

FOAP Concept of Vicious Circle of Ill-Health: A basis for Resolving Unhealthy Environmental Practices in Liberian Communities

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Abstract: *The FOAP Concept of Vicious Circle of Ill-health is an opinion or informative concept that is intended to change the perspective of community dwellers in Liberia on health and prepare them to embrace the new ideas of adapting healthy environmental practices to prevent and/or control the vicious circle of ill-health among them. Most Liberians have suffered untimely death from preventable diseases acquired from the environment. The need to identify solutions to such undesirable events cannot be overemphasized. Liberians, on many occasions, interact with the environment in an unhealthy manner. An observation has been done over the years relative to understanding the behaviours of community dwellers in Liberia towards situations in the environment. The mathematical method that was used to calculate the prevalence of vicious circle of ill-health was thoroughly brainstormed to fit the existing health indicators used in the concept relative to the established formula for calculating prevalence rate. The concept serves as a basis for further research initiatives to test the applicability of the concept in Liberian communities. A survey tool was developed to collect data on vicious circle of ill-health. Constructs from Socio Ecological Model (SEM) and Health Belief Model (HBM) were highlighted to provide solutions to vicious circle of ill-health by effectively utilizing their applications and concepts. FOAP Concept of Vicious Circle of Ill-health has been developed to help citizens of Liberia improve their overall health and well-being by adapting its ideas, concepts and practices. It is meant to assist them avoid unhealthy environmental practices –both abstract and visible - for the prevention and/or control of vicious circle of ill-health or preventable diseases.*

Keywords: Vicious Circle of Ill-health, Unhealthy Environment, Prevalence of Vicious Circle of Ill-health, Health Indicator, and Ill-health

1. Definitions of Key Terms

From the Merriam-Webster Dictionary, ‘**Vicious Circle**’ is a chain of events in which the response of one difficulty creates a new problem that aggravates the original difficulty.

Ill-health is a condition that characterizes poor health.

With such existing knowledge on vicious circle, ‘**Vicious Circle of Ill-health**’ could be defined as an undesirable chain of events that successfully build on and reinforce one another in an unhealthy environment to cause preventable health issues/diseases.

An ‘**Unhealthy environment**’ is an environment that threatens the health and safety of inhabitants, that undermines social gatherings, and that is abusive, violent and full of conflict.^[6]

Preventable health issues/diseases are health problems that can be prevented by optimizing the use of protective factors of health indicators.

Health indicators are direct measurable variables that reflect the health status of a population.^[5]

Protective factors are factors that reduce the likelihood of the occurrence of a disease or adverse health problem.^[8]

2. Introduction

This opinion or informative paper focuses on detailing factors responsible for the existence of vicious circle of ill-

health in Liberia while providing public health and mathematical models that can be effectively utilized in resolving the problem of vicious circle of ill-health. There are many components –both abstract and visible aspects – of the environment that are manipulated by human behaviors to cause vicious circle of ill-health. This paper is providing a basis for further extensive researches that would unearth how each of those environmental components leads to vicious circle of ill-health.

The environment humans live in nowadays is so complex in form that the needs of one person or family cannot be prioritized over the felt needs of another person or their neighbor.^[6] This might lead to disparity issues which could nurture future unresolved hard feelings or conflicts that could trigger the development of unintended health complications. With that in mind, it remains the ultimate duty and responsibility of public health professionals to find possible solutions that would bridge such gaps for everyone, regardless of color, political, economic, religious or cultural backgrounds, to live healthy and well. It does not make sense to me for people to get quality treatment for preventable diseases and yet return to the same unhealthy practices that gave them such diseases. It is an unacceptable and reversible practice.

In reality, those who live in unhealthy environment in Liberian communities are the greatest threats to individuals living in healthy environment. Just as criminals are the greatest threats to peaceful residents of a community, that is the same way people experiencing vicious circle of ill-health are major problems for people living in healthy environment. It is not their wish to live in unhealthy

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environment, anyways. Their current state of living might be due to the lack of human capital to address their pressing needs. However, taking good care of one’s environment does not require having millions of dollars; it is just a matter of developing that cleanliness mindset to always do the honorable thing of making your environment to look decent.

If everyone practiced to take good care of their environment from intrapersonal to community level, it will be an advantage for all community dwellers. Living in a clean and protective environment is a matter of choice. But that choice can become a matter of must when your uncleanness becomes a threat to your neighbors. The environment is a natural protector for humans to take good care of. Why do humans take good care of dogs? That is because they value the protective services the dogs provide each day. That is how humans must, at all times, value the protective atmosphere the environment provides for us.

The unhealthy environment responds to humans by releasing disease-causing microorganisms or substances that get them sick. When they get sick from a disease the environment feeds them with, they rush to clinics or hospitals for treatment of a preventable disease. When they get quality treatment from the clinics or hospital, they return to the same unhealthy environment that got them sick from the onset. This is a very bad practice by most communities in Liberia, which has to be curtailed if the desire to improve the health status of all citizens remains a priority.

3. Illustration of the Vicious Circle of Ill-Health

I describe the patterns of health and disease in Liberia as “Vicious Circle of Ill-Health” as illustrated below:



Figure 1: Illustration of FOAP Concept of Vicious Circle of Ill-health

The illustration of ‘FOAP Concept of Vicious Cycle of Ill-Health’ indicates that majority of the population in Liberia believes that they are healthy, even with the presence of

their homes in filthy and unhealthy environment. How pathetic that is. The concept illustrates that ill-health comes about as a result of those four environmental related components which engulf it. This concept further indicates that most Liberians live in filthy environments with high level of unhygienic, unhealthy, and improper sanitation practices. They believe it is a normal thing since it has been like that for years. They feel healthy in an unhealthy environment. When they get a disease that makes them sick from the unhealthy environment, they go to hospital/clinic/community drug store to get treatment for a preventable disease. After they receive the treatment, they return home to the same conditions in the unhealthy environment that made them ill in the first place. And no one finds that disturbing?



Image 1: Dumpsite in Paynesville City Courtesy of Intellectual Class of Paynesville



Image 2: Dumpsite in Paynesville City PC: Intellectual Class of Paynesville



Image 3: Dumpsite in Paynesville City PC: Intellectual Class of Paynesville



Image 4: Dumpsite in Paynesville City PC: Intellectual Class of Paynesville



Image 5: Dumpsite in Paynesville City PC: Intellectual Class of Paynesville

- 9) Neighborhood occupied with violent, abusive and conflict-like neighbors,
- 10) Unhealthy eating patterns
- 11) Physical inactivity, and
- 12) Lack of social gatherings/Events

Causal Theory Illustration of Vicious Circle of Ill-Health

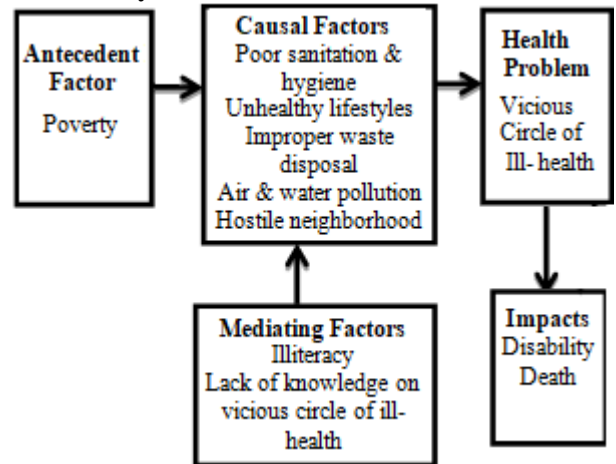


Figure 2: Causal Theory Illustration of Vicious Circle of Ill-health

Prevalence of Vicious Circle of Ill-Health

The Prevalence of Vicious Circle of Ill-health can be calculated using the mathematical method below:

$$P_{vci} = \frac{U_e}{T_p} \times 100\%$$

Where,
 P_{vci} = Prevalence of vicious circle of Ill-health
 U_e = Number of persons in unhealthy environment
 T_p = Total population at risk

The environment we live in plays an important role in maintaining the health status of its inhabitants. It contributes up to 20% towards our health status. On many occasions, people tend to ignore environmental or lifestyle issues that heavily contribute to the development of disease or frequency of death.^[1] They focus on quality hospital care when the fundamental problem is not entirely the best clinical care. It is outside the hospital and within the minds of humans. That is one reason why it is a very good practice to take good care of your environment. This gap can only be bridged by the implementation of effective and efficient health education/promotion programs or health fairs that are geared towards enabling community dwellers to practice high level personal/community hygiene and proper sanitation.

We could further measure the vicious circle of ill-health by considering the **Prevalence of Vicious Circle of Ill-health (PCVI)**. There are indicators of unhealthy environment that can be used during health survey when studying health status of a population.^[7]

Health Indicators of Vicious Circle of Ill-health in an unhealthy environment include but not limited to:

- 1) Unsafe drinking water (water pollution)
- 2) Polluted air (air pollution)
- 3) Poor personal hygiene
- 4) Poor community hygiene
- 5) Uncontrollable smoking areas (secondhand smoking)
- 6) Improper waste disposal (lack of separate trash cans)
- 7) Open defecation
- 8) Lack of sanitary toilet/latrines and bathroom

This mathematical method for the calculation of the Prevalence of Vicious Circle of Ill-health was brainstormed, adopted and modified from the existing formula for calculating prevalence rate. The Prevalence of Vicious Circle of Ill-health is a determiner of the percentage of individuals living in an unhealthy environment in a community or region over a particular period of time.

Prevalence of Vicious Circle of Ill-health could therefore be defined as the measure of the number of individuals living in unhealthy environment divided by the total number of population at risk times 100 percent.

The **population at risk** is the number of individuals who are susceptible to (in proximity to) those who are living in unhealthy environment or experiencing vicious circle of ill-

health. In this instance, at risk population for vicious circle of ill-health includes both individuals in unhealthy environment and their closest neighbors (totaling both to be total population at risk).

It looks at the ratio of individuals living in unhealthy environment to the total number of individuals susceptible to those living in unhealthy environment ($U_e : T_p$) or (U_e / T_p). As such, it mainly takes into account larger communities in both rural and urban settings. In furtherance, it also focuses mainly on two groups of individuals in the environment: **(i) individuals living in an unhealthy environment (ii) individuals susceptible to (in proximity to) those living in unhealthy environment.**

Work Example 1:

Public health students at University of Liberia conducted a health survey among residents of Red Light Community and found that 23,000 persons live in unhealthy environment. The total number of persons living in Red Light is 46,000. Calculate the prevalence of vicious circle of ill-health.

Answer:

Data: $U_e = 23,000$; $T_p = 46,000$; $P_{vci} = ?$

$$P_{vci} = U_e / T_p \times 100\%$$

$$= 23,000 / 46,000 \times 100\%$$

$$= 0.5 \times 100\%$$

$P_{vci} = 50\%$

Therefore, the prevalence of vicious circle of ill-health in Red Light Community is 50%, which means approximately 50% or one-half of the population experiences vicious circle of ill-health.

Work Example 2:

From a recent survey conducted on Whien Town Municipal Landfill Site, it was observed that 10, 000 residents were directly affected by polluted air due to their proximity to the dumpsite, 8,000 residents drank unsafe drinking water, 15,000 residents practiced poor personal hygiene, and 4,000 residents practiced open defecation. With the total at risk population of 100,000, calculate the prevalence of vicious circle of ill-health.

Answer:

Data: $U_{e1} = 10,000$; $U_{e2} = 8,000$; $U_{e3} = 15,000$; $U_{e4} = 4,000$
 $T_p = 100,000$; $P_{vci} = ?$

$$P_{vci} = \frac{U_{e1} + U_{e2} + U_{e3} + U_{e4}}{T_p} \times 100\%$$

$$= 10,000 + 8,000 + 15,000 + 4,000 / 100,000 \times 100\%$$

$$= 37,000 / 100,000 \times 100\%$$

$$= 0.37 \times 100\%$$

$P_{vci} = 37\%$

Therefore, the prevalence of vicious circle of ill-health in Whein Town is 37%, which means approximately 37% of the population experiences vicious circle of ill-health.

Practice Works

1) You were assigned in Ganta City as a Research Uptake Coordinator. You and a team of researchers at Ganta United Methodist Hospital conducted a health survey to

understand the number of persons experiencing vicious circle of ill-health. Your team found out that 50, 000 residents practiced poor community hygiene, 10,000 residents do business in tobacco smoking areas, 30,000 residents lack sanitary bathroom/toilet, and 4,000 residents have violent and abusive neighbors. What is the prevalence of the vicious circle of ill-health when the total at risk population is 150,000?

2) You were hired by Eat Wise Network as Healthy Lifestyle Consultant. Your duty on the first day of work was to conduct a health survey on residents of Harbel, Firestone. You carried out a survey and realized that 5,000 residents practiced unhealthy eating patterns and 6,000 residents do not exercise. Calculate the prevalence of vicious circle of ill-health when the total population at risk of vicious circle of ill-health is 20,000.

3) Liberia has fifteen political subdivisions or counties. Each county has specified number of districts. You are the Principal Investigator on the research team of a health NGO situated in Monrovia that conducts intervention programs on maintaining healthy environment. The entity decided to expand its operations to the remaining fourteen counties. You and your team of researchers conducted a nationwide survey. The essence of the survey was to be able to have priority counties to begin the entity’s sustainable intervention programs. As a Principal Investigator, calculate the prevalence of vicious circle of ill-health in each county with understanding of the 2008 population census considering the data in the table below and select the priority counties to begin with orderly:

County	Number of persons living in unhealthy environment
Margibi	140,000
Montserrado	800,000
Sinoe	70,000
Lofa	180,000
Grand Bassa	210,000
Rivercess	60,000
Rivergee	58,000
Grand Gedeh	110,000
Bong	290,000
Nimba	300,000
Grand Cape Mount	100,000
Bomi	60,000
Gbarpolu	69,000
Maryland	125,000
Grand Kru	50,000

Remedy to Vicious Circle of Ill-Health

I am integrating key constructs from the Socio Ecological Model (SEM) to be able to adequately resolve the issue of ill-health in our communities. Resolving such requires utilization of multi-sectorial and multi-level approaches and maximizing health resources to achieve set goal and objectives. This will further involve an annual conduct of health fairs as a medium of health communication for change of behavior using mass reach, limited reach and folks media. Such will help in reducing the health disparities for better health outcomes in diverse populations. The five key pillars in SEM are being considered here.^[3] That ranges from tackling unhealthy health-seeking behaviors from the

intrapersonal level to the policy formulation and implementation level.

Unhealthy environmental practices that lead to ill-health must first be dealt with from the intrapersonal level. This intrapersonal level incorporates constructs from the Health Belief Model (HBM) [2] where there is increase in knowledge on unhealthy environmental practices leading to ill-health; acceptance of one's perceived susceptibility to vicious circle of ill-health for doing unhealthy environmental practices; understanding of the perceived severity of contracting preventable diseases from practices that lead to ill-health; one's perceived benefits of healthy environmental practices; and increase in self-efficacy level to begin practicing healthy environmental behaviors.

At the interpersonal level, we look at unhealthy environmental practices at households among families, friends and social networks and how they can be sufficiently handled.

At the organizational/institutional level, we look at the level of involvement of community-based organizations, schools, churches, marketers, etc. in conducting health promotion programs and awareness that would help to resolve the issues of unhealthy environmental practices that lead to ill-health.

At the community level, we look at the various existing community norms concerning the unhealthy practices in the environment that cause ill-health.

At the public policy level, we look into central and local government regulations on unhealthy environmental practices. We also look at how those existing regulations have been enforced in dealing with unhealthy environmental practices across various spectra of Liberian communities.

Vicious Circle of Ill-Health Survey Tool

PART I: Demography Profile

- 1) Age: _____
- 2) Gender: () MALE () FEMALE (Tick one)
- 3) Marital status: () Married () Single () Divorced () On separation (Tick one)
- 4) Educational level: () Dropped out of school () High school diploma () Vocational/Technical diploma/certificate () Associate degree () Bachelor degree () Master degree () Doctoral degree (Tick one)
- 5) Monthly family income (LD): () Below 10,000 () 10,005 – 30,000 () 30,005 – 50,000 () 50,005 – 70,000 () 70,005 – 90,000 () Above 90,000 (Tick one)
- 6) Occupation: () Student () Teacher () Politician () Tailor () Clinician () Business person () Driver/Mechanic () Caretaker () Farmer () Carpenter/builder/plumber () Fisherman () Electrician () Public health professional () Accountant/Banker () Police/Soldier/Immigration officer () Other (Specify): _____
- 7) a) Do you know what vicious circle of ill-health means? YES/NO

b) If you underlined YES, state the meaning of it:

PART II: Health Indicators (Please put (X) to your best answer (be honest).

No	Statement	Yes	No
8	I drink water from purified or chlorinated hand pump or reservoir.		
9	I live in a tobacco/cigarette-free smoking area.		
10	People most often smoke cigarette around me.		
11	I drink liquor every day in a week.		
12	I eat more than five servings (5 different) of fruits every day.		
13	I eat more than five servings (5 different) of vegetables every day.		
14	I like added salt on my food.		
15	I drink sodas or sugary drinks (coke, fanta, sprite, cool aid, ice cream, sour milk, juice, etc) every day.		
16	I eat junk foods (donuts, pepper kali, roasted meat/sausage, fried/roasted chicken, pig-in-the-blanket or meat pie) every day.		
17	I eat breakfast, lunch and dinner every day.		
18	I brush my teeth three times a day.		
19	I take bath three times a day.		
20	I do not keep long finger nails.		
21	I wash all of my dirty clothes every week.		
22	I clean my house surrounding every week.		
23	I do house cleaning every day.		
24	I join others to clean my community every week.		
25	I do not pupu/defecate in clean toilet/pit latrine.		
26	I pupu in the bush or open field.		
27	I bath in outside bathroom where everyone urinates/pepes and baths.		
28	I exercise 150 minutes every week (25 minutes every day).		
29	I live in an area where there are violent, abusive or conflict-like neighbors.		
30	I live in an area where there are recreational/entertainment sites or playgrounds for social gatherings.		
31	I waste my household dirt on a dumpsite in the neighborhood authorized by city mayor.		
32	I smoke cigarette or opium more than five times a week.		

4. Methods

A critical thinking outside the box was done for several months to brainstorm ideas on making the concept to make sense for the greater good. The mathematical method that was used to calculate the prevalence of vicious circle of ill-health was thoroughly brainstormed to fit the existing health indicators used in the concept relative to the established formula for calculating prevalence rate. An observation has been done over the years relative to understanding the behaviours of community dwellers in Liberia towards situations in the environment.^[4]

5. Result

The informative concept serves as a basis for further research initiatives related to ill-health. Further studies will be carried out to test the applicability of the concept in

Liberian communities. A survey tool was also developed to ably collect data on vicious circle of ill-health. Constructs from Socio Ecological Model (SEM) and Health Belief Model (HBM) were highlighted to provide solutions to vicious circle of ill-health by effectively utilizing their applications and concepts. This concept of vicious circle of ill-health is deemed expedient for presentation, demonstration and justification at international, intracontinental and local public health conferences.

6. Conclusion

FOAP Concept of Vicious Circle of Ill-health has been developed to help citizens of Liberia improve their overall health and well-being by adapting its ideas, concepts and practices. It is meant to assist them avoid unhealthy environmental practices –both abstract and visible - for the prevention and/or control of vicious circle of ill-health or preventable diseases.

7. Recommendation

I recommend that further studies be conducted to test the application of the FOAP Concept of Vicious Circle of Ill-health in communities in Liberia through pilot studies. This process will begin with a team of undergraduate public health students at University of Liberia and graduate public health students at Cuttington University School of Graduate and Professional Studies.

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