

The Urge of Public Swimming Pool Water Quality Monitoring in Indonesia

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Abstract : Background: The purpose of this study is to figure out if the swimming pool water quality monitoring follows the Indonesian Minister of Health Regulation and customers' preference for swimming pool water quality. Methods: This study was primarily conducted from literacy analysis of journals, textbooks, and other relevant researches. The data were also collected by interviews with several swimming pools' organizers about the water quality monitoring and a survey to the public as customers. Results: All the swimming pool water did not qualify the standard of Indonesian Minister of Health Regulation. Based on the interviews, several pool organizers did not even know that the regulation exists. Conclusion: Results showed that 100% of public swimming pools did not follow the regulation. The government needs to hold a certain certification as a monitoring action to ensure the swimming pool water quality and to provide an easy way to access the information.

1 INTRODUCTION

One of the most popular sport places is swimming pool. Swimming, especially in hot weather, is very fun. ^[1] According to WHO, swimming is a recreational activity that is important to prevent drowning. ^[3] It is also one of the subjects in Physical Education class in Indonesia. ^[2] Yet, it is not a mandatory for PE teachers to teach swimming in their classes. However, whenever PE teachers want to teach swimming or other water activities while they have no swimming pools at school, they have no option except to use public swimming pools. Public swimming pools are more prone to be contaminated by diseases-causing micro organism than domestic swimming pools, so it is very important to enhance the disinfectant. Otherwise, the diseases may be transmitted. ^[3] Poor monitoring and maintenance lead to bad water condition where bacteria can grow which may cause variety of respiratory, central nervous system, or dermal diseases or infections. ^[4] This contradicts the Indonesia's national education purpose that is to make the students healthy. ^[5] Swimming pool water monitoring in Indonesia is regulated by Regulation of The Minister Of Health Number 32 of 2017 about Standards of Quality Environmental Health and

Requirements of Water Health for Hygiene Sanitation Needs, Swimming Pool, Solus Per Aqua, and General Bath which is the updated regulation of Regulation of The Minister Of Health Number 416 of 1990 about Water Quality Requirements and Monitoring.

2 METHOD

The study mainly reviewed the relevant research journals. Those relevant researches were gathered to figure out the real condition of swimming pool water quality in regions in Indonesia. Several interviews with pool organizers also aided the analysis of the urge of swimming pool water monitoring. We also surveyed 128 public customers with the ages range between 0 (under 18)-54 years old.

3 Results

3.1 Journal Reviews

In 2016, a research was conducted in Semarang City with total population of 11 pools. The result showed

that 100% of the population was not qualified given the number of coliform bacteria where way too high (>240 per 100 ml max. and 7,5 per 100 ml min.), while the maximum tolerance by Indonesian Ministry of Health Regulation was 0. [8] In 2013, a research was conducted in two swimming pools in Sidarjo City. Both pools did not qualify the government regulation. Pool A did not qualify on the residual chlorine and smell, while pool B did not qualify on water clarity, pH level, coliform, and also residual chlor. This study also found that the majority of the visitors experienced eye and skin irritation. [9] In 2016, a research was conducted in two swimming pools in Yogyakarta. Like previous research above, both pools were also not qualified. The parameters that were not qualified are dissolved oxygen and chlorine level. [10] A research conducted in 2017 in Pasuruan Regency found that 100% of the population was not qualified. The parameters that did not correspond to the regulation were smell, clarity, residual chlorin, and the number of bacteria. [12]

3.2 Observational Interviews with Swimming Pool Organizers

On observations, we had interviews with five pool organizers. Two pools were regularly visited by Department of Health, yet the maintenance of all five swimming pools did not correspond with the regulation requirements. Two of the organizers did not even know that the regulation existed. Based on the interviews, we found that there were only two parameters that have been tested, those are pH level and chlorine level. Four pools had their water pH level tested and one pool did not. There was one pool which had pH level tested once a day, but the regulation requires minimum tests of three times a day. Two pools had their chlorine level tested and qualified. The remaining 14 parameters were unknown or were not tested yet.

3.3 Survey

On survey to the public customers, the questions were about: the purpose of visits, frequency of visits, swimming pool water quality insight, and preference of the standardized swimming pool water quality. The results were most of the customers visited swimming pools for recreational purpose (45,3%); visited the swimming pools several times a year (57%); did not know about the regulation of swimming pool water quality (86,7%); did not know the status of the quality of swimming pool water

they visited (88,3%); would choose the qualified swimming pool water (89%).

We found that there was no information from the government and from the pools' organizers themselves regarding the quality of swimming pool water.

3.4 Discussion

A poor monitoring on pool water can cause harm to the visitors. [1] For example, if the pH level is too low, it can cause damage occurring to the skin due to chemicals, especially by acids and alkalis (bases), including burns and damage that immediately arises. [11] Public consumers as well as PE teachers should pay more attention to this particular situation. Instead of getting healthier, it may cause harm to the students.

4 CONCLUSION

The condition of swimming pool water quality monitoring in Indonesia was far from appropriate. The government should never ignore the condition where swimming pool water was poorly monitored. As mentioned in the regulation, violators should be given sanctions, which are warnings, suspension, or revocation of permission. We suggest that there must be a real action such as certification for swimming pool organizers. The standardization of food to ensure the consumers and the students to be safe and healthy to have activities in the public swimming pools with an easy way to access the information is also very needed.

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