



The Influence of Extension of Community Knowledge in Making Slate Sand Filters in the Residents of Napabale II Housing, Poasia Sub-District, Poasia District, Kendari City South Sulawesi Province Indonesia

Rabbani^{a*}, Suhadi^b, La Dupai^c, Junaid^d, Asnia Zainuddin^e, Yasnani^f,
Nurmaladewi^g, Rahman^h

^a*Department Of Environmental Health, Faculty Of Public Health, Halu Oleo University, Kendari, Southeast Sulawesi, Indonesia*

^{b,h}*Department Of Health Policy Administration, Faculty Of Public Health, Halu Oleo University, Kendari, Southeast Sulawesi, Indonesia*

^c*Department Of Health Education and Behavioral Science, Faculty Of Public Health, Halu Oleo University, Kendari, Southeast Sulawesi, Indonesia*

^{d,e}*Department Of Nutrition, Faculty Of Public Health, Halu Oleo University, Kendari, Southeast Sulawesi, Indonesia*

^{f,g}*Department Of Environmental Health, Faculty Of Public Health, Halu Oleo University, Kendari, Southeast Sulawesi, Indonesia*

^a*Email: rabbanikarimuna@gmail.com* , ^b*Email: suhaditsel77@yahoo.com* , ^c*Email: ladupai1954@gmail.com* ,

^d*Email: junaid@yahoo.com* , ^e*Email: asniaz67@gmail.com* , ^f*Email: yasnani_rahabuddin@yahoo.com* ,

^g*Email: nurmaladewi9191@gmail.com* , ^h*Email: rahmankmpkugm@gmail.com*

Abstract

One of the problems that occur when using ground water as a household need is the high iron content in well water so that the water when used for consumption can damage the intestinal wall, irritation to the eyes and skin, causing black plaques on kitchen utensils. and causes yellow on the clothes.

* Corresponding author.

The purpose of this study was to look at the effect of counseling on community knowledge in making slow sand filters on Napabale II housing residents in Poasia sub-district, Poasia District, Kendari City. This type of research is qualitative research. Informants were 5 counselors. Data collection using in-depth interviews. The results showed that there was an effect of counseling on community knowledge in making slow sand filters. The impact of counseling for participants is an increase in community knowledge in making slow sand filters because with the counseling and guidance of making slow sand filters the community gets information and additional knowledge on how to clean water treatment methods of slow sand filters, knowing how to make slow sand filters, how to care, and know how to overcome the problem of slow sand filters, which in turn can benefit the community in water management. Conclusion; there is an influence of counseling on community knowledge in making slow sand filters. Suggestion; citizens should be able to use slow sand filtering as a way of treating water to overcome the high Fe content in well water by utilizing sand filter media that is easily available, choosing filter media at cheap and affordable prices.

Keywords: Society; Sand Filter; Extension; Clean water.

1. Introduction

At this time, a health problem that is often found in domestic environments is the high content of Fe in clean water that is used for consumption. The content of Fe can cause health problems, such as irritation to the skin, damage to the intestinal wall and irritation to the skin. Other disturbances arising from high Fe content can cause yellowish brown water, causing unpleasant odors, causing corrosiveness on the walls of the house, kitchen utensils and so forth. Allowable iron content of 0.3 mg / Lt. Water as one of the main sources of human life, aside from being used for drinking purposes, is also needed for cooking, washing and irrigation purposes in agriculture and plantations. At the household level, water sources can use well water for cooking, washing and eating and drinking purposes. Often ground water sources in dug wells experience turbidity, high hardness, odor, color and taste that can cause technical problems, physical problems and health problems. Water sources are one of the main components in a water supply system, because without water sources, a water supply system will not function [1]. Various types of water sources can be used as a source of clean water including sea water, rain water, surface water (rivers, swamps, lakes) and ground water, one of which is with dug wells [2]. Dug wells are the most common well construction and are widely used to extract groundwater for small communities and individual houses as drinking water 7-10 meters deep from the ground [3] Almost all activities carried out by humans need water, starting from the need for bathing water, drinking water needs, cooking, washing, worshipping and cleaning the dirt around the house [4]. Water is a simple compound that is important for the lives of humanity and other living things. This is supported by the fact that 70% of the earth's surface is covered with water and two-thirds of the human body consists of water [5] Iron is one of the elements which is the result of weathering of host rock which is commonly found in public waters, iron compounds in water are generally in the form of ferric salt or ferrous salt with a validity of 2 [5] Iron is one of the more important elements in surface water and ground water. Iron-containing waters are very undesirable for domestic use, because they can cause rust on clothing, porcelain, other tools and cause unpleasant taste in drinking water at concentrations above approximately 0.31 mg / l. Water chemistry of iron is redox, complex formation, metabolism by microorganisms, and water from iron between solid phase and phase containing iron carbonate, hydroxide and

sulfide [6] Government Regulation No. 82 of 2001 mentions water is all water that is above and below the surface of the land, except sea water and fossil water. The Government Regulation also explains that water is one of the natural resources which has a very important function for human life and life, as well as to advance public welfare, so that it is the basic capital and the main factor of development. Based on the definition and explanation of water it is known that water plays a very important role in the life of living things. In daily life, water is used, for example, for drinking, bathing, cooking, washing, cleaning the house, solvents drugs, and carriers of industrial waste materials [1] The knowledge possessed by respondents can be influenced by education, occupation and age. Education means guidance given by someone to others so that they can understand. The higher a person's education the easier it is for them to receive information and ultimately the more knowledge they have, Notoatmodjo, 2007 in [7] Water is a basic need for human life on this earth. In accordance with its use, water is used as drinking water, bathing, washing, transportation both in rivers and at sea. Water is also used to improve the quality of human life. Clean water supply in Indonesia especially for large scale is still centralized in urban areas, and is managed by the municipal Water Supply Company concerned. However, nationally the amount is still relatively small and can be said to be inadequate [8] In terms of water quality it can meet daily needs in accordance with human / community needs. For Indonesian people in urban areas the need for water is between 100-150 liters / person / day and the rural community according to WHO survey is 60 liters / person / day. To meet water needs, humans must always pay attention, maintain the quality and quantity of water, especially those closely related to health. Because of the possibility of water pollution that is very relative to a water cycle (hydrology) takes place even though the cycle takes place scientifically that regulates the occurrence of surface water and ground water [9] Water is a major problem, in the provision of clean water in cities and villages. Because of the increasing human needs various efforts were made to provide safe, safe water for health. The healthy water must meet four parameter criteria. First, physical problems include dissolved solids, turbidity, color, taste, odor, and temperature. The second is chemical parameters consisting of various ions, toxic compounds, dissolved oxygen content and chemical oxygen demand. The third is biological parameters including the type and content of microorganisms both animals and plants. The last parameter is radioactive including the content of radioactive materials [10] Deep and shallow groundwater contains high iron (Fe). The presence of iron or (Fe) levels can cause the color of the water to turn yellow-brown after some time of contact with air, can also cause unpleasant odors, yellow spots on clothing and can cause problems or health problems for people who consume them continuously [11] The results of the initial data collection and information on the investigation found that the community of Napabale II housing used clean water sources that came from public wells owned by the housing but the water source was not suitable for use due to turbidity, high hardness, odor, color and taste so that it could cause interference technical, physical and health problems The purpose of this study was to look at the effect of counseling on community knowledge in making slow sand filters on Napabale II housing residents in Poasia sub-district, Poasia District, Kendari City.

2. Materials and Methods

This type of research is qualitative research. Informants were 5 counselors who were residents of Napabale II housing complex. Data collection using indepth interviews. Data analysis by analyzing the problem is done descriptively, which emphasizes more on the analysis of the process of inferring the dynamics between observed phenomena, using logic and ways of thinking formal and argumentative [12].

3. Results

3.1 Community Knowledge

The results of in-depth interviews found that there is an effect of counseling on community knowledge in making slow sand filters, this can be seen from the explanation of the following informants;

... Before I did not know how to make a slow sand filter, with this counseling, I was able to find out that in making a slow sand filter it is very easy to make, this means there is a change in my knowledge after listening to counseling today (WDY) ...

... changes in knowledge before and after counseling, really helped me, this knowledge I can do myself when making sand filters. Earlier I did not know how to make a sand filter now that I understood it was easy because it was easy to do (JSN) ...

... If the influence is very big, sir. If compared to before or after counseling, I didn't know anything at first so I don't know, now he already knows how to make a sand filter, what method it is, for its size, that's the structure of the filter, the main thing is I understand this, it's easy (BYO) ...

3.2 Impact of Counseling on Community / Participant Knowledge

The results of in-depth interviews also found that counseling had an impact on the participants in the form of increasing community knowledge in making slow sand filters because with counseling and guidance for making slow sand filters, the community received information and additional knowledge on how to clean water treatment for slow sand filter methods, knowing how to make slow sand filter, how to care, and know how to overcome the problem of slow sand filter, which in turn can benefit the community in clean water management, this can be known from the explanations of the following informants;

... actually the impact of counseling for me, that my knowledge increased because the extension of the sand filter was slow so I got information and additional knowledge about how to treat clean water (BYO) ...

... What impact does it have ... that my knowledge has increased because I can find out the method of slow sand filter, know how to make slow sand filter, how to care, and know how to overcome the problem of slow sand filter (JSN)

... it can also have an impact, a lot of the impacts, especially my knowledge has increased because counseling and guidance of making a slow sand filter I get information and additional knowledge for example how to clean water treatment slow sand filter method, knowing how to make a sand filter, in the end can beneficial for the community (WDY) ...

4. Discussion

4.1 Community Knowledge

Knowledge is everything that someone already knows about something that is good knowledge obtained through formal or informal education. With the knowledge, someone will determine the action to do something or not do something. Knowledge will be a guide for someone in doing a job in daily activities including health activities. In general the source of knowledge is obtained through formal education such as education held in elementary school, junior high, high school and college. Informal education is obtained through training, counseling, outreach, tutoring, seminars, symposiums, print media information, electronic media, reading books, reading newspapers, religious lectures, scientific meetings and so forth. Health education is a form of informal education provided to the public in the hope that the community can obtain health knowledge, so that they can carry out their own health efforts well at the household level. Health education is carried out to increase public knowledge, increase insight into thinking, increase the independence of healthy living, and disseminate health information in the community. Guidance on making slow sand filters is aimed at community members in order to see whether there is an influence of counseling on community knowledge in making slow sand filters. From the results of the study it was found that there is an influence of counseling on community knowledge in making slow sand filters. This shows that counseling as one of the best methods that can be chosen in determining the health intervention program, especially with regard to improving health sanitation through a clean water management program, a slow sand filter system, so that problems in the availability of water not meeting health requirements can be overcome by the sand filter method. This is in line with counseling [13] states that health education about HIV / AIDS affects the level of student knowledge. Health education about HIV / AIDS can increase adolescent knowledge about HIV / AIDS. The results of the study [14] state that there is an influence of counseling on the level of knowledge of women of childbearing age about contraception. Research [15] shows that there is an effect of counseling and training through Leaflet media on the knowledge of PHBS cadres. Research [16] states that counseling is considered effective in increasing adolescent knowledge related to reproductive health. Research [17] states that there is an effect of health education on adolescent knowledge about HIV / AIDS. Research [18] The results showed that there was an effect of counseling on the level of knowledge and attitudes of nursing mothers in exclusive breastfeeding. Research [19] shows that health education can improve people's knowledge and attitudes towards mental patients. Research [20] there is an influence of health education before and after the level of knowledge about HIV / AIDS with a p value = 0,000 (a <0.05. Research [21] states that there is an influence of counseling on the level of student knowledge about dental health and the mouth which is significantly affected by radiation.

4.2 Impact of Counseling on Community / Participant Knowledge

Based on the above interview it can be concluded that counseling given to participants can affect the knowledge of participants and have an impact on increasing community knowledge because with the extension and guidance of making a slow sand filter, the public gets information and additional knowledge about how to clean water treatment the slow sand filter method, know how to make a slow sand filter, how to care, and know how to overcome the problem of a slow sand filter, which in turn can benefit the community in the management of

clean water. Health education is carried out so that the community will gain additional knowledge about something. The more health counseling is done, the more knowledge will be obtained by the community. Thus the importance of health education is given to the community to help the community in solving health problems they face. Health education is the most important part that needs to be continued, especially related health agencies. Providing counseling as one of the best methods that can be done to disseminate education and health information to the public. With this counseling, the community will have additional knowledge about health. Most people do not have health knowledge so their behavior in the use and management of the environment as a living resource is still lacking. Limitations of this study are some of the respondents and informants have a limited time to provide detailed information at the time of the interview.

5. Conclusions and Recommendation

Conclusion; there is an influence of counseling on community knowledge in making slow sand filters. Suggestion; community members should be able to use slow sand filtering as a way of treating water to overcome the high Fe content in well water by utilizing sand filter media that is easily available, choosing filter media at cheap and affordable price.

5.1 Conflict of Interest

Author declare no conflict interest.

References

- [1]. Sutrisno, T. *Teknologi Penyediaan Air Bersih*. Jakarta: PT Rineka Cipta, 2004.
- [2]. Kasjono, Khayan Asmadi. *Teknologi Pengolahan Air Bersih*. Yogyakarta: Gosyen Publishing, 2011.
- [3]. Gabriel, J F. *Fisika Lingkungan*. Penerbit Hipokrates: Jakarta, 2001.
- [4]. Budiman, and Candra. *Pengantar Kesehatan Lingkungan*. Jakarta: Penerbit Buku Kedokteran EGC, 2006.
- [5]. Kasjono, Subaris Heru, and Asmadi Khayan. *Teknologi Pengolahan Air Minum*. Yogyakarta: Gosyen Publishing, 2011.
- [6]. Achmad, R. *Kimia Lingkungan*. Jakarta: ANDI Yogyakarta, 2004.
- [7]. Hapsari, Dhani. "Kajian Kualitas Air Sumur Gali dan Perilaku Masyarakat di Sekitar Pabrik Semen Kelurahan Karangtalun Kecamatan Cilacap Utara Kabupaten Cilacap." *Jurnal Sains dan Teknologi Lingkungan*, 2012: Hal 1-7.
- [8]. Faried, Makmur. *Perbandingan Efektifitas Arang Sekam Padi Dan Zeolit Dalam Menurunkan Kadar Besi (Fe) Pada Sumur Gali (Eksperimen)*. Program Diploma III Jurusan Kesehatan Lingkungan Politeknik Kesehatan Makassar. Makassar: (KTI tidak diterbitkan)., 2007.
- [9]. Makmur. *Efektifitas metode Cascade Dan Filtrasi Sederhana dalam Menurunkan Kadar Besi (Fe) Dan Mangan (Mn) Pada Air Sumur Gali*. Program Diploma III Jurusan Kesehatan Lingkungan Politeknik Kesehatan makassar. Makassar: (KTI tidak diterbitkan)., 2013.
- [10]. Yuman. *Jurnal Lingkungan Hidup*. 2002. <http://www.yonowordpress.com> (accessed

November Kamis, 2019).

- [11]. Nur, Risal. Pemanfaatan Tanaman Enceng Gondok Dalam Menurunkan Kadar Besi (Fe) Pada Air Sumur Gali/Bor (Eksperimen). Program Diploma III Jurusan Kesehatan Lingkungan Politeknik Kesehatan Makassar. Makassar: (KTI tidak diterbitkan), 2011.
- [12]. Consuelo S.G. Pengantar Metodologi Penelitian. Jakarta: Penerbit Universitas Indonesia; 1997
- [13]. Bakara, Marsinova Derison . "Pengaruh Penyuluhan Kesehatan Tentang HIV/AIDS Terhadap Tingkat Pengetahuan Siswa SMA." *Jurnal Kesehatan* Vol 2 No 1, 2014: 67-70.
- [14]. Hardiningsih, dkk. "Pengaruh penyuluhan terhadap tingkat pengetahuan wanita usia subur tentang alat kontrasepsi di wilayah kerja Puskesmas Sangkrah Kota Surakarta ." *Jurnal Kesehatan Husada*, 2017: 11-17.
- [15]. Saleh, dkk Azizah. "Pengaruh Penyuluhan Dan Pelatihan Melalui Media Leaflet Terhadap Pengetahuan Kader PHBS Di Kecamatan Ratolindo Kabupaten Tojo Una-Una." *Jurnal Kesehatan MAsyarakat* Vol 8 No 2, 2018: Hal 159-164.
- [16]. Asiah, Nur. "Pengaruh Penyuluhan Dalam Peningkatan Pengetahuan Kesehatan Reproduksi Remaja Pada Pengurus Pusat Informasi dan Konseling Mahasiswa UHAMKA." *Jurnal Arkesmas* Vol 1 No 2, 2016: Hal 97-101.
- [17]. Widarma, Hendra Gde. "Pengaruh Penyuluhan Kesehatan Terhadap Pengetahuan Remaja Tentang HIV/AIDS Di Kabupaten Bandung ." *Jurnal Keperawatan*, 2017: Hal 29-37.
- [18]. Merdhika, Ayu Rima. "Pengaruh Penyuluhan Asi Eksklusif Terhadap Pengetahuan Ibu Tentang Asi Eksklusif Dan Sikap Ibu Menyusui Di Kecamatan Kanigoro Kabupaten Blitar ." *Jurnal Teknologi dan Kejuruan* Vol 37 no 1, 2014: Hal 65-71.
- [19]. Hasanah, Uswatun. "Pengaruh Penyuluhan Kesehatan Terhadap Perubahan Pengetahuan Dan Sikap Masyarakat Pada Penderita Gangguan Jiwa." *Jurnal Keperawatan Jia* Vol 7 No 1, 2019: Hal 87-94.
- [20]. Asfar, Akbar. "Pengaruh Penyuluhan Kesehatan Terhadap Tingkat Pengetahuan Dan Sikap Tentang Penyakit Hiv/Aids Di SMP BAZNAS Provinsi Sulawesi Selatan ." *Jurnal Of Islamic nursing* Vol 3 No 1, 2018: Hal 26-31.
- [21]. Azhari. "Pengaruh Penyuluhan Terhadap Tingkat Pengetahuan Siswa Tentang Kesehatan Gigi Dan Mulut Yang Dipengaruhi Radiasi." *Jurnal Pengabdian Kepada Masyarakat* Vol 1 No 6, 2017: Hal 398-401.