The Perception of the Pekanbaru City Resident on Household Pesticides

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ABSTRACT The use of household pesticides depends on three important factors, including the effectiveness of active ingredients, application techniques, and the effects towards users. Therefore, there is a necessity for knowledge of pests and the application in order to minimize the danger posed. A person's ability to understand various sources of information is influenced by their level of education. Facts regarding household pesticides are usually acquired from TV commercials as well as community experiences. This descriptive study was carried out by describing the relationship between the behavior of household occupants and the use of pesticides in controlling settlement pests, as well as explaining the relationship between the observed variables. The research population include residents that live in Pekanbaru City, specifically in the Districts of Tenayan Raya, Sail and Pekanbaru City. A determination of samples is carried out intentionally (purposive) with multistage sampling techniques (gradual sampling). Three factors determined the assessment of these households: clean, medium or dirty. The results of this study found that the resident of Pekanbaru City still considered the use of pesticides as harmless to their health and families, even though they knew of the toxicity and danger. Communities have a great desire to reduce the use of pesticides and find alternative methods for pest control.

Keywords: household pesticides, Household pest, public perceptions, toxic and dangerous materials, Pekanbaru City

1. Introduction

The use of household pesticides is dependent on three important factors, including the effectiveness of active ingredients, application techniques, and poisoning towards users. There is therefore a necessity to understand pests and their correct application of pesticides to minimize the danger posed to humans (Sigit et al., 2006). A person's ability to understand various sources of information is primarily influenced by their level of education (Fiske, 1993; Azwar, 1995; Baron and Byrne, 2003): the higher the level, the increase of attention, coding and retrieval of information obtained (Baron and Byrne, 2003). According to Nafis (2009), sources of information regarding household pesticides were generally obtained by the people of North Jakarta, Depok and Bogor from TV commercials and community experiences. In DKI Jakarta (Yuliani, 2012) and in the Kutownangun Village, Salatiga,
Central Java, information is usually transmitted via TV advertisements, which serves as an advantage to the pesticide industry (Wigati and Susanti, 2012).

According to Den Hond et al. (2003), the use of pesticides, in addition to having an impact on human health, can cause environmental pollution, specifically affecting river and ground water. Environmental pollution can cause poisoning and various diseases to humans.

Their continuous application causes residents to be exposed to the harmful traits, therefore disrupting public health (Isnawati et al., 2009). Health problems include fetal disability, cancer, asthma, allergies, osteoporosis and hypertension, reproductive disorders, carcinogenesis (Schwab et al., 1995; Short, 1994, and Atkinson et al., 1988) and Parkinson’s disease (Hileman and Bette, 2001). It is necessary to assess the level of knowledge of residents regarding pesticides for household pest control in order to minimize the adverse effects.

2. Materials And Methods

This research is descriptive and aims to explain, detail and formulate a conclusion. Information about real situations are gathered, specifically the relationship between independent factors and individual characteristics. The target population in this study were residents in Pekanbaru City, in the Districts of Tenayan Raya, Sail and Pekanbaru City. Determination of samples is intentional (purposive) with a multistage sampling technique (gradual sampling), and the research area in Pekanbaru City is in either clean, medium or dirty categories.

This descriptive study was carried out by noting the condition of the relationship between the behavior of occupants and the use of pesticides in controlling settlement pests, as well as explaining the relationship between the observed variables. The researcher looks closely at the behavior phenomena of residents by focusing on the factors that provoke the use of these chemicals.

3. Results And Discussion

The results showed that 56.12% of respondents did not know the environmental effects caused by the use of pesticides both inside and outside the home (Figure 1). Respondents admitted that they had never received information about its effects on the environment, therefore considered it more important than the risks or effects it caused. In addition, many were unaware that there was a risk posed to the environment. This doubt and lack of knowledge is what causes the behavior where pesticides are continuously used. Perceived risk of users influences the pattern and method of using the next pesticide (Arcury et al., 2002; Palis et al., 2006). The results of Chitra et al. (2013) found that the perception of health risks attributed to pesticides in South India is low.

![Figure 1](image.png)

**Figure 1.** Respondents’ knowledge of household pesticide uses against environmental effects

The limited information from respondents was due to a lack of counseling or information dissemination regarding the dangers of pesticides. The information they obtain is mainly from TV advertisements (Figure 2.) which provide a lot of information about the benefits rather than the
dangers or effects on human health and the environment. According to Chitra et al. (2013), it is recommended that household pesticide users be educated on the health hazards and safe practices in order to minimize negative results.

Figure 2. Percentage of respondents to the source of information considered most important in choosing pesticides

Providing an understanding to the public regarding the negative effects of pesticides is still possible, as the results of interviews with respondents showed that after being informed, they strongly agreed that they are toxic and dangerous. In addition, the education level of the community is classified as moderate. Supported, most respondents agreed (56.12%) that pesticides were toxic and dangerous, while 11.22% strongly agreed. Respondents who were hesitant and disagreeable were 16.33% each. There were no respondents who disagreed (Figure 3).

Figure 3. Respondents' attitude that pesticides are toxic and dangerous

The doubt from the respondents is what causes their behavior to continue. Perceived risk of users influences the pattern and method of using the next pesticide (Arcury et al., 2002; Palis et al., 2006).
The results of Chitra et al. (2013) found that the level of perception regarding the impact of pesticides is low in south India. The number of respondents who do not care is generally due to a lack of knowledge about pesticides. Respondents acknowledged that information was only obtained from TV advertisements (Figure 3) and there was an absence of counseling by Pekanbaru City Health Office extension agents or other related agencies (Figure 4). This attitude causes 92.86% (Figure 5) of Pekanbaru City residents to use pesticides for pest control.

![Figure 4. Frequency of extension activities on household pest control in the respondent’s environment](image)

Respondents who were hesitant and disagreeable stated that while using household pesticides, they were not disturbed or unsafe, nor did they endanger themselves or their families. The survey results (Figure 6) show that 38.95% of respondents agree and 24.21% strongly agree with the statement that they do not care about the impact of pesticides when used at home. This result illustrates that pesticides are still used by respondents even though they are aware of the toxic and dangerous materials contained (Figure 38).
Figure 6. Percentage of respondents who do not care about
the impact of using pesticides at home

The results of interviews at the study location (Figure 7) show that 11.22% of respondents strongly
agree and 46.94% agree that pesticides did not endanger themselves and their families. The reason for
these statements is most likely due to pesticides being needed to controlling pests, especially
mosquitoes which transmit diseases, and dengue which attacks the residents of Pekanbaru City every
year. In addition, as long as respondents had no signs or symptoms of poisoning that is immediately
visible, people feel that they are not endangering themselves or their families. According to Chitra et
al. (2013) most people in South India consider pesticides harmless to their health and children.
Household pesticides are considered to not have any high health risks.

Figure 7. Percentage of respondents who stated that pesticides
did not endanger themselves and their families

As a result of the large number of respondents who assessed pesticides as not life threatening,
30.61% of respondents agreed and 2.04% strongly agreed to still choose to use it in controlling
household pests (Figure 8). This suggests that its use outweighs the negatives, as it is more practical,
effective and affordable. In addition, pesticides are easily available because they are widely sold in supermarkets.

Figure 8. The percentage of respondents still using pesticides compared to other methods

Although there are many respondents who think they are still going to use pesticides compared to other methods, the desire to reduce its use is very large. Figure 9 shows that respondents who think they will reduce pesticides in the future amount to 93.75% and only 6.25% of respondents will not. This result suggests that the desire for respondents to replace pesticides by means of control other than pesticides is very good. Therefore, community awareness needs to be encouraged to lead to environmentally sound controls.

In line with the high respondents’ desire to reduce the use of pesticides, they wished to use other methods to control household pests. Figure 10 shows that 91.75% of respondents will use other ways, while only 8.25% were reluctant to try different methods. Figure 11 shows that respondents will try using gauze on the door or window of the house (20.42%), electric racket (18.85%), set open doors and windows (14.66%), mosquito nets (9.95%), broom sticks (6.81%), and adhesive glue (1.57%).

Figure 9. Percentage of respondents’ desire to reduce pesticide use in the future
Figure 10. Percentage of desires of respondents using other methods besides pesticides in controlling household pests

The aim to switch to other environmentally friendly ways of controlling household pests can be seen in the desire to spend more money to buy pest control devices that are safe and contain less dangerous ingredients. Figure 11 shows that some respondents agreed (24.24%) and 3.03% of respondents strongly agreed to spend more to purchase control equipment other than chemicals. However, many respondents still argue that they disagree (20.20%) and disagree (29.29%) if it is necessary to spend a lot of money.

Figure 11. Percentage of attitude of respondents who are willing to spend more money to control safe and harmless pests

4. Conclusion
The residents of Pekanbaru City still consider the use of household pesticides as not harmful to their health or children, even though they know that the ingredients contain toxic and dangerous materials. Respondents have a great desire to reduce the use of pesticides and find alternative methods in residential pest control.

Recommendation
There needs to be an increase in the education of pesticides in Pekanbaru in order to create a healthier and more sustainable environment.
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