

AWARENESS OF THE IMPACT OF ENVIRONMENTAL POLLUTION ON HUMAN HEALTH AND HEALTH ISSUES OF PEOPLE IN VINH TAN AND PHUOC THE COMMUNES, TUY PHONG DISTRICT, BINH THUAN IN 2021

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ABSTRACT

The study was conducted to: (1) Describe the understanding of the impacts of environmental pollution on the health of people in Vinh Tan and Phuoc The communes, Tuy Phong district, Binh Dinh province; (2) Describe the health issues in Vinh Tan and Phuoc The communes. The topic is a cross-sectional descriptive study using quantitative research methods. The results of the study showed that only 51% of respondents recognized that using polluted water sources could cause diarrhea; other diseases such as dysentery, cholera and trachoma were identified by a much lesser extent. With regards to the understanding of diseases caused by fecal pollution, only 19,6%, 62,7% and 17,6% respondents identified diarrhea, cholera and dysentery, respectively. Over 80% of respondents answered that air pollution can cause cerebrovascular accidents, lung cancer and respiratory infections. The rate of deaths by non-communicable diseases accounted for a high proportion, especially strokes and cancer.

Keywords: *Health impacts, environmental pollution, health issues.*

I. INTRODUCTION

Environmental pollution is a concern all over

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the world. Urbanization and industrialization along with economic development have increased energy consumption and emissions. Global environmental pollution, including greenhouse gas emissions, industrial emissions, acid deposition, water pollution as well as waste management are considered global public health issues, which should be investigated from a variety of perspectives including society, economic, legal and environmental engineering systems, as well as lifestyle habits to help promote health and strengthen environmental systems to combat pollution [4].

Air pollutants cause many adverse effects on human health such as metabolic disorders, infant deaths, respiratory disorders, allergies, melanoma, cardiovascular disorders, increased oxidation due to stress, endothelial dysfunction, psychosis and many other consequences [6]. Especially, some group of people such as the elderly and children are vulnerable to air pollution. WHO and IHME estimated 7 million and 6.7 million deaths per year, respectively. These deaths are attributed to both indoor and outdoor pollution as well as stem from man-made and natural sources of air pollution [5], [8]. Therefore, it is time to take action and control pollution for a sustainable future.

Vinh Tan and Phuoc The communes are areas with many industrial factories and power plants, the quality of the environment has many negative changes in recent years. This study was conducted to assess people's perceptions of

environmental pollution and the impacts on human health; support the development of health education communication programs for the people.

II. OBJECTS AND RESEARCH METHODS

1. Study subjects: People and Medical records data in Vinh Tan and Phuoc The communes.

2. Research method: Cross-sectional descriptive research design:

- **Quantitative research:** interviewing people in Vinh Tan and Phuoc The communes:

- Sample size: 51 people in Vinh Tan and Phuoc The communes

- Sampling: convenient sampling, interview all the people who agree to participate in the study.

- **Desk study:** Study medical records including health records (A1 notebook) and fatality cause records (A6 notebook)

3. Data processing:

- Quantitative interviewing data: analyzed by SPSS software.

- Medical records: processed by Excel software.

III. RESULT

1. Demographics characteristics

Table 1. Demographics characteristics of interviewee

Characteristic		Frequency (n)	Percentage (%)
Commune	Vinh Tan	25	49%
	Phuoc The	26	51%
Gender	Male	27	52,9%
	Female	24	47,1%
Duration of residence in research areas	<6 months	0	0
	> 6 months	51	100,0%
Career	Agriculture/Forestry	1	2,0%
	Craftsman	1	2,0%
	Official servant	8	15,7%
	Trader	4	7,8%
	Homemaker	19	37,3%
	Retired	1	2,0%
	Fisherman	17	33,3%

Comment: The proportion of people in the two communes participating in the study was equal. The proportion of men and women participating in the study were 52,9% and 47,1%, respectively. 100% of the study participants lived locally for more than 6 months. The occupations of the study

subjects were quite diverse, of which the highest rate is homemaker (37,3%), followed by fisher (33,3%), official servant (15,7%).

2. Knowledge about environmental pollution impacts on health

2.1. Knowledge of diseases caused by water pollution

Table 2. Knowledge about diseases caused by water pollution

Diseases	Frequency (n)	Percentage (%)
Diarrhea	26	51,0
Cholera	20	39,2
Dysentery	6	11,8
Typhoid	0	0
Helminthes	0	0
Hepatitis A	0	0
Trachoma	9	17,6

Comment: Diarrhea was the most well-known water pollution disease with 51% respondents identifying, followed by cholera (39,2%) and trachoma (17,6%) and dysentery (11,8%). Typhoid, Helminthes, Hepatitis A, were not identified by any respondents.

2.2. Knowledge of diseases caused by fecal pollution

Table 3. Knowledge of diseases caused by fecal pollution

Diseases	Frequency (n)	Percentage (%)
Diarrhea	10	19,6
Cholera	32	62,7
Dysentery	9	17,6

Comment: 62,7% of people were aware that exposure to feces can cause cholera. 19,6% of people knew that they can get diarrhea, 17,6% of people claimed ability to have dysentery when exposing to feces.

2.3. Knowledge of diseases caused by air pollution

Table 4. Understanding of diseases caused by air pollution

Diseases	Frequency (n)	Percentage (%)
Cerebrovascular accidents	43	84,3
Lung cancer	49	96,1
COPD	3	5,9
Respiratory infections	43	84,3

Comment: Table 4 results shows that most people knew that lung cancer was a disease that could be caused by air pollution (96,1%), followed by cerebrovascular disease, (84,3%) respiratory infections (84,3%) and COPD (5,9%).

3. Health issues of local people

3.1. Health status of resident in Vinh Tan and Phuoc The commune

Table 5. Health status of resident in Vinh Tan and Phuoc The commune (n=51)

Content	Frequency (n)	Percentage (%)
Current condition of illness		
Have	34	66,7
Not	17	33,3
Acquired diseases (n=34)		
Lung disease	29	85,3
Diabetes	3	8,8
High blood pressure	2	6,0
Cardiovascular disease	1	2,9

Comment: Table 5 shows that 66,7% of people were suffering diseases, of which 85,3% had lung diseases, 8,8% with diabetes, 6,0% caught high blood pressure.

3.2. The situation of disease in Vinh Tan and Phuoc The communes

3.2.1. The situation of disease in Vinh Tan commune

Table 6. Mortality rate in Vinh Tan commune from 2018-2020
(statistics according to book A6)

Cause	2018		2019		2020	
	n	%	n	%	n	%
Pneumonia					1	5,9
Cerebrovascular accidents	10	52,2	3	30,0	12	70,6
Cancer	3	13,0	7	70,0	3	17,6
Unknown cause.					1	5,9
Congenital heart	2	8,7				
Traffic/work/electric accident	4	17,4				
Diver's syndrome/drowning	2	8,7				
Suicide	2	8,7				

Comment: The results of Table 12 shows that in the period of 2018 - 2020, the mortality rate of non-communicable diseases in Vinh Tan commune accounted for the highest. In detail, in 2018: Cerebrovascular accidents was the highest cause of death (52,2%); 2019: Cerebrovascular accidents and cancer were the two main causes with 30% and 70%, respectively; 2020: the death by cerebrovascular accidents accounted for 70,6%.

3.2.2. The situation of disease in Phuoc The commune

Cause of death	2012		2013		2014		2015		2016		2017		2018		2019		2020	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Myocardial infarction	5	9,8	7	12,5	1	2,4					1	2	3	9,7	1	1,9	3	3,7
Cerebrovascular accidents	24	47,1	18	32,2	17	31,5	23	42,7	24	46,8	21	42	13	43	32	59,3	32	39,1
Cancer	7	13,7	18	32,1	14	34,1	15	27,9	16	31,7	10	18	9	29	10	18,5	26	31,7
Accident	1	2	5	9	5	12,2	4	7,4	4	7,4	7	14	2	6,5	4	7,5	5	6,1
Diabetes	2	3,9	3	5,4	2	4,9	2	3,7	3	5,6	4	8	2	6,5	6	11,1	4	4,9
Kidney failure	5	9,8	1	1,8	1	2,4	2	3,7	3	5,6			1	3,2			4	4,9
Other causes	7	13,9	4	7,2	1	2,4	8	15,1	4	7,6	7	14	1	3,2	1	1,9	8	9,6

Comment: In Phuoc The commune in 8 years (from 2012 - to 2020), the death rate by cancer and cerebrovascular accidents accounted for a very high rate and gradually increased over time.

IV. DISCUSSION

1. Knowledge about environmental pollution impacts on health

People's understanding of diseases caused by water pollution was quite low, specifically only 51% said that using polluted water sources could cause diarrhea, this result was

significantly lower than the study conducted by Abera and colleagues in 2018 with 96.9% answering that polluted water sources can cause diarrhea [1]. Other diseases such as dysentery, cholera and trachoma had a lower rate of respondents' identification. In addition, some other dangerous diseases such

as Hepatitis A, Typhoid and Helminths were hardly recognized by the survey respondents, despite being common and dangerous. For the understanding of fecal pollution, the knowledge of the people was not adequate, the rate of respondents recognizing diarrhea, cholera and dysentery were 19,6%; 62,7% and 17,6%, respectively.

84.3%, 96.1% and 83.3% of the respondents answered that air pollution can cause strokes, lung cancer and respiratory infections, respectively. However, chronic obstructive pulmonary disease (COPD) was determined as consequence of air pollution only by 5.9% respondents.

2. The situation of disease in Vinh Tan and Phuoc The communes

The results of the study showed that the situation of illness of the people of Vinh Tan and Phuoc The communes has changed remarkably. The rate of deaths by non-communicable diseases accounted for a high rate and were increasing significantly.

In particular, cancer and stroke were two major causes of death accounting for high rates in Vinh Tan commune in 3 years (2018-2020). In 2018, 2019, and 2020, fatality by cerebrovascular accidents accounted for 52,2%; 30% and 70,6%, respectively. These results were higher than 1,4-3 times the mortality rate by circulatory system disease according to the annual health statistics recorded nationwide; and 1,2 to 2,5 times in comparison with that index of the south central coast region. Deaths by cancer in 2018, 2019 and 2020 accounted for 13%; 70% and 17,6%, respectively. These results were 4-20 times higher than the national cancer mortality rate and 6-35 times higher than that one in the South Central Coast region [2], [3].

In Phuoc The commune, annual death rate by cerebrovascular accidents from 2012 to 2020 accounted for more than 30% of the deaths of the whole commune; deaths by cancer during this period fluctuated between 18 and 35%. These results were significantly higher than the mortality rate recorded by the Health Statistics Yearbook across the country and the South Central Coast region [2], [3]. It should also be noticed that the subtypes of causes of death by circulatory system disease and tumors vary remarkably.

In conclusion, the burden of diseases of non-communicable diseases in 2 communes conducted research were severe, and stroke and cancer were two typical popular diseases.

V. CONCLUSION

The understanding of people in Vinh Tan and Phuoc The communes about the health impact of environmental pollution was low. Specifically, only 51% responded that water pollution could cause diarrhea, even fewer could identify other diseases with same cause such as dysentery, cholera and trachoma. With regards to the understanding of diseases caused by fecal pollution, only 19,6%, 62,7% and 17,6% of the population could identify diarrhea, cholera and dysentery, respectively.

People's understanding of pollution was not quite good, prevalence of respondents answering that air pollution can cause strokes, lung cancer and respiratory infections 84,3%, 96,1% and 83,3%, respectively. 5,9% respondents determined chronic obstructive pulmonary disease (COPD) as a consequence of air pollution.

The results of the study showed that the disease situation of the people of Vinh Tan and Phuoc The communes has changed

markedly. The rate of deaths from non-communicable diseases accounts for a high proportion and are getting higher and higher, especially strokes and cancer.

VI. RECOMMENDATIONS

- Develop communication programs, raise people's awareness about environmental hygiene issues, especially the impacts on human health.

- Carry out environmental monitoring in Vinh Tan and Phuoc The communes, carry out studies to find out the causes of the increasing burden of non-communicable diseases in Vinh Tan and Phuoc The communes.

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