

Intensive Care Coordination Method (ICCM) Improve Clean and Healthy Lifestyle Habits to Prevent Breeding Places Vector

Nur Siyam¹, Widya Hary Cahyati²

{nursiyam@mail.unnes.ac.id¹, widyahary27@mail.unnes.ac.id²}

Public Health Department, Sport Science Faculty, Universitas Negeri Semarang^{1,2}

Abstract. Efforts to improve healthy behavior and clean teenagers in boarding schools should be increased, given the increasing number of health problems that occur in boarding schools. Steps can be taken to build a clean and healthy life behavior for one of them by applying methods of Intensive Care Coordination. ICCM application of this emphasizes intensive coordination between the occupants of the boarding school to raise awareness of self-care and the creation of a healthy environment at the boarding school. The research objective is the establishment of a Model ICCM and getting an idea of the effectiveness of the model ICCM as an effort to improve hygiene and health behaviors in adolescent girls boarding school occupants. Research has been done in one of the female Islamic boarding schools in Semarang City. The samples were female students who have health problems and have unhealthy habits. Quasi Experiment study was a non-randomized design with one group pretest-posttest design. Data was collected by means of observation, interviews, and questionnaires. The instrument of research is an observation checklist, interview, and questionnaire. Data were analyzed with univariable and bivariable analysis, namely the Wilcoxon statistical test. The results showed indicators of personal hygiene, environmental sanitation in the room and a place to learn, environmental sanitation in latrines and ablution, and environmental sanitation in the yard between before and after application of ICCM increased significantly (p-value <0.05). So, clean and healthy behaviors to prevent breeding place vector diseases in female santri increased significantly (p-value= 0.00).

Keywords: Intensive care coordination, clean and healthy lifestyle habits, female santri, Islamic boarding school.

1 Introduction

Islamic boarding schools are the oldest educational institutions in Indonesia. In Islamic boarding schools, all educational activities are carried out as well as dormitories for administrators, teachers, and students [1]. The life of a boarding school is identical to simplicity and togetherness/familiarity which if not organized can lead to health problems. Such as the culture of borrowing and borrowing clothes, towels, gloves, hanging dirty clothes, etc. In addition, information about clean and healthy living, especially in preventing the breeding of vectors that cause disease, has not yet reached the lives of students.

Semarang City Health Profile data states that diseases related to unsanitary and healthy living behavior related to individual hygiene and poor environmental sanitation are scabies, ARI,

diarrhea, typhus, leptospirosis, and vector-borne diseases such as dengue hemorrhagic fever (DHF) (Dinas Kesehatan Kota Semarang, 2019). The incidence of disease due to lack of Healthy and Healthy Behavior (PHBS) and lack of awareness in maintaining environmental sanitation always increases every year. Problems of health and environmental sanitation also occur in the area of Islamic boarding schools in Semarang City, especially those located in robbed areas or on the coast. Poor environmental sanitation conditions and poor individual hygiene behavior will trigger the emergence of health problems.

Based on the results of the researcher's interview with one of the boarding school administrators, he explained that health problems related to infectious diseases such as dermatitis, pediculosis, tinea versicolor, scabies, and DHF always infect students in Islamic boarding schools. It was reported that poor environmental hygiene and sanitation increased the incidence of the disease. In general, the cottage environment is surrounded by sewers. Miftakhul Ulum Islamic Boarding School is located in a coastal area where tidal water will inundate the cottage environment every 12.00 to 15.00 WIB. Rob water and stagnant water around the cottage environment are usually used to dispose of garbage. The main access/road to Ponpes is a large river that is used to dispose of feces by residents. The condition of the Islamic boarding school building is increasingly concerning because the building is getting shorter/lower and narrower due to the elevation of the floor to avoid the entry of tidal water, while the roof is not raised. This makes the air in the room more stuffy and unclean. The individual hygiene behavior of students based on interviews is also still not good. For example the behavior of rarely changing clothes or underwear, the habit of hanging clothes, the habit of borrowing friends' clothes (especially headscarves and jackets), also not washing dishes immediately after eating, and the lack of habit of draining the bathtub once a week.

In avoiding and overcoming environmental health problems, students need support and assistance from various parties, including support from their friends and administrators. However, one thing that should not be forgotten is the awareness of the individual students themselves to change and become disciplined individuals in maintaining the hygiene and sanitation of the Islamic boarding school environment [2]. Knowledge needs to be increased so that students can change their behavior to be healthier [3]. Through knowledge, they will realize that there will be bad impacts that they will receive if they behave unhealthily and there will be benefits that they will get if they behave in a healthy manner to protect the environment [4].

Changes in health behavior can be started by changing unhealthy behavior into a healthy behavior, developing healthy behavior, and maintaining healthy behavior [5]. A person's behavior can change if there is a synergy between self-awareness and coordination between residents in the pesantren environment. One of the steps that can be taken to build clean and healthy living behavior is by applying the Intensive Care Coordination Method (ICCM) [6]. The goal to be achieved in this study is the formation of the ICC model as an effort to improve clean and healthy living behavior in Islamic boarding schools and Islamic boarding schools. found a picture of the effectiveness of the ICC method as an effort to increase clean and healthy living behavior in Islamic boarding schools in preventing disease vector breeding places.

The core of ICCM is to coordinate the pesantren community (girls, teachers, and administrators) so that they are willing and able to live clean and healthy lives. The concept of ICCM is to facilitate them to find unsanitary and healthy behavior so that they seek to solve the problems they face through good coordination between each individual in the team and with the board of

the Islamic boarding school. So that awareness of the importance of clean and healthy living can grow well.

The solution to health and environmental problems that exist in the ICC method is to find health problems that occur in Islamic boarding schools by students directly which is carried out during an introspective survey so that they agree that these problems do exist and occur and need to be prevented and controlled through team coordination, individual care, and implementation of healthy behavior guidelines to realize clean and healthy living behavior in Islamic boarding schools. Therefore, to improve clean and healthy living behavior, the application of the ICC Method is important to be able to solve health problems that occur in Islamic boarding schools. Improving clean and healthy living behavior will be able to improve the quality of life of santri as the next generation of the nation who excels, is physically and mentally healthy and free from disease.

2 Objective

The research objective is the establishment of a Model ICCM and get an idea of the effectiveness of the model ICCM as an effort to improve hygiene and health behaviors in adolescent girls boarding school occupants.

3 Literature review

Changes in health behavior can be started by providing knowledge and understanding to the target. After the target has adequate knowledge and understanding, gradually the target's attitude towards healthy behavior increases, so that slowly the target will change unhealthy behavior into a healthy behavior, develop healthy behavior, and maintain healthy behavior [5]. A person's behavior can change if there is a synergy between self-awareness and coordination between residents in the community, both the community in general or the community in a limited scope such as Islamic boarding schools, schools, workers, and others [3]. One of the steps that can be taken to build a clean and healthy lifestyle is to apply the Intensive Care Coordination Method (ICCM) [6]. This ICCM aims to form a model of intensive self-care and environmental coordination as an effort to improve clean and healthy living behavior in Islamic boarding schools so that efforts can be made to improve clean living behaviors in preventing disease vector breeding grounds. More about this source textSource text required additional translation information.

4 Methods

The research was conducted at the Putri Takhfidzul Quran Islamic Boarding School MIFTAKHUL ULUM, Kel. Terboyo Wetan, Genuk, Semarang City. The research sample is female students who have health problems and have unhealthy habits based on the results of the coordination of the boarding school administrators totaling 30 people. This research is Quasi Experiment research with Non-Randomized One Group Pretest-Posttest Design. The research instruments are an observation checklist, interview guide, and questionnaire. Data analysis used

univariable analysis, research data were described in the form of tables, graphs, and narratives) and bivariable analysis was used to determine the effectiveness of the method, namely before and after the application of the ICC method using the Wilcoxon statistical test. The stages of ICCM research can be seen in Figure 1.

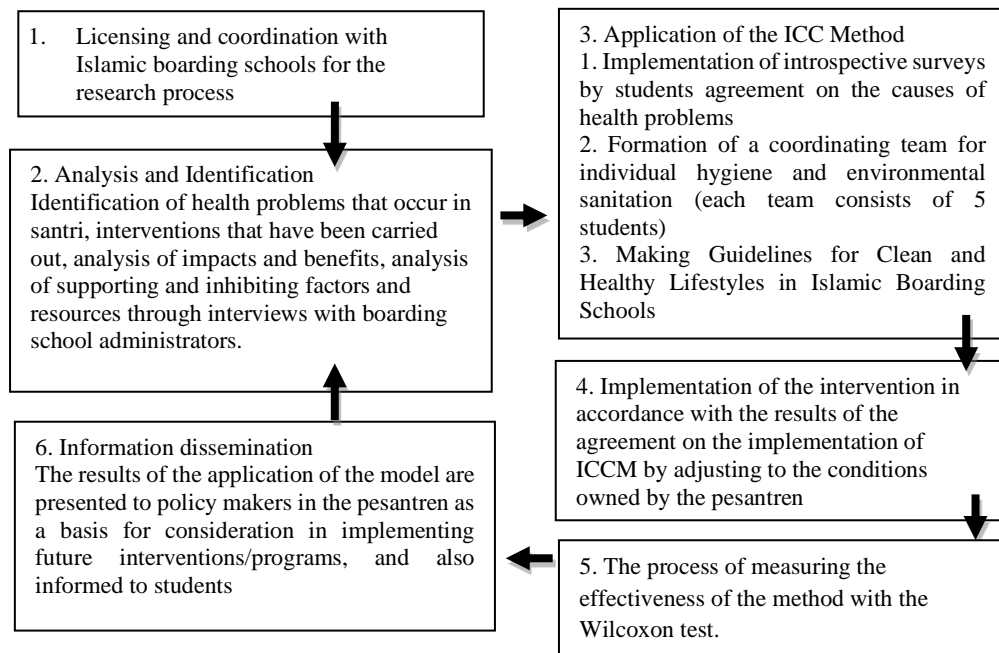


Figure 1. ICCM Research Implementation Flowchart

The research began by coordinating and licensing with the leadership of the Islamic boarding school. After being allowed to do research at the boarding school by the administrator, the research team coordinated with the board of the Islamic boarding school. After determining the schedule that was adjusted to the free time with the students, the researchers conducted interviews with the boarding school administrators about the clean and healthy behavior of students and also about the behavior of maintaining environmental sanitation in Islamic boarding schools. In addition, they were also asked about the obstacles faced in maintaining the PHBS of students and the environment of the Islamic boarding school.

5 Data collection

Data collection with observation, interview, and questionnaire.

6 Results and discussion

The Islamic Boarding School for Girls Takhfidhul Quran Miftakhul Ulum is one of the Islamic boarding schools in the city of Semarang. This Islamic Boarding School consists of two Islamic Boarding Schools, namely a special boarding school for men and a special boarding school for women. There are approximately 40 female students in the female Islamic boarding school. The results of interviews with boarding school administrators stated that the health problems that occur in students are dermatitis (itching on the skin), pediculosis (hair lice), tinea versicolor, scabies, in addition, dengue fever, fever for no apparent reason, and scabies. The state of personal hygiene of each student is still lacking, for example, they rarely change clothes, often hang clothes because there are no closets available, and the habit of borrowing clothes, especially jackets and headscarves.

The daily activities of female students are only carried out in the pesantren. There are no interventions that have been carried out to solve health problems related to clean and healthy living behavior by the leaders of Islamic boarding schools. The activities carried out were the establishment of a picket schedule for cleaning the Islamic boarding school and washing dishes. Meanwhile, the counseling that has been done by the puskesmas is about women's reproductive health. The students at the Miftakhul Ulum Islamic Boarding School are teenagers, and they are still very unstable and easily influenced by the environment, including the school environment, family, friends, and society. There are some students who are diligent in maintaining personal and environmental hygiene, but there are students who do not want to know about the problem of environmental cleanliness in Islamic boarding schools.

The inhibiting factor that becomes an obstacle in efforts to improve healthy and clean living behavior is the lack of togetherness and the low sense of need for students for the importance of self-care and the environment, this is due to the lack of in-depth information related to how to coordinate to improve PHBS in Islamic boarding schools. The supporting factor in efforts to improve PHBS in Islamic boarding schools is their very strong sense of kinship which can be a way to coordinate to remind and maintain each other in self-care and improve the cleanliness of the Islamic boarding school environment. It is hoped that with a strong sense of kinship, the team coordination between them will succeed in realizing PHBS in Islamic boarding schools.

The study was conducted on 30 students, and the selection of students was based on recommendations from the boarding school administrators. The selected students are those who are regular and do not often return to their hometowns. All students are female. The Characteristics of the research subjects in Table 1.

Table 1. Characteristics of research subjects

No	Age	Amount	%
1	11-15 years old	5	16,7
2	16-20 years old	18	60,0
3	21-25 years old	7	23,3
	Total	30	100

The implementation of ICCM emphasizes intensive coordination among the residents of Islamic boarding schools to raise awareness of self-care and the creation of a healthy environment. Elements of this ICCM consist of the Implementation of Self Insight Survey (SMD), Care Planning Team (CPT), making a Guide for health behaviors, and the implementation of healthy behavior guidelines in Islamic boarding schools. The stages of implementing the ICC Method to improve PHBS in Islamic boarding schools are started by conducting a Community Self Survey (CSS). Community Self Survey (CSS) or Self Insight Survey (SMD) is an activity of collecting and processing data on conditions/problems related to pesantren health, such as environmental health problems and behavioral problems (PHBS). The purpose of CSS is for students to be able to conduct introspective studies and obtain information about the health conditions/problems faced by them at their Islamic boarding schools who are accompanied by boarding school administrators and researchers so that the problems found are truly felt and agreed upon by them. Thus, it is hoped that they will become aware of the problems faced in their pesantren, and rise up intending or determined to find solutions. This survey was conducted on 30 female students and was accompanied by the administrator.

Table 2. Results of Community Self Survey on PHBS Problems

No.	PHBS Problem	%
A	Personal Hygiene (Body, clothing, nails)	
1	The rest of the food that is scattered / not cleaned in the hostel	26,7
2	Garbage is not managed properly / not directly disposed of in the trash	23,3
3	Borrow clothes that have been used interchangeably	26,7
4	Sleeping without a blanket	23,3
5	Sleep without mosquito repellent/ mosquito repellent	60,0
6	Drink a glass for two	43,3
7	Pillows are often used together	80,0
8	sleeping on the floor, without blankets and bedding	20,0
9	Serving food is not closed	63,3
10	Dirty dishes are not washed immediately after eating	23,3
11	Some students rarely brush their teeth	13,3
12	Rarely cut and clean nails	26,7
B	Environmental Sanitation Problems in the Dormitory (rooms and study areas)	
1	The clothes that have been used are hanging in the dormitory	53,3
2	Don't open the window every day	30,0
3	shoes and slippers are placed in the room	86,7
4	Wet clothes are drying in the dormitory	23,3
5	Mattress is rarely dried	63,3
6	Blankets are rarely washed	26,7
7	Dormitory floors are rarely mopped	50,0
8	Do not provide covered trash cans in the hostel	33,3
C	Environmental sanitation problems in latrines and ablution places	
1	The soap bucket is not neatly arranged	16,7
2	After defecating don't wash your hands with soap	13,3
3	The bathroom is mossy and slippery	30,0
4	The place for ablution is mossy and slippery	23,3
5	Don't drain the tub regularly once a week	90,0
D	Environmental sanitation problems in Islamic boarding school Pages	
1	The drains around the cottage are clogged with garbage	16,7
2	Stagnant water around the hut	50,0
3	Garbage in the pesantren environment is not managed properly	23,3

Based on Table 2, the seven highest PHBS problems that exist in Islamic boarding schools based on the mutual agreement are not draining the bath regularly once a week (90.0%), shoes and sandals being placed in the room (86.7%), pillows often shared (80.0%), mattresses were rarely dried (63.3%), served food uncovered (63.3%), slept without mosquito repellent/mosquito repellent (60.0%), clothes that were already used hanging in the dormitory (53.3%), stagnant water around the cottage (50.0%), the floor of the dormitory is rarely mopped (50.0%). The problems that have been found together are then agreed to be resolved together. The next stage is the formation of a care planning team.

The second stage of ICCM is the formation of a Care Planning Team, namely the formation of a team consisting of 1 chairman and 5 members in each group. This is intended so that each group can easily carry out self-care and environmental monitoring in an effort to create PHBS in Islamic boarding schools. After that, the students who are members of the team will prepare guidelines for implementing PHBS in Islamic boarding schools assisted by researchers. This guide aims to make it easier for the team to assess the success they want to achieve in realizing PHBS in Islamic boarding schools. The formation of the Care Planning Team and the making of the Guide for Health Behavior is an integral stages that cannot be separated.

The preparation of the Guide for Health Behavior was carried out together with the boarding school administrators and representatives of female students. This guide is then printed on colored paper to make it more attractive. After the socialization of the guide that has been made, then this guide is distributed to all students to be pasted in the room and also on the walls of the boarding school dormitory which allows all students to read and practice it.

Table 3. Average self-care score

No	Name of Group	The average score in 1 month (%)
1	Melati	75
2	Mawar	70
3	Anggrek	78
4	Nusa Indah	80
5	Tulip	81
	Average	76,8

Table 4. Results of PHBS data processing before and after the application of the ICC Method to reduce vector breeding places

No.	Variable	Characteristics		
		Mean (%)		<i>p-value</i>
		Pre	Post	
1	Individual PHBS	74,0	83,9	0,000
2	PHBS in rooms and study areas	67,7	79,7	0,000
3	PHBS in latrines and ablution places	73,8	91,1	0,000
4	PHBS in the yard around the Islamic boarding school	84,2	97,5	0,000
	PHBS Santri as a whole	74,9	88,0	0,000

The groups formed in the implementation of the CPT were the Melati, Mawar, Anggrek, Nusa Indah, and Tulip groups (Table 3). The task of each group leader is to monitor self-care and the environment in the Islamic boarding school. Monitoring is carried out every week and carried

out for 1 month. Each group will calculate the average number of scores per week. The following are the results of monitoring the average score for self and environmental monitoring for a month. The average score for self-care and environment for female students increases every week from the week I to week IV.

The results of the analysis using the Wilcoxon test (Table 4), it was found that all variables, namely individual PHBS, PHBS in rooms and study areas, PHBS in latrines and ablution places, PHBS in the yard/environment around Islamic boarding schools after applying the ICC method showed significant changes (p -value < 0.05). The overall PHBS of students increased after the ICC method was applied (p -value = 0.000).

Vector prevention and control can be done by vector control methods, either through single method control or integrated vector control. Vector control can be carried out biologically, chemically, physically/mechanically, with genetic engineering for vectors as well as through environmental management [7],[8],[9],[10]. Many vector control activities are not followed by community involvement which is the subject of vector control implementers. Whereas vector control activities require the role of all parties including the community so that vector control programs can be sustainable [11]. Vector control behavior can work if the targeted community has the will to take action. Willingness supported by intensive coordination will produce behavior that can last a long time so that it can become a habit. This is in line with research on the application of school-based vector control in the prevention and control of disease vectors in schools. Achieving optimal results in the prevention and control of disease vectors is not only carried out by janitors or students but must involve all elements in the school, both stakeholders, teachers, canteen owners, and people related to the school itself [12].

Research conducted in Malaysia on dengue vector control activities states that most of the costs of preventing dengue hemorrhagic fever are spent on fogging [13]. As is the case in Indonesia, most people still think that fogging is the most appropriate choice for eradicating mosquito nests. In fact, fogging is a chemical vector control whose use should be minimized because it is not environmentally friendly [14]. In addition, fogging activity should be the last alternative to be carried out if the environmental situation is already an emergency due to a DHF outbreak [15]. If there has not been a DHF outbreak, then the community should carry out activities to eradicate mosquito nests through burying, closing and draining the bath once a week regularly and simultaneously for all communities [8].

Vector prevention and control is a shared responsibility at every level of society. Not only health workers must play an active role, but also religious leaders, and community leaders, including community groups that exist in each agency. Such as schools, Islamic boarding schools, offices, and companies/industries. The boarding school environment can be a key community group to make behavior change. Changes in attitudes and behavior in the prevention and control of infectious disease vectors are urgently needed to protect the communities in them and will also benefit the surrounding communities [16].

Strengthening the internal coordination of the community in Islamic boarding schools will increase cooperation and communication of students in conducting environmental monitoring to prevent vector breeding grounds. Meanwhile, intensive self-care can improve clean and healthy living behavior in Islamic boarding schools. Vector prevention and control in Islamic boarding schools are not much different from that in schools, where the point is to involve administrators, teachers, and also students/students to participate in activities to eradicate

infectious disease vectors. The administrators/stakeholders in schools and Islamic boarding schools are the people who make policy decisions, including policies in environmental management and determinants in providing health education to encourage them to behave in a clean and healthy manner [17],[18].

7 Conclusion

The implementation of ICCM can improve indicators of personal hygiene, Islamic boarding school environmental sanitation in rooms and study areas, Islamic boarding school environmental sanitation in latrines and ablution places, and environmental sanitation in Islamic boarding schools yards in preventing vector breeding places. A strong sense of kinship has been manifested in the application of the ICC method in Islamic boarding schools and has succeeded in realizing PHBS for residents of Islamic boarding schools.

Acknowledgments. The researcher would like to thank LP2M (Institute for Research and Community Service) Semarang State University which has provided funds to the author to carry out the research.

References

- [1] Ikhwandudin A. Perilaku Kesehatan Santri: (Studi Deskriptif Perilaku Pemeliharaan Kesehatan, Pencarian Dan Penggunaan Sistem Kesehatan Dan Perilaku Kesehatan Lingkungan Di Pondok Pesantren Assalafi Al Fithrah, Surabaya). *Jurnal Sosial dan Politik* [Internet]. 2010.
- [2] Siyam N, editor. Strengthening of Self Care Management To Improve Clean And Healthy Lifestyle Habits of Female Santri Efforts As Candidate As Preparation of Mother. 2nd International Seminar on Public Health and Education; 2015; Semarang City: Jurusan IKM Unnes; 2015.
- [3] Pradhan, N. A., Mughis, W., Ali, T. S., Naseem, M., & Karmaliani, R. School-based interventions to promote personal and environmental hygiene practices among children in Pakistan: protocol for a mixed methods study. *BMC public health*, 20(1), 481, 2020. <https://doi.org/10.1186/s12889-020-08511-0>
- [4] Sackou Kouakou, J. G., Desquith, A. A., Barro-Kiki, P., Kouame, J., Tiade, M. L., Gokpeya, M. B., & Kouadio, L. K. (2021). Personal hygiene in schools: retrospective survey in the northern part of Côte d'Ivoire. *Journal of preventive medicine and hygiene*, 62(1), E75–E81. <https://doi.org/10.15167/2421-4248/jpmh2021.62.1.1655>
- [5] Mshida, H., Malima, G., Machunda, R., Muzuka, A., Banzi, J., Gautam, O. P., Mbeguere, M., Smith, K., Cairncross, S., Shana, E. S., Herman, A., & Njau, K. N. (2020). Sanitation and Hygiene Practices in Small Towns in Tanzania: The Case of Babati District, Manyara Region. *The American journal of tropical medicine and hygiene*, 103(4), 1726–1734. <https://doi.org/10.4269/ajtmh.19-0551>
- [6] California Department of Social Services, California Department of Health Care Services. *Medical Manual for Intensive Care Coordination (ICC), Intensive Home-Based Services (IHBS) & Therapeutic Foster Care (TFC) for Katie A. Subclass Members*. California: DHCS & CDSS; 2010.
- [7] Mutero CM, Schlodder D, Kabatereine N, Kramer R. Integrated vector management for malaria control in Uganda: knowledge, perceptions and policy development. *Malaria Journal*. 2012;11(21):1-10. Epub 2012/01/17.

- [8] Naranjo SE, Ellsworth PC. Fifty years of the integrated control concept: moving the model and implementation forward in Arizona. *Pest management science*. 2009;65(12):1267-86. Epub 2009/10/17.
- [9] van den Berg H, von Hildebrand A, Ragunathan V, Das PK. Reducing vector-borne disease by empowering farmers in integrated vector management. *Bulletin of the World Health Organization*. 2007;85(7):561-6. Epub 2007/09/05.
- [10] Zhang D, Zheng X, Xi Z, Bourtzis K, Gilles JR. Combining the sterile insect technique with the incompatible insect technique: I-impact of wolbachia infection on the fitness of triple- and double-infected strains of *Aedes albopictus*. *PloS one*. 2015;10(4):121-6. Epub 2015/04/08.
- [11] Siyam N. Integrated and Comprehensive Action to Reduce and Control Dengue Hemorrhagic Fever: A Survey in Pekalongan City, Central Java. *Tropical Medicine Journal*. 2013;03 No. 1:85-93.
- [12] Siyam N, Cahyati WH. Penerapan School Based Vector Control (SBVC) untuk Pencegahan dan Pengendalian Vektor Penyakit di Sekolah Media Kesehatan Masyarakat Indonesia (MKMI). 2018;14(1):86-92.
- [13] Packierisamy PR, Ng CW, Dahlui M, Inbaraj J, Balan VK, Halasa YA, et al. Cost of Dengue Vector Control Activities in Malaysia. *The American journal of tropical medicine and hygiene*. 2015;93(5):1020-7. Epub 2015/09/30.
- [14] Chanda E, Ameneshewa B, Mihreteab S, Berhane A, Zehaie A, Ghebrat Y, et al. Consolidating strategic planning and operational frameworks for integrated vector management in Eritrea. *Malaria Journal*. 2015;14(1):488. Epub 2015/12/04.
- [15] Zhu F, Lavine L, O'Neal S, Lavine M, Foss C, Walsh D. Insecticide Resistance and Management Strategies in Urban Ecosystems. *Insects*. 2016;7(1):1-26. Epub 2016/01/12.
- [16] Lizzi KM, Qualls WA, Brown SC, Beier JC. Expanding Integrated Vector Management to promote healthy environments. *Trends in parasitology*. 2014;30(8):394-400. Epub 2014/07/17.
- [17] Chanda E, Govere JM, Macdonald MB, Lako RL, Haque U, Baba SP, et al. Integrated vector management: a critical strategy for combating vector-borne diseases in South Sudan. *Malaria Journal*. 2013;12(369):1-9. Epub 2013/10/26.
- [18] Nalwanga E, Ssempebwa JC. Knowledge and practices of in-home pesticide use: a community survey in Uganda. *Journal of environmental and public health*. 2011;2011:1-7. Epub 2011/07/22.