) is a form of embodiment of the Healthy Paradigm in a health-oriented culture of life for individuals, families and communities, aimed at improving, maintaining and protecting their health, both physical, mental, spiritual and social. Apart from that, CHLB can be used as an indicator of the health status of a particular area. If CHLB in an area is good enough, it will automatically reduce health problems and also reduce the possibility of a disease outbreak. In other words, CHLB is a form of preventive action in the health sector. The CHLB program is very necessary as an action to prevent the transmission of diseases which have quite a large impact (30-35%) on health and is an effort to change unhealthy behavior into healthy behavior.[1]

The target of CHLB that the Ministry of Health must achieve is 100% and households that have practiced CHLB in Indonesia are only 67.85%. A detailed description of the five-year CHLB proportion, namely 11.2% on 2007 to 23.6% on 2013 and then 39.1% on 2018.[2,3,4] The CHLB program has indeed increased from year to year, but has not yet reached the main target of the Indonesian Ministry of Health

Previous research regarding the relationship between knowledge, attitudes and the role of health workers towards community CHLB, as in Lauson's study, showed that the significantly related factors were knowledge of CHLB.[5] Research by Kusuma, Pertiwi and Annissa (2019) states that as many as 68% of elementary school students have good Clean and Healthy Behavior (CHLB) and as many as 68.7% have a good level of knowledge.[6] Kastari's research (2018) states that there is a significant relationship between knowledge and attitudes toward the implementation of CHLB in the Telaga Biru Health Center's target area.[7]

Trisnowati's research found that the knowledge of household heads about household CHLB was categorized as insufficient and sufficient, namely 54 people (79.4%). Most of the household heads did not support household CHLB, namely 39 people

(57.4%). There are 60 (88.2%) people smoking inside the house.[8] Aminah's research shows a relationship between knowledge and attitudes towards implementing CHLB in the working area of the Sombaopu Health Center, Gowa Regency. This can be caused because this attitude has not been manifested in behavior due to several factors such as knowledge factors where most (51.58%) are not good, culture, and economy is lacking and some still think there is a lack of support from health workers.[9] Keswara's research stated that of all household CHLB respondents, 50 respondents (52.63%) stated that the role of health workers supported and 45 respondents (47.37%) did not support. [10,11,12] CHLB's success, in general, is influenced by various factors.[13,14]

Knowledge and attitudes are very important factors for the formation of one's actions. Knowledge and attitudes based on proper understanding can foster new good behaviors about something, especially regarding clean and healthy living behaviors.[10] In addition to these factors, the role of health workers is one of the predisposing factors in the formation of a person's behavior, where people who receive support from health workers on an ongoing basis tend to behave by the information received.

The roles and actions of health workers are directly related to a person's health condition and their role in supporting policy programs in the health sector, especially the CHLB program.[11] Therefore, knowledge, attitudes and assistance from the role of health workers are needed regarding clean and healthy living behavior (CHLB).[10,11]

It is necessary to conduct research using the meta-analysis method on this topic, so that the meta-analysis results are more representative and allow the combination of various previous research results, and can answer gaps in results from various similar studies. Based on this background, researchers are interested in mapping the study results using the meta-analysis method related to the relationship between knowledge, attitudes and the role of health workers with clean and healthy living behavior (CHLB).

METHOD

This study uses a meta-analytic study, which is a systematic study that uses statistical techniques to combine two or more results of a study to obtain new data that is quantitative in nature. Meta-analysis is used to analyze empirical studies that previous researchers,

quantitative research results have conducted, as well as research results in a form that can be compared, for example, the mean, correlation coefficients, and odds ratio. In a correlation meta-analysis, the research design is the same as other types of meta-analysis studies, namely focusing on statistical analysis. Relationship between knowledge and CHLB are analyzed using a random effect model, relationship between attitudes towards CHLB and are analyzed using the fixed effect model, relationship between attitudes towards CHLB and are analyzed using the fixed effect model.

This data collection was first carried out through the journal portal website, which can be accessed, namely ResearchGate, Pubmed, Elsevier Garuda and Google Schoolar. The search strategy for obtaining journals uses advanced search knowledge, attitude, health worker, and clean and healthy living behavior (CHLB). In Indonesia language are pengetahuan DAN sikap DAN tenaga kesehatan DAN perilaku hidup bersih dan sehat (PHBS).

Then in the second stage, the articles will be filtered based on the period> the last 5 years, the full text cannot be accessed, and articles that are outside of keywords, so 403 articles were discarded and researchers removed 107 articles. Then the third stage is filtered again by selecting the appropriate. The research criteria are the mismatch between the title and the content, the type of qualitative research, the articles not according to the design (cross-sectional), using English and Indonesian so that 89 articles will be tested for feasibility.

The inclusion criteria for researchers are 12 articles with the criteria being articles published from 2017-2022, type of research journal article, fully accessible journal, using English and Indonesian, type of quantitative research with a cross-sectional design, the journal has clear sources and is accredited and relevant to the research title, the results of the study have a p-value, pOR and 95% CI.

RESULT AND DISCUSSION
Relationship of knowledge to clean and healthy living behavior (CHLB)

Figure 1 shows an analysis of the relationship between knowledge of CHLB and data from 10 research articles whose results show a relationship between knowledge and CHLB are analyzed using a random effect model.
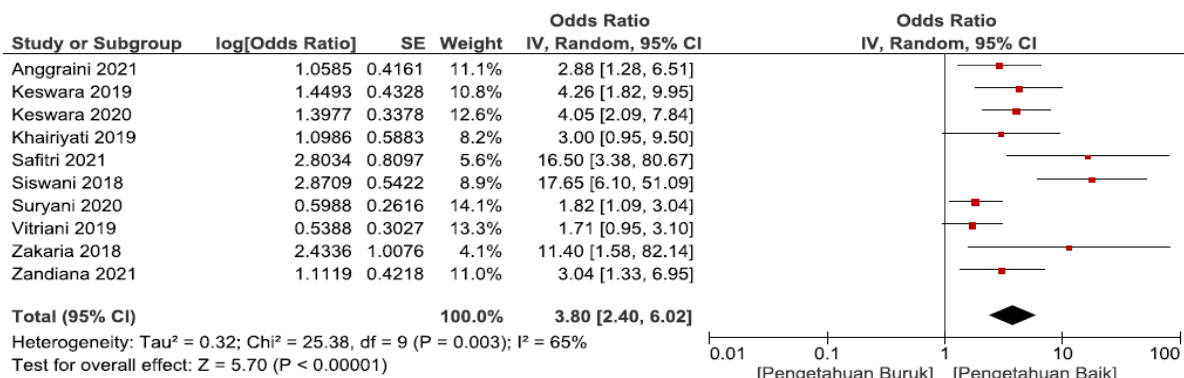
Study or Subgroup	log[Odds Ratio]	SE	Weight	Odds Ratio IV, Random, 95% CI
Anggraini 2021	1.0585	0.4161	11.1%	2.88 [1.28, 6.51]
Keswara 2019	1.4493	0.4328	10.8%	4.26 [1.82, 9.95]
Keswara 2020	1.3977	0.3378	12.6%	4.05 [2.09, 7.84]
Khairiyati 2019	1.0986	0.5883	8.2%	3.00 [0.95, 9.50]
Safitri 2021	2.8034	0.8097	5.6%	16.50 [3.38, 80.67]
Siswani 2018	2.8709	0.5422	8.9%	17.65 [6.10, 51.09]
Suryani 2020	0.5988	0.2616	14.1%	1.82 [1.09, 3.04]
Vitriani 2019	0.5388	0.3027	13.3%	1.71 [0.95, 3.10]
Zakaria 2018	2.4336	1.0076	4.1%	11.40 [1.58, 82.14]
Zandiana 2021	1.1119	0.4218	11.0%	3.04 [1.33, 6.95]
Total (95% CI)			**100.0%**	**3.80 [2.40, 6.02]**

Heterogeneity: Tau² = 0.32; Chi² = 25.38, df = 9 (P = 0.003); I² = 65%
Test for overall effect: Z = 5.70 (P < 0.00001)

Figure 1. Forest plot of the relationship between knowledge and CHLB

The heterogeneity test results showed that the study variation was heterogeneous, with a p-value = 0.003 and the value of variation between studies (I2) was 65%. The results of data analysis based on forest plots show that even though the results of 10 articles, 8 articles show a relationship and 2 articles state there is no relationship. But after combined analysis, the results showed that there was a relationship between attitudes towards CHLB with a p-value <0.05, namely p=0.00001 pOR value=3.80 (95% CI 2.40-6.02), it was concluded that the knowledge of the community that good people tend to be 3.80 times better at CHLB than those with insufficient knowledge.
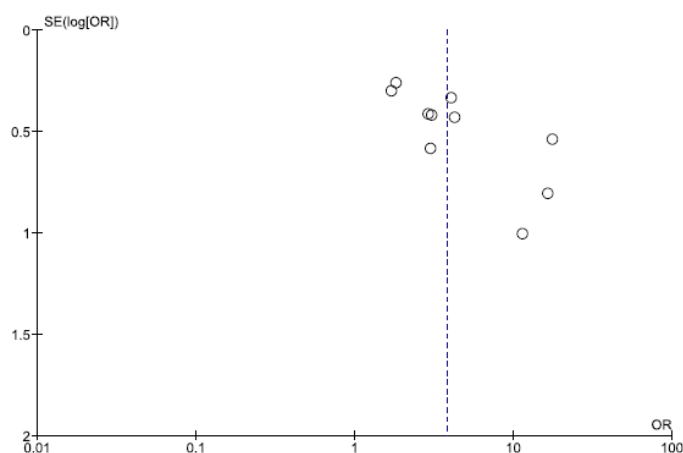

Figure 2. Funnel Plot of the Relationship between Knowledge and Clean and Healthy Living Behavior (CHLB)

Figure 2 shows the results of an asymmetrical funnel plot on the right and left of the vertical line where the number of plots on the left side is 5 and on the right side is 4 and 1 plot touches the vertical line.

Based on the 10 journals that have been analyzed, the combined effect results are obtained, which concludes that the relationship between knowledge and clean and healthy living behavior (CHLB) has a pOR = 3.80 and a 95% confidence interval (2.40 to 6.02). The strength range of pOR is between 3.80, meaning it has a moderate level of relationship. It can be concluded that the relationship between knowledge of clean and healthy living behavior (CHLB) has a relationship but at a moderate level, where the relationship between

knowledge of clean and healthy living behavior (CHLB) with a tendency for good public knowledge increases the risk 3.80 times better than clean and healthy living behavior. (CHLB) compared to people who have poor knowledge. This is in line with Rahman's research[15] , which shows that FAS model activities can improve a person's knowledge and attitudes in implementing PHBS. This shows that knowledge and attitudes are factors that influence someone to implement PHBS.

Good knowledge greatly influences clean and healthy living behavior (CHLB). The more knowledgeable a person is better to implementation of CHLB and will be contrasted, if a person's knowledge is low and does not implement clean and healthy living behavior

(CHLB) properly, it will cause various kinds of diseases in the family and environment, such as dengue fever, heart attacks caused by smoking and environmental conditions that are damaged due to a large amount of garbage and dirty water. Suppose the implementation of clean and healthy living behaviors (CHLB) is carried out, such as washing hands, not smoking at home, using clean water and properly disposing of waste in the family and community order. In that case, it will create a clean environment and a healthy community. Pusdatin[16] states that CHLB in households is an effort to empower household members to know, want and be able to practice clean and healthy living behaviors and play an active role in the health movement in the community. Clean and healthy living behavior (CHLB) in households is carried out to achieve households with CHLB. This is in line with the results of Aminah's research which shows that there is a relationship between knowledge and attitudes towards the implementation of CHLB in the work area of the Sombaopu Health Center, Gowa Regency.[9]

According to researchers, increasing public knowledge will increase awareness of the importance of clean and healthy living behavior and that each member of the community can maintain, improve and protect the health of each household member from disease and environmental threats. With this problem, it is necessary to disseminate information about implementing clean and healthy living behavior (CHLB) through

communication channels, increasing knowledge, attitudes and behavior through the approach of leaders or community leaders and community empowerment. In this way, the community can recognize and overcome their problems, especially in their household settings, and the community can adopt healthy ways of life by maintaining, maintaining and improving their health.

In the combined funnel plot, it can be seen that the plots on the right and left of the vertical line are not symmetrical, where there are 5 plots on the left and 4 plots on the right of the vertical line and 1 plot directly touches the vertical line. This indicates publication bias. Quantitative meta-analysis with a random effects model approach, although the combination of information can produce a more precise statistical analysis, bias cannot still be avoided.[18] This can happen in this research because it pays attention to the inconsistent results of research studies which show high values and have varied data, which shows the existence of negative correlations and positive correlations. Correlation results that vary will show high heterogeneity of results.[19]

Relationship of attitudes to clean and healthy living behavior (CHLB)

Figure 3 shows an analysis of the relationship between attitudes with CHLB data from 9 research articles whose results show a relationship between attitudes towards CHLB and are analyzed using the fixed effect model.
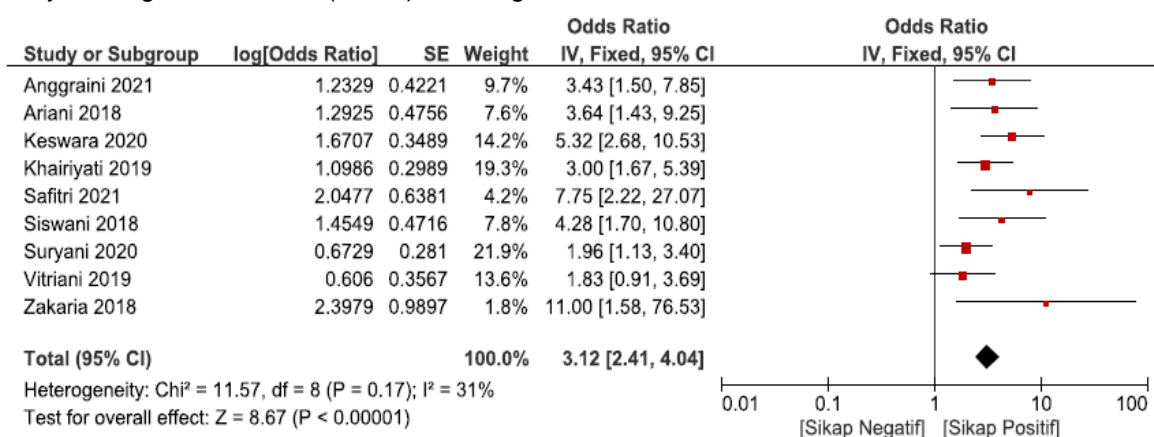

Figure 3. Forest plot of the relationship between attitudes towards CHLB

The results of the heterogeneity test showed that the study variation was not heterogeneous, with a value of p = 0.17, greater than 0.05 and the value of variation between studies was (I2) of 31%. The results of data analysis based on forest plots show that although the results of the 9 articles show a relationship in 7 articles and 2 articles, there is no relationship. But after combined analysis,

the results showed that there was a relationship between attitudes towards CHLB with a p-value <0.05, namely p=0.00001 pOR value=3.12 (95% CI 2.41-4.04), it was concluded that a positive attitude in people tends to increase the risk of 3.12 times greater doing CHLB compared to people who have a negative attitude.
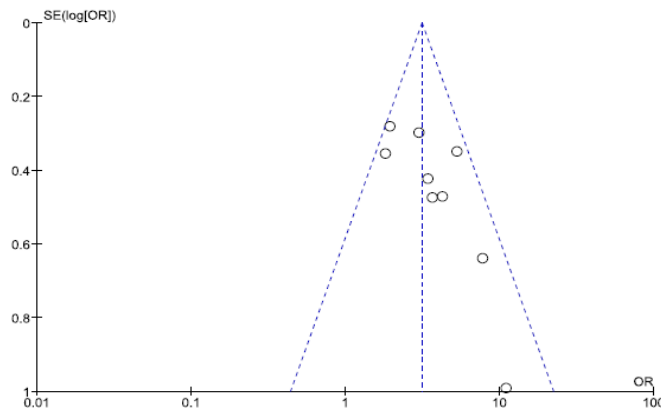
Figure 4. Funnel Plot of the Relationship between Attitudes towards Clean and Healthy Living Behavior (CHLB)

Figure 4 shows that the funnel plot results are not symmetrical, the plots are on the right and left of the vertical line where the distance between the plots is not the same, there are 2 plots on the left and 4 plots on the right and 2 plots touch the vertical line.

Based on the 9 journals that have been analyzed, the combined effect results are obtained, which concludes that the relationship between attitudes towards clean and healthy living behavior (CHLB) has a pOR value = 3.12 and a 95% confidence interval (2.41 to 4.04). The range of pOR strength is between 3.12, meaning it has a moderate level of relationship. It can be concluded that the relationship between attitudes towards clean and healthy living behavior (CHLB) has a relationship but at a moderate level, where the relationship between attitudes towards clean and healthy living behavior (CHLB) with positive community attitudes tends to increase the risk 3.12 times better than clean and healthy living behavior. (CHLB) compared to people who have a negative attitude.

This is in line with Sukma Saini's research regarding Family Knowledge and Attitudes in Implementing Clean and Healthy Behavior in the Work Area of the Sombaopu Health Center, Gowa Regency. The results showed that statistically, based on the Chi-Square test, p-value = 0.000 <α (0.005), there is a significant relationship between attitudes and the implementation of CHLB in the Work Area of the Sombaopu Health Center, Gowa Regency.

According to Newcomb in Notoadmodjo on Anggraini, attitude is a form of readiness or willingness to act, and is not an implementation of certain motives. The output of each individual's attitude can be different, if you like or agree with an object, you will approach, find out, and join, otherwise if you don't like or disagree, you will avoid or stay away.[17]

According to researchers' assumptions, attitude is important in behavior formation. The community's negative attitude is caused by the experience and lack of knowledge they have. A positive attitude will strengthen a person's ability to behave positively, and vice versa. So, people with negative attitudes tend to be in line with their behavior and not to carry out clean and healthy living behaviors.

However, few people with a positive attitude do not practice clean and healthy living behaviors due to other factors influencing people's behavior in implementing clean and healthy living behaviors, including knowledge, availability of information sources, and so on.

In the combined funnel plot, it can be seen that the plots on the right and left of the vertical line are not symmetrical, where there are 2 plots on the left, 4 plots on the right and 2 plots directly touching the vertical line. This indicates publication bias. Quantitative meta-analysis with a random effect model approach, although the combination of information can produce a more precise statistical analysis, bias cannot still be avoided.[18] This can happen in this research because it pays attention to the inconsistent results of research studies which show high values and have varied data, which shows the existence of negative correlations and positive correlations.[19]

Relationship of the role of health workers to clean and healthy living behavior (CHLB)

Figure 5 shows an analysis of the relationship between the role of health workers and CHLB data from 5 research articles whose results show a relationship between attitudes towards CHLB and are analyzed using the fixed effect model.
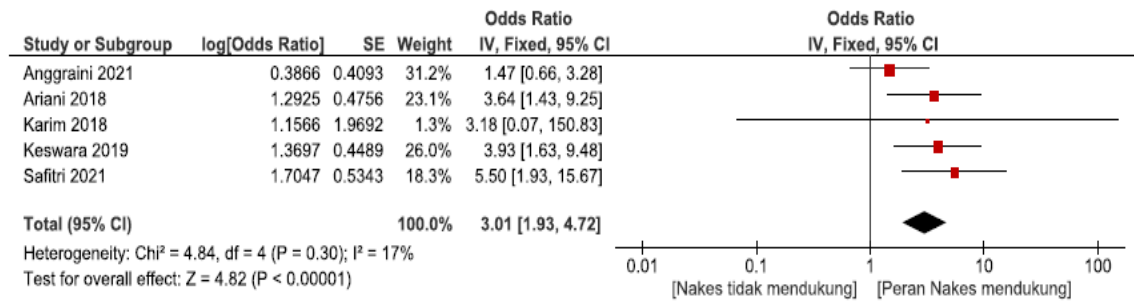
Figure 5. Forest Plot of The Relationship Between The Role of Health Workers and CHLB

The heterogeneity test results showed that the study variation was not heterogeneous, with a p-value = 0.30 and the value of variation between studies was (I2) of 17%. The results of data analysis based on forest plots show that even though the results of 5 articles, 4 articles show a relationship and 1 article states no relationship. However, after combined analysis, the results show that there is a relationship between the role of health workers and CHLB. With a p-value <0.05, namely p=0.00001 pOR value=3.01 (95% CI 1.93-4.72), it was concluded that the role of health workers who support CHLB tends to increase the risk 3.01 times greater CHLB is compared to the role of health workers who are not supportive.
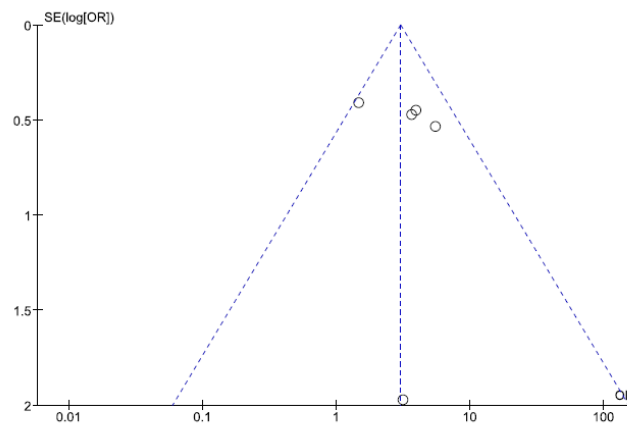

Figure 6. Funnel Plot of The Relationship Between The Role of Health Workers and Clean and Healthy Living Behavior (CHLB)

Figure 6 shows the results of an asymmetrical funnel plot with plots on the right and left of the vertical line where the distance between the plots is not the same and the number of plots on the left side is 1 and on the right side there are 3 plots and 1 plot touches the vertical line. Based on the 5 journals that have been analyzed, the combined effect results are obtained, which concludes that the relationship between the role of health workers and clean and healthy living behavior (CHLB) has a pOR value = 3.01 with a 95% confidence interval (1.93 to 4.72). The strength range of pOR is between 3.01, meaning it has a moderate level of relationship. It can be concluded that the relationship between the role of health workers and clean and healthy living behavior (CHLB) has a relationship but at a moderate level, where the relationship between the role of health workers and clean and healthy living behavior (CHLB) with the tendency of the role of supporting public health workers increases the risk of 3.01 times better clean and healthy living behavior (CHLB) compared to the role of health workers who do not support.

The role of the support of health workers is a factor that can influence people's behavior in carrying out clean and healthy living habits that must be carried out. Health workers' support and role can influence behavior by providing health education about the meaning, related indicators, and the dangers of not practicing clean and healthy living habits. Health workers are expected to hold counseling and community empowerment not like participatory discussions, namely by conveying health information not only in the same direction

but in a participatory and continuous manner following the Law (UU) concerning Health Workers (UU No. 36 of 2014) stated that a health worker is any person who devotes himself to health and has knowledge and or skills through education in the health sector which for certain types requires the authority to carry out health efforts.[11,20]

In the combined funnel plot, it can be seen that the plots on the right and left of the vertical line are not symmetrical, where there is 1 plot on the left, 3 plots on the right and 1 plot directly touching the vertical line. This indicates publication bias.

CONCLUSION

Based on the research results, it is known that the relationship between knowledge, attitudes and the role of health workers each has a relationship with clean and healthy living behavior (CHLB), although at a moderate level. The weak influence of research on each aspect can be caused by the limited number of samples and the data being highly and moderately heterogeneous. As well as the existence of the apple and orange phenomenon, research is considered the same but the cultural characteristics of the journals are different, which is meant to be different because of differences in research places and populations, for example in communities with different cultural traditions, different health centers and schools, so different results are obtained, as well as differences in journals. Indonesian and foreign journals, so the characteristics of the data are also different.

Suggestions from the results of the research are expected to be able to assist in implementing such a form of planning or management of activities in the form of planning, organization, implementation and evaluation so that achievement of the CHLB program can be increased and more effective. Future researchers are advised to examine other factors in the success of the clean and healthy living behavior (CHLB) program.

REFERENCES

1. Kemenkes RI. Riset Kesehatan Dasar Tahun 2013. Kementerian Kesehatan Republik Indonesia. Jakarta: 2013.
2. Kementerian Kesehatan RI. Sekretariat Jenderal Peraturan Menteri Kesehatan Republik Indonesia Nomor: 2269/MENKES/PER/XI/2011. Kementerian Kesehatan Republik Indonesia. Jakarta: 2011.
3. Kementerian Kesehatan RI. Riset Kesehatan Dasar. Kementerian Kesehatan Republik Indonesia. Jakarta: 2018.
4. Mubasyiroh, R, Dharmayanti I, Indrawati L, et al. Bunga Rampai Transformasi 10 Tahun Perilaku Hidup Bersih dan Sehat (PHBS) Masyarakat Indonesia. Lembaga Penerbit Badan Penelitian dan Pengembangan Kesehatan. Jakarta: 2021.
5. Lauson, HJ, Sri RD, Dibyo P. Faktor-Faktor yang Berhubungan dengan Perilaku Hidup Bersih dan Sehat Rumah Tangga di Kecamatan Turi Sleman Yogyakarta. Skripsi. Yogyakarta: Program Studi Pendidikan Dokter Gigi Universitas Gadjah Mada, 2016.
6. Kusuma, AN, Pertiwi WE. The Relationship Between Healthy Media Promotion, Knowledge with the Clean and Healthy Life Behavior of Elementary Students. Laporan Penelitian. Lembaga Penelitian dan Pengabdian Kepada Masyarakat, Serang: 2019.
7. Kastari, S. Faktor-Faktor yang Berhubungan dengan Pelaksanaan Perilaku Hidup Bersih dan Sehat di Rumah Tangga di Wilayah Kerja UPK Puskesmas Telaga Biru Kelurahan Siantan Hulu Pontianak Utara. Jurnal Sanitarian Khatulistiwa 2018; 9(1): 114-23.
8. Trisnowati, H, Daduk SS. Hubungan Pengetahuan dan Sikap terhadap PHBS di Rumah Tangga dengan Perilaku Merokok dalam Rumah Kepala Rumah Tangga di Dusun Karangnongko Yogyakarta. Medika Respati: Jurnal Ilmiah Kesehatan 2017; 12(4): 1-1.
9. Aminah, S. Pengetahuan dan Sikap Keluarga dalam Pelaksanaan Perilaku Hidup Bersih dan Sehat di Wilayah Kerja Puskesmas Sombaopu Gowa. Media Keperawatan: Politeknik Kesehatan Makassar 2018; 9(1): 39-52.
10. Keswara, UR, Wahyudi WT, Andriyanto. Hubungan Pengetahuan dan Sikap Keluarga dengan Pelaksanaan PHBS Rumah Tangga di Pekon Tanjung Rejo Kecamatan. Malahayati Nursing Journal 2020; 2(4): 770-9.
11. Keswara, UR, Wahyudi WT, Sari EP. Pengetahuan, Sikap dan Peran Tenaga Kesehatan terhadap Penerapan Pola Hidup Bersih dan Sehat (PHBS) Rumah Tangga. Holistik Jurnal Kesehatan 2019; 13(1): 37-47.
12. Nasiatin, T, Nurul I. Determinan Perilaku Hidup Bersih dan Sehat Pada Siswa Sekolah Dasar Negeri. Faletehan Health Journal 2019; 6(3): 118-24.
13. Martina, Pakpahan, et al. Promosi Kesehatan dan Perilaku Kesehatan. Medan: Yayasan Kita Menulis; 2021.

14. Wati, PDCA, Ridlo IA. Perilaku Hidup Bersih dan Sehat pada Masyarakat di Kelurahan Rangkah Kota Surabaya. Jurnal Promkes: The Indonesian Journal of Health Promotion and Health Education 2020; 8(1): 47-58.

15. Rahman, F, Anhar VY, Wulandari A, Laily N, Sari AR, Pujianti N, Anggraini L, Ridwan AM, Muddin FI, Azmiyannoor M. Analysis of The Effectiveness of Family Approach System Model as Efforts to Optimize Germas Program. Macedonian Journal of Medical Sciences 2021; 28;9(E):307-11.

16. Yani, F, Irianto SE, Djamil A, Setiaji B. Determinan Tingkat Pengetahuan Sikap Dan Perilaku Terhadap Perilaku Hidup Bersih Dan Sehat (PHBS) Tatanan Rumah Tangga Masyarakat. Jurnal Ilmiah Permas: Jurnal Ilmiah STIKES Kendal 2022; 12(3): 661-72.

17. Anggraini, FY, Hanafi A, Renaldi R, et al. Faktor-Faktor yang Berhubungan dengan Implementasi Program Perilaku Hidup Bersih Dan Sehat (PHBS) pada Tatanan Rumah Tangga di Desa Kampar Kecamatan Kampar Timur. Media Kesmas (Public Health Media) 2021; 1(3): 1056-72.

18. Rumokoy, LJ, Salaki CL, Memah VV, Adiani S, Toar WL. Penerapan Meta-Analisis dalam Eksplorasi Peranan Serangga terhadap Performa Pertumbuhan Ternak Entomopagus di Era Normal Baru Pasca Pandemi Covid-19. In Prosiding. Seminar Nasional Teknologi Agribisnis Peternakan 2020; 7: 635-41.

19. Waluyohadi, AE. Meta-analysis Study of Achievement Motivation and Academic Achievement. Psikodimensia 2019; 18(2): 101-8.

20. Karim Putra DS. Determinan Perilaku Hidup Bersih dan Sehat (PHBS) Tatanan Rumah Tangga. Jurnal Ilmu Kesehatan Masyarakat 2018; 7(1): 1-9.