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## PUBLIC HEALTH & PRIMARY CARE | RESEARCH ARTICLE

# Corporate social responsibility in public health provision: Community members' assessment

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**Abstract:** Mining companies often deliver various health interventions for respective mining enclaves yet, majority of these services often apply a top-down approach with limited community involvement. Thus, this paper explored communities' satisfaction of health interventions by the Newmont Ghana Gold Limited (NGGL) in Asutifi South and North Districts of Ghana. A descriptive cross-sectional and mixed-method study involving a convenience sample of 145 community members was conducted. Approximately, 60%, 52%, 51% and 52% of the respondents were respectively satisfied with dust suppression measures, health education/awareness creation, malaria control programmes and provision of alternative sources of drinking water by the NGGL. While health promotion and prevention strategies have been helpful, these were far below the expectations of the community members. More importantly, the participants expected to be provided with modern health facilities and opportunity to participate in local institutions' decision-making process in the delivery of these services. We, therefore, recommend that the NGGL should intensify its efforts towards public health improvement in its enclaves as part of its corporate social responsibility.

**Subjects:** Health & Society; Health Conditions; Public Health Policy and Practice

**Keywords:** Public health; mining; social responsibility; Ghana

### ABOUT THE AUTHOR

Williams Agyemang-Duah holds MSc in Development Policy and Planning at the Department of Planning, KNUST, Ghana. He obtained his first degree from the Department of Geography and Rural Development in the same university and also served as a Teaching and Research Assistant in the Department. His research interest covers ageing and health, population health, integrative medicine, health services research, mining and health, health planning research, local governance, and livelihood studies. His research mainly focuses on qualitative, quantitative and mixed methods approaches. The authors of this research form a team of upward researchers who jointly articulated how local communities perceive the health interventions by the NGGL in Ghana as its CSR actions.

### PUBLIC INTEREST STATEMENT

Despite its importance to national development, mining activities often create environmental and health challenges for many people especially those living in the communities. Although some mining companies provide health interventions in their mining enclaves, local people's satisfaction with such services is mostly overlooked. In the Asutifi South and North Districts of Ghana, we explored community satisfaction of health interventions by the NGGL. The results revealed that although health interventions had been helpful, these efforts were far below participants' expectations. However, we recommend that the NGGL intensifies its health promotion and disease prevention efforts as part of its corporate social responsibility to improve the health and wellbeing especially for the local people.

## 1. Introduction

Mining has since been recognised as an important economic activity globally (Amponsah-Tawiah & Dartey-Baah, 2011). In Ghana for example, mining contributed to about GH¢1.1 billion to the total national revenue in 2013 (Mustapha, 2015). Despite its economic benefits, mining activities have undermined the environmental sustainability and the health of most people particularly among those residing in the communities (Agyemang-Duah et al., 2015; Agyemang-Duah, Yeboah, Gyasi, Mensah, & Arthur, 2016; Al Rawashdeh, Campbell, & Titi, 2016; Arthur, Agyemang-Duah, Gyasi, Yeboah, & Otioku, 2016). Evidence show that mining industry offers a bright opportunity to understanding the intricate consequences of mining activities on local communities which put many individuals' health at risk (Amponsah-Tawiah & Dartey-Baah, 2011; Mactaggart, McDermott, Tynan, & Whittaker, 2018; Tapia et al., 2018).

Nevertheless, various services in the form of Corporate Social Responsibility (CSR) are often provided by mining companies to deal with the negative impact created through their activities. Indeed, CSR over the years has gained popularity in many socioeconomic sectors including mining particularly, in richer countries (Mensah, Amoako-Arhin, & Okyere, 2014). Whilst evidence of CSR by mining companies in low- and middle- income countries including Ghana is limited, a few existing studies fail to consider health promotion and prevention strategies to safeguard the health outcomes and quality of life of the local dwelling people. Moreover, limited research has explored the level of satisfaction of the community members in the provision of health measures through CSR by mining operators in their respective enclaves.

Assessing community members' level of satisfaction with CSR through the provision of health services and health promotion mechanisms may increasingly well help to estimate the appropriateness of the contribution of mining companies towards public health strengthening and to inform healthcare policy and planning agendas. The aim of the study was to explore the perspectives of four local communities in Asutifi South and North Districts of Ghana about the health-related CSR by the NGGL.

## 2. Health status and health-seeking behaviour

The World Health Organisation (WHO) defines health as a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity (World Health Organisation, 1948). Shaikh and Hatcher (2004) noted that the way and manner in which health services are utilised—which eventually influences the health outcomes of a community—is determined by the health-seeking behaviour of the community. Factors such as health literacy, poverty, limited funding of the health sector, inadequate provision of water, and poor sanitation facilities have had a significant impact on health indicators in many developing countries (Musoke, Boynton, Butler, & Musoke, 2014). The main factors that affect the health-seeking behaviour of individuals and communities have been grouped into cultural and socio-demographic, economic and physical factors. The cultural and socio-demographic factors are the cultural disposition and orientation of individuals and communities that may lead them to resort to traditional remedies for obtaining healthcare rather than accessing the hospital (Nyamongo, 2002). Whereas the economic factors include low financial capacity and poverty which affect people's choice of health provider (Asenso-Okyere, Anum, Osei-Akoto, & Adukonu, 1998; Musoke et al., 2014; Nyamongo, 2002), the physical accessibility factors comprising inadequate facilities to aid movement may affect people's ability to access health facilities. The distance that separates people from the closest health facility may also discourage them from accessing the health facility (Fatmi & Avan, 2002; Government of Pakistan, 2000; Hunte & Sultana, 1992; Stephenson & Hennink, 2004).

It is important to comprehend the drivers of health-seeking behaviour of communities in order to develop sound policies which would ensure the provision of health services that are affordable, efficient and easily accessible (Shaikh & Hatcher, 2004). Ahmed, Adams, Chowdhury, and Bhuiya (2003) and Stephenson and Tsui (2002) suggest that the health-seeking behaviour of communities can be positively influenced by creating avenues for individuals to earn more income to improve

their standards of living. Providing people with non-formal education as well as equipping them with vocational and technical skills have proved to have a positive impact on health-seeking behaviour (Ahmed et al., 2003; Stephenson & Tsui, 2002).

### 3. Health impacts of mining activities

Despite enormous investments attracted by the mining sector in many developing countries (Agyemang-Duah et al., 2016), various dangers have been associated with the industry, with some studies claiming that the negative ramifications of mining can nullify its benefits to society (Mapani & Křibek, 2012). The relationship between mining and health has been well recognized and established in the literature (e.g. Adei, Addei, & Kwadjosse, 2011; Agyemang-Duah et al., 2016; Akabzaa, 2000; Amponsah-Tawiah & Dartey-Baah, 2011; Opoku-Ware, 2010; Smith, Ali, Bofinger, & Collins, 2016; Yeboah, 2011).

Mining activities can put human health in jeopardy—due to the danger it poses if not properly managed (Stephens & Ahern, 2001). A study conducted by Cronje, Reyneke & Van Wyk (2013) in some local communities in South Africa pointed out two factors—social and natural factors—to be considered when assessing the health impacts of mining on communities. The social factors include poverty, unemployment, poor housing and infrastructure, and prostitution which may lead to the following health impacts: sexually transmitted infections, unwanted pregnancies, malnutrition and mental illness (Cronje et al., 2013). The natural factors include dust and other harmful particles in the air and water, excessive noise from blasting and other mining operations, overcrowded and unhygienic living conditions. Health impacts related to natural factors include tuberculosis, silicosis, hearing problem and eye problems (Cronje et al., 2013). To this end, proper corporate accountability is required to ensure that mining operations are properly assessed in order to ensure both economic development and well-being of local communities (Cronje et al., 2013).

In a study in Ghana, Yeboah (2011) reported that diseases linked to AngloGold Ashanti's mining operations in Obuasi include: malaria (41.7%), respiratory diseases (27%), and skin diseases (17.7%). In similar studies at the NGGL enclave in the Asutifi District of Ghana (Adei et al., 2011; Agyemang-Duah et al., 2016), it was found that malaria, respiratory diseases and skin diseases were associated with mining activities.

### 4. Mitigating the adverse health impacts of mining

Governments, non-governmental organisations, communities and mining organisations expect mining companies to plan for and mitigate the health effects associated with mining activities (Shandro, Veiga, Shoveller, Scoble, & Koehoorn, 2011). In Australia, mining companies have realised the importance of health promotion and diseases prevention; however, all their efforts have been geared towards improving the health and safety of their workers with little effort towards healthcare development in their mining enclave (Brereton & Forbes, 2004). Mining companies are supposed to outline measures to mitigate the adverse effects of their activities on people (Azapagic, 2004). Frequent counselling of mining communities on the environmental and health risks of mining has been noted as a useful way of mitigating the adverse effects of mining activities on the host communities (Lar, Ngozi-Chika & Tsuwang, 2014).

In Ghana, the AngloGold Company (AGC) provided support to the Ghana Health Services "Roll Back Malaria" services which aimed at reducing malaria cases by making treatment and prevention widely available through well-equipped health service and education (Akabzaa, 2007). Studies amply show that mining companies such as Goldfield Ghana Limited (GGL) (Mensah et al., 2014) and AGC (Yeboah, 2011) have built healthcare facilities such as clinics and health posts for mining communities to promote health and prevent diseases among people. Further, mining companies such as Golden Star (Wassa) Limited (GSWL), GGL and AGC as part of their CSR have provided alternative potable water sources such as hand-dug wells and boreholes for mining communities (Mensah et al., 2014; Yeboah, 2011; Boateng, 2012; Akabzaa & Darimani, 2001). Other mining

companies in Ghana such as GGL collaborates with clinics and health centres by regularly providing medical equipment and drugs to ensure regular functioning of the health facilities (Mensah et al., 2014).

## 5. Methods

### 5.1. Research design and sample

This paper is grounded on research conducted on the satisfaction of community members on health intervention by NGGL in the Asutifi North and South Districts from June 2015 to February 2016. A descriptive cross-sectional and mixed-method study was used to obtain relevant one-spot qualitative and quantitative data to provide a rich account of the satisfaction of community members on health intervention and also to ensure a robust understanding of the subject.

Overall, 145 respondents were recruited from four mining communities (Kenyasi No 1, Kenyasi No 2, Ntotroso and Gyedu) in the Asutifi North and Asutifi South Districts to respond to a structured questionnaire and in-depth interview questions. The communities and study participants were respectively selected using purposive and convenience sampling techniques. Out of the total participants of 145; 125 and 20 were for the quantitative and qualitative aspects of the study respectively. We, therefore, selected 32 apiece from Kenyasi No. 1 and Kenyasi No. 2, 31 and 30 from Ntotroso and Gyedu respectively for the quantitative aspect of the study. For the qualitative aspect of the study, 20 participants were determined by progress toward saturation because at this point no new idea was emerging. We excluded respondents who were sick and minors (who had not attained 18 years as at the time of the survey). Respondents who had stayed in the study communities for at least 5 years or more were included in the study.

### 5.2. Research instruments and data collection

Primary data collection tools were questionnaires and interview guides. These captured key issues relating to the study including background data of the respondents, health impacts of mining activities, health intervention strategies as well as expectation of health interventions from the NGGL. The face and content validity of the questionnaire and interviews were established by both a comprehensive review of the literature and consultation with experts in the field of healthcare. The questionnaire was strictly closed-ended questions and focused on the following pertinent areas: demographic characteristics (such as gender, age, marital status, religion, level of education, occupation, monthly income and ethnicity); prevalence and patterns of diseases; etiology of diseases; health-seeking behaviour; satisfaction regarding the provision of alternative sources of water; health education/awareness creation; enrolment of community members in the National Health Insurance Scheme (NHIS); provision of health education facility such as a nursing school; rehabilitation of healthcare facilities such as clinics and hospitals as well as satisfaction with dust suppression measures; malaria control programme; resettlement of the affected people; reduction of the extent of water pollution; reduction of the incidence of noise pollution; and collaboration with the various clinics to fight against diseases by NGGL. The interview also focused on key areas such as why community members were satisfied or otherwise as well as their expected health intervention from the NGGL. Five (5) point Likert scale [1 = highly satisfied, 2 = satisfied, 3 = Neutral, 4 = highly dissatisfied and 5 = highly dissatisfied], was used to measure the satisfaction of the respondents toward the health intervention measures. Respondents indicated the extent to which the health interventions by the NGGL have been helpful and the responses were recorded on a five-point Likert scale [1 = more helpful, 2 = helpful; 3 = same/no change, 4 = unhelpful; 5 = more unhelpful]. Again, they indicated how the health interventions have improved health promotion and disease prevention based on the following scale: 1 = more helpful, 2 = helpful; 3 = same/no change, 4 = unhelpful; 5 = more unhelpful.

The in-depth interview was devoted to whether the respondents were satisfied with the health intervention measures as well as their expectations from the NGGL. The interview was conducted

in both English and Twi with five respondents from each of the study communities. However, responses in Twi were back transcribed into English for a detail analysis. Both questionnaire administration and interview surveys lasted 25 and 30 minutes respectively (on the average). Interviews were captured on a field notebook; they were audio-recorded as well.

### **5.3. Ethics statement**

Confidentiality was addressed in this study during data collection and data cleaning (Kaiser, 2009). We obtained informed consent from the study participants after assuring them of strict confidentiality of the information they provided. Further, informed consent was sought from the respondents with the agreement that their identity would not be revealed to anyone before data were sought from them.

### **5.4. Data analysis**

Qualitative and quantitative tools were employed to analyse the field data. Statistical Package for the Social Sciences (SPSS) Software Version 16 was used to analyse the quantitative data. Descriptive statistics were performed to describe the data. Data were organized and presented in a form of frequencies and proportionate counts. The qualitative data were analysed by screening and reviewing of all the field and interview notes for understanding. All audio-recorded interviews were also reviewed and transcribed into English. The qualitative data were then analysed using content analysis and the findings were presented in a form of direct quotations.

## **6. Results**

### **6.1. Sample characteristics**

Majority of the respondents were males (55.2%), within 30–39 age group (34%), belonged to Christian faith (75%) and married (57%) (Table 1) Generally, education levels were low. Subsistent farming was a predominant economic activity which reflected in lower income levels among the participants.

### **6.2. Disease burden and health-seeking behaviour**

Table 2 shows common diseases that afflicted community members. Approximately 93% of the respondents indicated that mining has an effect on the health status of people. Diseases that respondents suffered from were malaria (47.2%), skin diseases (20%), diarrhoea (10.4%) and respiratory diseases (9.6%). Diseases that serve as a major threat to public health included malaria (52%), skin diseases (13.6%) and respiratory diseases (20%). These diseases were less prevalent (58.4%). Besides, most of the diseases were less severe (62.4%). Approximately 85% of these diseases were related to the mining activities. It was reported that diseases such as respiratory diseases and sight problems (poor vision) were caused by suspended particulate matter emanating from the blasting of mineral bearing rocks. When respondents were afflicted with diseases, they consulted healthcare providers (60.4%) and traditional healer/medicine (24.8%).

### **6.3. Satisfaction on health intervention measures by NGGL**

Table 3 presents community members' satisfaction on health promotion measures by NGGL. With regard to the provision of alternative sources of drinking water, 51.2% were satisfied. Yet, some of the respondents who were dissatisfied with the provision of alternative sources of drinking water by NGGL provided some reasons. For instance, a male participant at Ntotroso said this statement:

*“NGGL has provided water for this community but it is skewed to the resettlement side.”*

Another female participant at Gyedu also confessed:

*“Hmmm; I sometimes become sad when I see that we have mining company, NGGL, in this community. Yet we do not get water to drink and it is the same company which has polluted our water bodies ... Most of us have not drunk rainwater since the mining activities started. Some drink it at their own risk.”*

**Table 1. Background characteristics of the respondents**

Variable	Category	N = 125	%
Gender	Male	69	55.2
	Female	56	44.8
Age(years)	Less than 30	39	31.2
	30-39	43	34.4
	40-49	21	16.8
	50-59	12	9.6
	60 or above	10	8.0
Marital status	Single	29	23.2
	Married	71	56.8
	Never married	25	20.0
Religion	Christianity	94	75.2
	Islamic	21	16.8
	Traditional	10	8.0
Education	None	14	11.2
	Primary	40	32.0
	Senior secondary/high school	16	12.8
	Tertiary	7	5.6
Occupation	Government worker	11	8.8
	Artisan	22	17.6
	Trader	20	16.0
	Unemployed	21	16.8
	Farmer	51	40.8
Monthly income(GHC)	No income	23	18.4
	Below 100	29	23.2
	100-300	57	45.6
	301-500	11	8.8
	Above 500	5	4.0
Ethnicity	Akan	104	83.2
	Ewe	5	4.0
	Ga	5	4.0
	Ga-Adangbe	3	2.4
	Northerner	8	6.4

Concerning health education and awareness creation, approximately 52 % were satisfied. The following excerpts show why most of the participants were satisfied. One female participant at Kenyasi No. 1 had this to share:

*“I must say that NGGL is doing quite well in this area ... they have even sensitized us that we should not drink from the streams and rainwater ... because their chemicals such as mercury and cyanide have rendered them not potable for human consumption ... this is also because the blasting of mineral bearing rocks travel far and also diffuses chemicals in the atmosphere.”*

However, another male participant at Kenyasi No. 2 said:

**Table 2. Prevalence of diseases and health-seeking behaviour in the mining enclave**

Variable	Response	N = 125	%
Mining effect on public health	Yes	116	92.8
	No	9	7.2
Diseases you usually suffer	Malaria	59	47.2
	Diarrhoea	13	10.4
	Skin diseases	25	20.0
	Fever	10	8.0
	Colds and Catarrh	1	0.8
	Respiratory disease	12	9.6
	Visual impairment	4	3.2
	Typhoid	1	0.8
Most prevalent disease in the community	Malaria	65	52.0
	Diarrhoea	3	2.4
	Skin diseases	17	13.6
	Fever	5	4.0
	Colds and catarrh	6	4.8
	Respiratory disease	25	20.0
	Visual impairment	2	1.6
	Typhoid	2	1.6
Prevalence of these diseases in this locality	More prevalent	12	9.6
	Less Prevalent	73	58.4
	Not prevalent	40	32.0
Severity of these diseases	More severe	11	8.8
	Not Severe	36	28.8
	Less Severe	78	62.4
Do the diseases relate to mining?	Yes	106	84.8
	No	19	15.2
Source of treatment	Healthcare provider	76	60.8
	Traditional healers	31	24.8
	Self-medication	18	14.4

*“NGGL does not extend its health screening measures to the community members ... They have limited this intervention only to their permanent workers.”*

Most of the respondents were dissatisfied (51.2%) with the enrolment of community members in the National Health Insurance Scheme. The quotes that support this point are:

*“Hmmm ... NGGL has enrolled only their members in the NHIS ... as if it is only their workers who suffer from the negative health effects of mining ... . You know we- the community members- are at the receiving end so we even need to be enrolled unto the NHIS, not their workers ... bear for them they have got protective devices ... so tell me where we are -the-community members- going to get these protective devices ... ? I hope now you get me?”*

Approximately 46% were satisfied regarding the provision of health education facilities such as a nursing school. The following quote by a male participant attests to this claim:

*“Even though none of my children is in the nursing training school I know that we all stand to benefit as we train these people to work in the various clinics in the community and other nearby communities.*

**Table 3. Satisfaction about health promotion measures by the NGGL**

Variable	N = 125				
	HS (%)	S (%)	N (%)	D (%)	HD (%)
Provision of alternative source of water	24.8	26.4	8.0	30.4	10.4
Health education/ awareness creation	7.4	44.6	14.0	26.0	8.0
Enrolling community members unto the National Health Insurance Scheme	14.4	17.6	16.8	39.2	12.0
Provision of health education facility such as nursing school	12.8	33.6	13.6	32.0	8.0
Furnishing health centres with drugs, health personnel	14.4	24.8	15.2	34.4	11.2
Rehabilitation of health facilities such as hospitals and Clinics	10.4	20.8	15.2	37.6	16.0
Variable	MH	H	S	U	MU
Views on impacts of health promotion measures	10.4	35.2	18.4	33.6	2.4
Views on the contribution to health promotion	E	VG	G	P	VP
	6.4	18.4	27.2	39.2	8.8

N/B: HS-highly satisfied; S = satisfied; N = neutral; D = dissatisfied; HD = highly dissatisfied; MH = more helpful; H = helpful; S = same/no change; U = unhelpful; MU = more unhelpful; E = excellent; VG = very good; G = good; P = poor; VP = very poor

With respect to the furnishing of health centres with drugs and health personnel, 45.6% were dissatisfied. A female participant at Kenyasi No. 1 expressed the following statements to support her claim as to why she is not satisfied:

*“NGGL is not helping us in terms of health personnel ... . today you will go to a clinic and the nurses will tell you that the doctor is not there ... moreover, it is also difficult to get a place to sit to wait for a physician to attend to you especially on a day that the attendance at the clinic increases ... At times, you will go to a clinic and they will tell you they do not have drugs.”*

**Table 4. Community members' satisfaction towards diseases prevention measures by the NGGL**

Variable	N = 125				
	HS %	S %	N %	D %	HD %
Dust suppression measures	33.6	26.4	12.8	23.2	4.0
Malaria control programme	9.6	41.6	20.0	27.8	1.0
Reducing the incidence of water pollution	12.8	20.0	27.2	36.8	3.2
Reducing the incidence of noise	8.8	23.2	20.8	42.4	4.8
Collaborating with clinics to fight diseases	17.6	16.8	16.8	43.2	5.6
Variable	MH	H	N	U	MU
Views on impact of disease prevention measures	4.0	37.6	20.8	36.0	1.6
	E	VG	G	P	VP
Assessment of NGGL's contribution to disease prevention	5.6	19.2	28.0	35.2	12.0

N/B: HS-highly satisfied; S = satisfied; N = neutral; D = dissatisfied; HD = highly dissatisfied; MH = more helpful; H = helpful; S = same/no change; U = unhelpful; MU = more unhelpful; E = excellent; VG = very good; G = good; P = poor; VP = very poor

Respondents were dissatisfied (53.6%) with the rehabilitation of health facilities such as clinics. One male dissatisfied participant at Kenyasi No. 1 said:

*“Our clinic in this community still remains the same ... there have not been changes in terms of size or the quality of service delivery.”*

Approximately 46% of the respondents indicated that the health promotion measures had been helpful. Yet, 48% of the respondents assessed the contribution of the NGGL towards health promotion as poor.

With regard to the dust suppression measures, 60% were highly satisfied (see Table 4). One female participant at Kenyasi No. 2 commented that:

*“NGGL frequently put water on the untarred road to reduce the incidence of dust.”*

A male participant expressed her dissatisfaction with the dust suppression measures by NGGL during an in-depth interview. He said that;

*“The watering of the road to reduce dust is limited to only the roadside but the dust generated diffuses into the atmosphere, so it extends to other segments of the community. We are dying of air pollution, although NGGL tries to control dust by watering the untarred road. Yet air*

*pollution remains pervasive in the community and particularly to those who have shops around the road suffer a lot.”*

Concerning the malaria control programme, 51.2% were satisfied. A female interviewee shared her experience as to why she is satisfied with the malaria control programme by NGGL. She stated that:

*“NGGL gives us insecticide mosquito nets, malaria drugs, repellent to fight against malaria.”*

Despite this, one satisfied participant at Kenyasi No. 2 opined that:

*“Regardless of these interventions to prevent malaria ... malaria still remains prevalent in this community ... so what is accounting for this?”*

Approximately 40% of the respondents were dissatisfied with the reduction of the incidence of water pollution. This is what a female participant said to justify why the community is not satisfied.

*“You know, day in day out NGGL operates ... so water pollution will still exist ... . One thing is that we have to travel for a long distance to get water ... this affects our domestic activity ... . Water is life ... so we cannot do without it.”*

Additionally, 47.2% of the respondents were dissatisfied with the reduction of noise pollution. The respondents, however, gave different reasons to support their answer. This is what one male participant expressed;

*“For me, I think noise pollution is still intense and they still need to reduce it, else it will be a risk to our health both psychologically and emotionally.”*

Another female participant also had this to say:

*“Tell me, if it is only one man or one section of the community that suffers from the health consequences of mining ... . I think you will say NO, then why is NGGL biased like that? Everything is in resettlement side, come and see how the activities of NGGL have led to cracks on my buildings ... do you know these things can cause heart-related diseases and psychological problems?”*

Regarding the NGGL’s collaboration with the various clinics to fight against diseases, 48.8% were dissatisfied. A female dissatisfied participant at Kenyasi No. 1 expressed the following words to support her claim for not being satisfied with NGGL collaboration with various clinics to fight against diseases in the area.

*“NGGL has taken our land with little compensation, now you see I don’t have money to go to hospital and NGGL is still given us diseases, of which we cannot go by our daily activities; If proper measures are not put in place, these diseases will continue to afflict us and we will die and leave our children helpless; I didn’t even know that mining activities are a curse to human health.”*

However, 37.6% of the respondents rated the diseases prevention measures by NGGL as helpful. Respondents assessed the contribution of NGGL towards health promotion as poor.

#### **6.4. Expectations for health interventions**

Respondents were asked about their expectations of health interventions from the NGGL. Respondents indicated that they expected NGGL to provide them with hospitals or clinics with modern health equipment, organise monthly health screening and actively and genuinely engage them directly in the process of identifying their health needs rather than through representatives, particularly, the assemblymen or women and the chiefs, from the NGGL’s surrounding

communities. They also expected NGGL to distribute mosquito nets and mosquito repellents to the communities regularly in every 3–6 months and intensify malaria prevention and control programmes, organise regular health sensitisation, promotion and education programmes in order to improve the health status of the community members as well as ensuring health promotion and disease prevention in the area. A female participant at Kenyasi No. 1 expressed the following words to support her claim for provision of hospitals or clinics with modern facilities in the community:

*“NGGL should wake up and provide us with hospitals and clinics at least one in every community in its enclave and other surrounding communities ... you see my son, health is man’s premier wealth and so once there is health there is wealth. You look around and see the kind of clinic we have in this community ... I think you have seen our clinic ... . Have you gone there? Most of us barely access conventional health treatment. Due to “distance factor” and lack of clinics or hospital and better health facilities, some of us prefer to consult traditional medical practitioners for treatment when we have health problems. We need help from the NGGL to increase life expectancy and access to conventional healthcare in the area.”*

A 40-year old woman in the in-depth interview indicated how the communities are not contacted by NGGL in decision-making whereby the communities are the direct beneficiaries:

*“Why should NGGL provide something that seeks to address our health needs without consulting us first and letting them know what we, the community members, need; all health intervention measures are good. Some are necessary conditions but not sufficient conditions ... . If they consult us, we may not need such a project at that point in time. When NGGL provides health intervention measures, it is for our benefit not for their benefits so they should at least consult or involve us in the identification of the needs.”*

According to this study participant, the issue of community participation was totally lacking in the quest of NGGL to provide health intervention measures for them.

## 7. Discussion

Taking into account the relatively small, but largely quantitative body of prior research on CSR in Ghana, this study extends the frontiers of the discourse by focusing on the level of community members’ satisfaction on health intervention measures provided by the NGGL in Ghana. To the best of our knowledge, this is one of the few studies in sub-Saharan Africa to report this important knowledge base. In line with previous studies (Agyemang-Duah et al., 2016; Arthur et al., 2016; Hilson, 2002; Yeboah, 2011), our results suggest that malaria, diarrhoea, skin diseases and respiratory diseases were negative health outcomes associated with mining activities in the study area. For instance, whilst the cause of malaria was attributed to uncovered pits created through mining activities (Agyemang-Duah et al., 2016; Hilson, 2002; Kitula, 2006; Ocansey, 2013), respiratory and skin diseases were strongly linked with the use of both polluted air and drinking water resources (Agyemang-Duah, 2014; Yeboah, 2011). This finding has serious implications for socio-environmental and health dynamics within mining enclaves in Ghana. The Minerals Commission of Ghana and other mineral regulatory institutions should streamline and coordinate the activities of mining companies by insisting and ensuring social- and environmental- friendly mining practices.

In terms of health-seeking behaviour, this study found in agreement with previous studies (McCracken & Phillips, 2017; Gyasi & Phillips, 2018) that although respondents consult traditional medical practitioners in the management of their health problems, the majority of them utilised the services of formal healthcare providers. This finding is not surprising chiefly because most people often perceive healthcare professionals as competent and are able to provide efficient health services due to their long standing education and medical training structure (Agyemang-Duah, Peprah, & Peprah, 2019). However, due to high poverty levels in rural settings coupled with the escalating formal healthcare costs, a segment of the population in these contexts increasingly rely on alternative healthcare to deal with various medical conditions (Gyasi, Mensah, Adjei, &

Agyemang, 2011). Further, the perceived effectiveness of traditional medicine for most tropical diseases and the associated “supposed” fewer side effects have been recognised to influence the wholesale acceptance and the use of the various modalities among community-dwelling individuals (Gyasi et al., 2017b, 2011, 2017a; Peprah et al., 2018; Peprah, Abalo, Nyonyo, Okwei, & Amankwaa, 2017; Peprah et al., 2019; World Health Organisation, 2004).

One important finding of this study is that the majority of the respondents, to a larger extent, were satisfied with some of the health intervention measures procured by the NGGL, including dust suppression measures, health education and awareness creation, malaria control programmes and the provision of alternative sources of water. The results demonstrated that NGGL frequently and at regular time intervals supplied insecticide mosquito nets, medicines for common ailments such as malaria, and also distributed mosquito repellent to community members as a means to address the health outcome of mining-related activities. This explains the extent to which the NGGL has acknowledged the essence of good health and the measures engaged to promote the health of residents in its enclaves (Shandro et al., 2011).

Although the various health intervention measures were key in promoting health and preventing diseases among community members, these measures were not optimal to the expectation of the community members. The respondents, therefore, scored the contribution of NGGL towards diseases prevention and health promotion as poor. This finding concurs with the observation of Twerefou, Tutu, Owusu-Afryie, and Adjei-Mantey (2015) that mining communities demonstrate an unfavourable attitude toward mining sector policies and interventions. It is also consistent with the findings of Brereton and Forbes (2004) which indicated that mining companies in Australia generally recognised the importance of health promotion and diseases prevention measures but they often aim to advance the health and safety of their employees at the expense of the healthcare development in their mining enclave.

## 8. Limitations of the study

Despite the strength and the novelty of this study, the interpretation of the findings should be done in the context of some limitations. As a result of the cross-sectional survey employed, researcher bias was likely to occur. Also, the study was limited to only one mining company (that is NGGL) in Ghana. Replication of this study and follow-up-studies in other mining enclaves would be remarkable to authenticate the consistency and credibility of the findings of this paper.

## 9. Conclusion

This study assessed the communities’ level of satisfaction of health interventions provided by the NGGL as part of its CSR. Although the NGGL provided health promotion and disease prevention interventions for community members, these interventions were perceived and scored below the expectations of the participants. Specifically, our respondents called for the provision of modern health facilities and their full involvement in the planning and execution of these facilities. This study may have implications for the government and the Minerals Commission to evaluate and assess mining companies’ commitment to health interventions in mining communities in Ghana. These findings may stimulate and lead discussions on the better ways mining companies could collaborate with health institutions to improve the health conditions of the people by educating them on the effects of mining on health and other health intervention programmes. We argue that NGGL should strengthen its efforts in the provision of health interventions in its enclaves as part of CSR.

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The authors declare no competing interest.

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