

Theoretical Model of the Fendona[®] 30 EC Curtain Based on Intervention: Antecedents, Prospects and Recommendations as Dengue Hemorrhagic Fever Control

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ABSTRACT

Background: Research developed a theoretical model of the Fendona[®] 30 EC Curtain based on intervention. The model was developed to enhance understanding of the community's abundance control program. The model analyzes of the variables historical and knowledge of Dengue Hemorrhagic Fever (DHF), the perception of mosquito disorders, the use of mosquito control and medication, the perception of abundance of mosquitoes, the motivation to use curtains, the expected benefits of curtains, the prospects and recommendations of curtains as a mosquito control device.

Methodes: White curtain fabric for window curtain and inter-room bulkhead, black curtain fabric for jar cover, jar filled with plain water, 20cm high, 20cm in diameter, Fendona[®] 30 EC and clean water. Research uses quasi-experimental design and correlational research surveys. Research data obtained through questionnaires, tests, and check-lists. Research data were analyzed using Regression Path Analysis. **Results:** Mosquito control programs in the community are difficult issues. The curtain is soaked for 24 hours in a liquid of Fendona[®] 30 EC + water in a ratio of 1: 1; The curtains are dried in a shaded environment for 24 hours, or until the curtains are completely dry. In-room experimental results show Fendona[®] 30 EC Curtain effectively prevents mosquitoes from entering the room and kills mosquitoes in the room understand. The Fendona[®] 30 EC curtain, although effective, does not shift the popularity of the mosquito repellent lotion, mosquito spray and mosquito coil. **Conclusion:** The history of DHF only predicts the perception of mosquito disorders. The perception of a decrease in mosquito abundance can only be predicted from the use of mosquito controls and medicines. Motivation of the use of curtains only predicts the expected benefits of curtains.

Keywords: Mosquitoes, fendona, DHF, knowledge, motivation

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INTRODUCTION

Indonesia is reported as the 2nd country with the largest dengue cases among 30 endemic countries (Kemenkers RI, 2018). The Aedes Aegypti mosquito as the main vector of the dengue virus

reproduces well in all weather and from weather to weather. Relative humidity and temperature are significant weather factors that correlate with the entomological index (*Aedes Aegypti* abundance index) (Favier et al., 2006). In the absence of a vaccine or specific antiviral treatment for dengue infection, current efforts to reduce the incidence of dengue rely on preventive measures and disrupt dengue transmission through vector control (Al-Muhandis, 2011). In the absence of a vaccine, control of *Aedes Aegypti*, the main vector of dengue, is the only strategy available to control disease transmission (Farrar et al., 2007). However, most of the existing control methods and strategies for *Aedes Aegypti* fail to keep vector investment below the transmission threshold (Below Transmission Thresholds / TDR, 2006). The treatment of materials such as Window Curtains and Jar Covers has the potential to reduce the density of DHF vectors (Kroeger et al., 2006; Seng et al., 2008; Vanlerberghe et al., 2009). The first efficacy trial reported high acceptance by distributed households (Kroeger et al., 2006; Seng et al., 2008) and suggested that maintaining high coverage was possible, without the need for major changes in user behavior. However, whether absorption will also be high under routine program conditions, and remain high in the medium term, and whether absorption will remain high after the end of the intervention are still questions that have not been answered. Research by Vanlerberghe et al. (2011) showed satisfactory efficacy indication, but with quite low acceptance. The use of insecticide blinds decreased rapidly over time. Sustainable use is mainly determined by the perception of the effectiveness of the curtains. Disease knowledge and the perception of mosquito nuisance are not related to the use of curtains. The uptake of other *Aedes Aegypti* controllers has reportedly been disappointing. Acceptance of larval control in domestic water containers varies greatly. For example, in Thailand, only 25% of households use Abate (Phuanukoonnon et al., 2005), and in Mexico, only 29% of water containers contain Pyriproxifen 2 weeks after distribution (Kroeger et al., 2006). On the other hand, with active community involvement, *Mesocyclops* remains properly implemented in 80% of large water tanks in North Vietnam (Kay et al., 2010) and 88% of water containers remain well covered in Cuba (Toledo-Romani et al., 2007). Chemical control of mature *Aedes Aegypti* via space and peri-domestic spraying has high visibility, but is less acceptable (Renganathan et al., 2003). In contrast, lethal Ovitrap was well received, with less than 9% lost after 4 weeks in an Australian efficacy trial (Ritchie et al., 2009).

The use of blinds is a real challenge to be promoted as a DHF controller. The insecticide curtain method needs to be carried out repeated efficacy tests, because it has several empirical considerations that are likely to be the cause of the problem of low public acceptance of insecticide curtain interventions as mosquito control.

First, the abundance of dengue vectors in the environment outside the home is so wide that not all of it can be reached by control interventions. Sites such as yards, gardens and forests, gutters, damp places, and various other mosquito nests are not entirely accessible to control interventions.

Second, human and animal blood are the main food for mosquitoes, which is obtained from a straw through a bite on the surface of the skin. The mosquito population in the outside environment will thus be attracted to human places. The human home is a target place for mosquitoes to get to, land on and then bite the surface of human skin. The house is a magnet that sucks the arrival of mosquitoes from the outside environment.

Third, preliminary observations show: (1) mosquito nets or curtains with a white base color are the most preferred media for mosquitoes to perch during the day; (2) mosquitoes like to be around and fly swarming over the surface of a container filled with water, such as water vats, buckets, bathrooms and other humid places; (3) mosquitoes also like to swarm over black cloth objects, especially in the afternoon when mosquitoes start to hide out in the house and at dusk when mosquitoes are already roaming around the house under bright lights.

Fourth, the house is the smallest strategic environment that allows localized control of the mosquito population. Control can also be said to be strategic because it is carried out with high efficiency, namely low cost, low routine, low maintenance and is passive and safe.

Fifth, the effectiveness, absorption rate and prospect of using insecticide curtain requires knowledge of its predictors or determinants. Vanlerberghe et al. (2011) show that the effectiveness of the insecticide curtain still requires further review and research, the acceptance rate of the use of insecticide curtain which continues to decline over time during and after the intervention, and the

prospect of using insecticide curtain still depends on its effectiveness to reduce mosquito abundance. History of DHF and knowledge of DHF, perception of mosquito disturbance, and use of mosquito control are factors that determine the use of insecticide blinds. But the results of the research study showed that knowledge of dengue fever and the perception of pre-intervention against mosquitoes were not related to the use or use of curtains. History and knowledge of DHF as a predictor of curtain use need to be reviewed empirically.

This study developed a theoretical model of an intervention-based insecticide curtain involving the following variables: 1) history of dengue fever and knowledge of dengue as predictors of the use of mosquito control and repellent, the perception of mosquito disturbance that continues to motivate the use of curtains which lead to experiences (perceptions) of the abundance of mosquitoes in the house, as well as the hope of the curtain as a mosquito control that continues on the prospects or hopes and recommendations for insecticide curtains as mosquito control that can be accepted by the community.

To assess the effectiveness of the insecticide curtain as a control for *Aedes Aegypti* mosquitoes, this study did not examine differences in duration of use, both at the time of intervention and post-intervention. This is because in previous studies it has been shown that the insecticide curtain is effective in controlling mosquitoes. This research study understands the effectiveness not only from the perspective of the efficacy of the insecticide curtain in controlling mosquitoes, but also from the perspective of its acceptance which can be explained by the determinants of the factors. A method is said to be effective if it can control mosquitoes as well as is acceptable, has prospects and is recommended for use in the context of a more efficient alternative method.

To study the determinants of curtain acceptance, this study proposes a relationship model between variables, namely: (1) history and knowledge of DHF as predictors of the use of mosquito control and repellent, perceptions of mosquito disturbance, motivation to wear and expectation of curtains, and; (2) motivation to wear curtains as a predictor of mosquito abundance perception and curtain expectations.

To examine the prospects and recommendations for curtain as a sustainable mosquito control, the research model proposes: (1) the use of mosquito control and repellent variables as predictors of the perception of mosquito abundance; (2) the perception of mosquito disturbance as a predictor of the use of mosquito control and repellent and the motivation for using curtains; (3) the motivation variable for the use of curtains as a predictor of the perception of the abundance of mosquitoes, the expectations and prospects of the curtains; (4) the expected benefit variable of the curtain as a predictor of curtain recommendation.

To study the intervention-based theoretical model of the Fendona® 30 EC Curtain, this study conducted quasi-experimental research activities with the Fendona® 30 EC Curtain intervention, conducted interviews and preliminary observations, designed and tested the Fendona® 30 EC Curtain, distributed the Fendona® 30 EC Curtain, building a framework of thinking, measuring variables, proposing hypotheses and praising hypotheses.

HYPOTHESIS MODEL

History of DHF and knowledge of DHF, use of mosquito control and repellent, perceptions of mosquito disturbances, motivation to use curtains, and expectations of the benefits of curtains

Proposition 1:

Families with a history of DHF and have knowledge of DHF, have a very worrying experience and think never to have DHF again in the future. Families will take precautions not to experience dengue fever by using other mosquito controllers that can be purchased at the market. The family will also develop the idea that mosquitoes are disturbing and dangerous. Families will also tend to be motivated to voluntarily use the insecticide curtain that has been distributed, and hope that the insecticide curtain will be useful as an effective mosquito control. Families with a history of DHF and have knowledge of DHF will be careful, use existing mosquito control, be aware of the disturbance and dangers of mosquitoes, be motivated voluntarily to wear curtains and hope that the Fendona® 30 EC Curtain will effectively control mosquitoes.

Perceptions of mosquito disturbance, use of mosquito control and repellent and motivation to use curtains

Proposition 2:

People who feel disturbed by the presence of mosquitoes, will immediately take action to prevent mosquitoes from being bitten, taking the opportunity to wear a curtain. Mosquitoes that are found to be annoying will keep people looking for protection and motivated to wear the insecticide curtain.

Use of mosquito control and repellent and the perception of mosquito abundance

Proposition 3:

People who already feel protected from being bitten by mosquitoes because of the benefits of protection and insect repellent will tend to have a perception of a decreased abundance of mosquitoes in the home.

Motivation for using curtains, expectations of the benefits of curtains, perceptions of mosquito abundance, prospects and recommendations for curtains as mosquito control

Proposition 4:

As long as people are motivated to wear curtains, people will expect them to be useful as mosquito control and have a perception of decreasing mosquito populations in the house.

After people have hopes of the benefits of insecticide curtains as mosquito control, people will recommend the use of curtains as an effective mosquito control.

Once people feel the mosquito population in the house is decreasing, people will judge the curtains will have the prospect of being applied as a mosquito control in a sustainable manner.

Once people judge the curtains will have the prospect of being implemented as an effective mosquito control, people will recommend the curtains as an effective mosquito control for sustainable use.

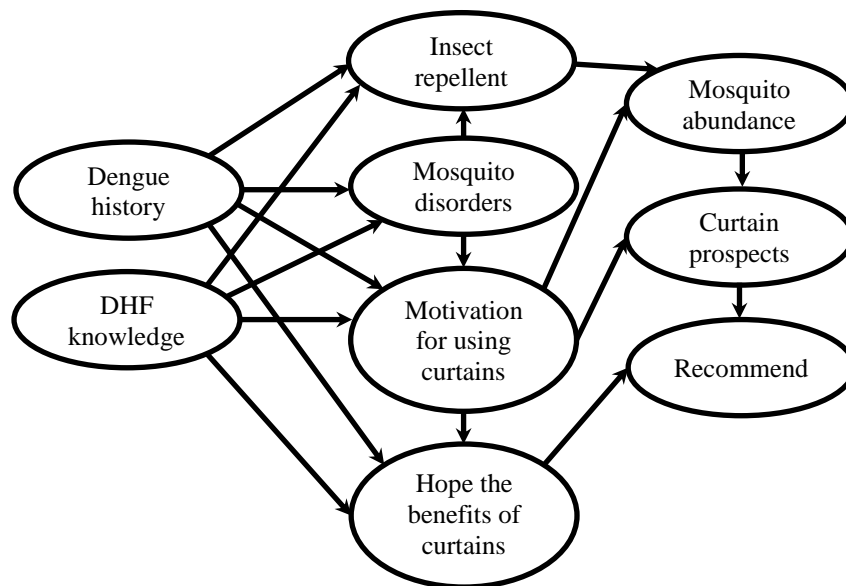


Figure 1
Hypothesis Model

Hypothesis 1

History of DHF and knowledge of DHF, simultaneously or partially have a positive effect on the use of mosquito control and repellent, perceptions of mosquito disturbances, motivation to use curtains, and the expectation of the benefits of curtains.

Hypothesis 2

The perception of mosquito disturbance has a positive effect on the use of mosquito control and repellent and the motivation for using curtains.

Hypothesis 3

The use of mosquito control and repellent has a negative effect on the perception of mosquito abundance.

Hypothesis 4

The motivation to use blinds has a positive effect on the expectations of the benefits of curtains.

Hypothesis 5

The motivation to use curtains has a negative effect on the perception of mosquito abundance.

Hypothesis 6

The motivation to use blinds has a positive effect on the prospect of blinds.

Hypothesis 7

The expectation of the benefits of curtains has a positive effect on curtain recommendations.

Hypothesis 8

The perception of mosquito abundance has a positive effect on the prospect of curtains.

Hypothesis 9

The prospect of blinds has a positive effect on curtain recommendations.

MATERIALS AND METHODS

Materials

1. White curtain fabric for window blinds and room dividers.
2. Black curtain cloth to cover the jar.
3. The jar contains plain water, 20cm high and 20cm in diameter.
4. Fendona® 30 EC
5. Clean water

Procedures

1. The curtain is immersed for 24 hours in Fendona® 30 EC + water with a ratio of 1: 1.
2. The curtains are then dried not directly under the hot sun, but in a shaded environment for 24 hours, or until the curtains are completely dry.
3. The Fendona® 30 EC blinds for windows, bulkheads between rooms and for the jars are ready to be distributed and installed in each sample house.

First Trial

1. The experiment was carried out in the experimental room.
2. The experimental room is a room measuring 5x6m with 4 windows, 1 bed and 1 door. The floor is made of white tiles, the white ceiling is in good condition and is tightly closed, the walls are clean white.
3. The room status before the trial was carried out was a warehouse for goods and a nest for mosquitoes.
4. There are no ventilation holes except the window.
5. The outside of the room is the yard.
6. The goods inside are all removed and the warehouse is cleaned.
7. The window is opened wide.
8. Remove the mosquitoes using a large blower.
9. After making sure the mosquitoes are clean, the window is closed tightly.
10. The Fendona® 30 EC blinds are installed in the inner window, nailed up and down the sides so that they do not change position due to the wind.
11. Re-check to make sure no mosquitoes are in the room.
12. The light is turned off.
13. The window reopens.

14. Three curtains Fendona® 30 EC cover the jar placed in the corner of the room and one under the bed.
15. The door to the room is tightly closed and the bottom door is tightly closed with a cloth.
16. The room was left empty with no lights with the window open and only closed by a curtain for 1 week.

After 1 week, check that no mosquitoes are in the room. Both mosquitoes are alive and well. The Fendona® 30 EC curtain effectively prevents mosquitoes from entering the room.

Second trial

1. The Fendona® 30 EC blinds for the windows and the jars were removed from the room.
2. The goods in the warehouse are put back.
3. The light is turned off.
4. Windows and doors open.
5. The room is left empty without being entered by a human for 1 month.
6. The warehouse is ensured to become a mosquito nest again.
7. The researcher enters the room, closes the door tightly.
8. Researchers put Fendona® 30 EC curtains on the windows and cover the jars.
9. Researchers turn on the lights.
10. Researchers open a third of the window to get air from outside the room.
11. Researchers make observations in the room

Observation result

1. Mosquitoes land on the window blinds.
2. Mosquitoes land on the curtain covering the jar.
3. After 10 to 15 seconds, the mosquito moves or walks backwards, backwards irregularly sideways to the left or right for 10 to 15 seconds.
4. Mosquitoes fly here and there in a slightly high position and then perch on the wall, on the ceiling and also land on the curtain again.
5. After alighting for 5 to 10 seconds, the mosquito walks back a few steps for 5 to 10 seconds.
6. The mosquitoes then fly back irregularly, fly perch immediately fly back, fly perch immediately fly back 3 to 5 times, either perching on the window blinds or on the wall.
7. The mosquito finally fell to the floor and walked forward crawling for 3 seconds and finally collapsed, but not dead. The mosquito is completely lifeless after collapsing for about 60 seconds.

Conclusion of the second trial

The Fendona® 30 EC curtain effectively controls mosquitoes.

Mosquitoes die in less than 60 seconds after the first time they perch on the Fendona® 30 EC curtain.

Note:

1. Two mosquitoes at the same time perched on the hands and one mosquito perched on the face of the researcher, the mosquito bites aggressively so strongly that the researcher pats the bitten part of the body in reflex.
2. The bite has an itchy effect and causes small ulcers. The itching disappears after about 10 minutes, the boils fade for about 15 minutes.
3. There are no other effects on the experimenter body after being bitten by a mosquito.

Intervention

1. Curtains Fendona® 30 EC are given according to the number of windows in front, side and back of the house, as well as bedroom windows.
2. The Fendona® 30 EC curtain is also provided as a divider between the living room and the room in the house and between the kitchen and the room in the house.
3. Curtains Fendona® 30 EC cover the jars given to each house to be placed in the living room, bedroom and under the bed, kitchen, under tables and other damp and dark places.

4. The Fendona® 30 EC blinds are provided free of charge. Each house receives a maximum of 5 window blinds according to size, 2 dividing curtains between rooms measuring 2x3m, and 5 curtains covering the jar.
5. The Fendona® 30 EC curtain is distributed for free with simultaneous distribution for 1 day by involving 10 residents as volunteers on Wednesday, February 12, 2020.
6. A sample of homeowners filled out a history of dengue fever questionnaire, a knowledge test of dengue fever, a questionnaire on the use of mosquito control and repellent, the perception of mosquito disturbances, and a questionnaire on the hope of benefiting from curtains.
7. Distribution of questionnaires involving 10 residents as volunteers. The questionnaire was filled in by incidental sampling, which is based on the time availability of the research subjects. Volunteers explained to the subjects the instructions for filling in the questionnaire, the intent and purpose of filling in the questionnaire.
8. During the intervention period, researchers and volunteers checked the use of curtains.
9. A sample of homeowners filled out a questionnaire on mosquito abundance perceptions, prospects and recommendations.

Instruments

History of DHF is a subjective evaluation of ten DHF symptoms that family members have experienced during the past year, including sudden high fever, severe headache, pain behind the eyes, pain in muscles and joints, loss of appetite, nausea and rash, high fever for two to seven days, redness of the face, skin bruises, nose and bleeding gums. DHF history was measured on a scale from very often to never. Example: How often have you and your family members had a sudden high fever in the past year? The validity index of the history of DHF questionnaire items was 0.359 to 0.781 and the reliability of Alpha = 0.757.

Knowledge of DHF is the subject's knowledge of the dangers (risks), causes, transmission, handling and prevention of DHF. DHF knowledge is measured by tests. Each question is given 4 correct and 3 wrong answers. Subjects were asked to choose 4 correct answers for each question. Example: Dengue Hemorrhagic Fever (DHF) is a disease that... 1) not turning off; 2) turn off; 3) can cause bleeding; 4) can cause shock; 5) cannot cause shock; 6) can cause organ damage; 7) cannot cause organ damage. The answer score is determined based on the following criteria: Choose 4 correct answers, score 4, choose 3 correct answers and 1 incorrect answer score 3; choose 2 correct answers and 2 wrong answers, score 2; choose 1 correct answer and 3 wrong answer score 1; did not choose the answer score 0. The index of the validity of the DHF knowledge test items was 0.500 to 0.628 and the Alpha reliability was 0.758

The use of mosquito control and repellent is the independent use of eight mosquito control products that are easily available in the market, namely mosquito repellent lotion, mosquito repellent spray, mosquito repellent, electric mosquito repellent sound, electric mosquito repellent sound, blue light light trapping mosquito entrants, rackets. mosquito hunters, using bed nets. The use of control and insect repellent was measured on a scale always to never. Example: How often do you use mosquito repellent lotion? The validity index of the questionnaire items using the control and insect repellent was 0.373 to 0.648 and the Alpha reliability was 0.714.

The perception of mosquito nuisance is an evaluation of the experience of disturbance in the mosquito population in the house, mosquito bites, temporary effects of bites, and more dangerous consequences of bites. Mosquito nuisance perceptions were measured on a scale from very unobtrusive to very disturbing. Example: How annoyed are you by the presence of mosquitoes in the house? The validity index of the questionnaire items for the perception of mosquito disturbance was 0.568 to 0.689 and the Alpha reliability was 0.792.

The motivation to use the curtain is the motivation to continue to use the 12 curtains that have been given during the intervention period. Motivation is measured by a check-list of the number of blinds used. The number of blinds used is an indication of a very high to very low motivation scale. The use of ≥ 10 blinds indicates very high motivation; Wearing 6 to 9 blinds indicates high motivation; The use of 3 to 5 blinds indicates moderate motivation; The use of 1 to 2 blinds indicates low motivation, and; Not putting up the curtains indicates very low motivation. A total score ≥ 40 indicates

very high motivation. A total score of 31 to 40 indicates high motivation. A total score of 21 to 30 indicates moderate motivation. A total score of 13 to 20 indicates low motivation. A total score of 0 to 12 indicates very low motivation. The validity index of the motivation checklist for the use of the curtain is 0.482 to 0.925 and the reliability is Alpha 0.773.

The hope of the benefits of curtains is a positive hope about the Fendona® 30 EC Curtain as a mosquito control that is suitable for use to reduce mosquito populations in general, reduce *Aedes Aegypti* mosquitoes, and prevent DHF. The expectation blinds are measured by the scale not expect until very hope. Example: How do you hope the Fendona® 30 EC curtain can reduce the mosquito population in the house? The validity index of the questionnaire items with the expectation of a curtain benefit from 0.708 to 0.897 and an Alpha reliability of 0.849

The perception of mosquito abundance is the opinion of the householder about the abundance of mosquitoes during the one, two, three and four weeks of the intervention period. The perception of the abundance of mosquitoes was measured on a scale that made no difference to the previous condition until there were no mosquitoes at all. Example: How is the presence of mosquitoes in the house after 1 week of wearing the Fendona® 30 EC curtain? 0) The index of the validity of the questionnaire items on the abundance of the perception of mosquitoes was 0.436 to 0.614 and the reliability of Alpha was 0.759.

Prospect is an opinion on the use of Fendona® 30 EC blinds as a voluntary sustainable method in alternative contexts, namely: Fendona® 30 EC blinds can be obtained easily on the market; Fendona® 30 EC can be obtained easily on the market, and; Fendona® 30 EC blinds can be made yourself. Curtain prospects are measured on a strongly agree to strongly disagree scale. Example: What do you think if the Fendona® 30 EC Curtain is sold in the market so that the public can use it? The validity index of the prospect questionnaire items was 0.534 to 0.774 and the Alpha reliability was 0.819.

The recommendation is the homeowner's initiative after the intervention to voluntarily suggest using Fendona® 30 EC curtains as a mosquito control to relatives, friends, acquaintances, and; to anyone. Recommendations are measured by strongly suggesting to strongly discouraging. Example: How much recommend you to a relative to wear the Fendona® 30 EC Curtain? The validity index of the recommended questionnaire items was 0.471 to 0.678 and the Alpha reliability was 0.755.

RESEARCH RESULT

The results of the regression analysis summarized in Table 1 show that among the nine proposed hypotheses, there are only four proven hypotheses, namely: 1) History of dengue has a positive effect on the perception of mosquito disturbance; 2) The motivation to use blinds has a positive effect on the expected benefits of curtains; 3) The use of mosquito control and repellent has a negative effect on the perception of mosquito abundance, and; 4) Prospects have a positive effect on recommendations. Based on the final results of the theoretical model hypothesis test in Figure 2, the mosquito control program in the community is difficult to understand. The Fendona® 30 EC curtain, although effective, has not shifted the popularity of mosquito repellent lotions, insect repellent sprays and mosquito coils. DHF history only predicts the perception of mosquito disturbance. The perception of a decrease in mosquito abundance can only be predicted from the use of a mosquito controller and repellent. The motivation for using blinds only predicts the expected benefit of the blinds. Recommendations can only be predicted through prospects. The regression paths between variables are mutually exclusive. Apart from these variables, the rest there is no relationship in the regression path.

Table 1. Multiple Regression Analysis Results

Dependents	R	R ²	Constant (α)	Variables				F	p
				History of DHF		Knowledge of DHF			
				β	p	β	p		
Pemakaian pengendali dan obat nyamuk	0,337	0,114	10,139	0,150	0,372	-0,559	0,051	3,020	0,058
Persepsi gangguan nyamuk	0,675	0,456	3,054	0,206	0,036**	0,227	0,164	19,674	0,000*
Motivasi pemakaian tirai	0,099	0,010	34,669	0,256	0,501	-0,343	0,592	0,231	0,795
Harapan manfaat tirai	0,141	0,020	9,006	0,082	0,336	-0,114	0,423	0,473	0,626

* Significant at the 1% significance level ($p < 0.01$)

** Significant at the 5% significance level ($p < 0.05$)

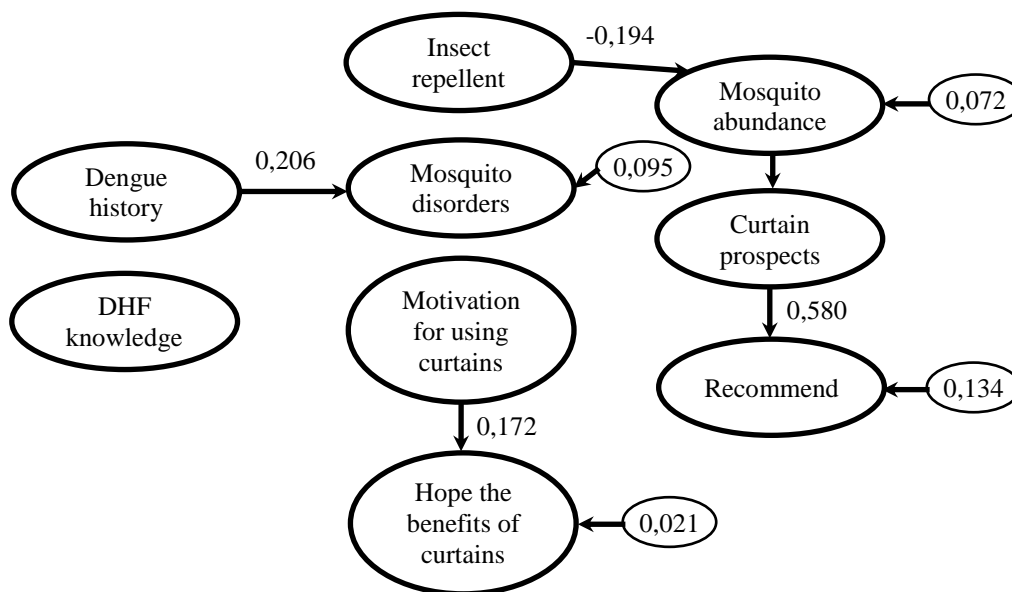


Figure 2
Final Result of Hypothesis Model Test

DISCUSSION

The symptoms of dengue that have been felt and empirical knowledge of dengue do not predict people will use mosquito control or mosquito repellent. People who use mosquito repellent lotion, mosquito repellent spray and mosquito coils every day, are not because of their experience of experiencing dengue symptoms or knowledge of dengue. The research findings show that mosquito repellent lotion, mosquito repellent sempot and mosquito coils have a high popularity for use as insect control and insect repellent and have become a habit, or have become a tradition in people's lives.

The motivation to continue using the Fendona® 30 EC curtain is in accordance with the number of curtains that have been provided during the intervention period along with its benefits as a mosquito control that is suitable for reducing the mosquito population in general and the Aedes Aegypti mosquito, as well as to prevent dengue, also cannot be predicted through the history of dengue DHF knowledge.

The research findings indicated that knowledge of dengue fever also did not predict the perception of mosquito disturbance. People's knowledge about the dangers, causes, transmission, and handling and prevention of dengue does not predict people's perceptions of mosquito nuisance.

Knowledge of DHF does not lead to the perception of disturbances in the mosquito population in the house, mosquito bites, temporary effects of bites and more dangerous consequences of bites.

The empirical findings of the study show that the history of dengue fever and knowledge of dengue do not explain the use of mosquito control and repellent, the motivation for wearing curtains and the expectation of the benefits of curtains. Knowledge of DHF also does not explain the perception of mosquito nuisance. The findings of the study show that the antaseden or main predictor of Fendona® 30 EC Curtain as a mosquito control in the community becomes difficult to understand.

A history of DHF positively leads to the perception of mosquito disturbance. The level of dengue fever symptoms that have ever been experienced is directly proportional to people's assessment of mosquito disturbances. The higher or the more frequent people experience the symptoms of DHF, the more people will feel the disturbances of mosquito population in the house, mosquito bites, temporary bites and more dangerous consequences of bites.

History of DHF is a condition that motivates people to develop the perception of mosquito disturbance, but other empirical conditions also show that the perception of mosquito disturbance does not predict the use of mosquito control and repellent, and does not predict the motivation to use the curtain. The effect of dengue fever history stops only on the perception of mosquito disturbance. The research findings in this part of the analysis also show that the conditions for creating the Fendona® 30 EC Curtain as community mosquito control are difficult to understand.

The perception of mosquito nuisance does not lead to the use of mosquito control and repellent nor to the motivation for using curtains. The use of mosquito control and repellent and the motivation for using curtains cannot be explained in the perspective of the perception of mosquito disturbance. People who perceive the mosquito population in the house, mosquito bites, temporary effects of mosquito bites and more dangerous consequences of bites, do not encourage people to use mosquito repellent lotions, mosquito repellent sprays and mosquito coils, and does not encourage motivated people to wear the Fendona® 30 EC Curtain. These findings can be interpreted that mosquito repellent lotion, mosquito repellent spray and mosquito coils have become a tradition for community use as mosquito control in their daily lives. Meanwhile, people's motivation to wear curtains can be predicted to decrease after the intervention of the Fendona® 30 EC Curtain.

The interpretation of the findings of this study is consistent with the findings of the study by Vanlerberghe et al. (2011) which shows that after the intervention is over, the use of curtains gradually decreases and it can be predicted that they will no longer be used. It is also likely that there are no predictors that can be used to assess the likelihood that blinds will be used sustainably post intervention. After this research proposes the perception of mosquito disturbance as a predictor of motivation to use curtains, the results of the analysis also prove that the motivation to use curtains cannot be explained by the perception of mosquito interference. The research findings in this part of the analysis thus also show that the conditions for creating the Fendona® 30 EC Curtain as a mosquito control community become elusive.

The motivation for using curtains does not act as an expectation of the benefits of curtains. The motivation to use the curtain during the intervention period does not encourage people to feel the benefits of the Fendona® 30 EC Curtain as a suitable mosquito control. The motivation for using curtains does not make people feel that the Fendona® 30 EC Curtain can reduce the mosquito population in general, reduce *Aedes Aegypti* mosquitoes and can prevent dengue. The research findings in this part of the analysis thus also show that the conditions for creating the Fendona® 30 EC Curtain as a mosquito control community become elusive. Moreover, the hope of empirically blind benefits also does not predict the prospect of blinds and recommendations.

The use of mosquito control and repellent predicts a decrease in the perception of mosquito abundance. The higher the use of mosquito control and repellent, the lower the perception of mosquito abundance. People who use mosquito repellent lotion, mosquito repellent spray and mosquito coils will have the perception that the abundance of mosquitoes in the house will decrease, even during the intervention period of the Fendona® 30 EC Curtain. The assessment of the reduction in mosquito abundance, apart from the intervention of the Curtain Fendona® 30 EC, also because people in everyday life use one or all of the possible uses of mosquito repellent lotion, mosquito repellent spray and mosquito coils. The use of mosquito control and repellent that reduce mosquito abundance is

difficult to understand because it does not continue with the prospect of the Curtain Fendona® 30 EC as a means of controlling mosquitoes in the community.

The perception of mosquito abundance does not lead to prospects. Prospects will lead to recommendations. The higher the prospect, the more people will recommend the Curtain Fendona® 30 EC as a mosquito control and prevention of dengue in the community. The hope of the benefits of curtains does not predict the public to give recommendations on the Fendona® 30 EC Curtain as mosquito control and prevention of dengue fever in the community. The research findings in this part of the analysis also show that the conditions for creating the Fendona® 30 EC Curtain as community mosquito control are difficult to understand.

CONCLUSION

The theoretical model of Fendona® 30 EC Curtain as an intervention-based community DHF controller can only be understood through the positive influence of dengue history on the perception of mosquito disorders; negative effects of the use of mosquito control and repellent on the perception of mosquito abundance; the positive influence of the motivation on the use of curtains on the expectation of the benefits of curtains, and prospect's positive influence on recommendations.

ACKNOWLEDGMENTS

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CONFLICT OF INTEREST

There were no conflicts of interest before, during and after this research was completed.

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