

**PERCEIVED PERFORMANCE OF PEER LEARNING AND EDUCATION APPROACH ON MALARIA PREVENTION AND CONTROL AND ITS ASSOCIATED FACTORS THROUGH SCHOOL COMMUNITIES IN JIMMA ZONE, ETHIOPIA 2020: PEER EDUCATORS PERSPECTIVES**



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A RESEARCH THESIS SUBMITTED TO DEPARTMENT OF HEALTH, BEHAVIOR AND SOCIETY, FACULTY OF PUBLIC HEALTH, INSTITUTE OF HEALTH, JIMMA UNIVERSITY IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR, MASTER OF PUBLIC HEALTH IN HEALTH PROMOTION AND HEALTH BEHAVIOR.

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**JIMMA UNIVERSITY**  
**INSTITUTE OF HEALTH, FACULTY OF PUBLIC HEALTH**

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## Abstract

**Background:** Malaria still bears the largest burden of morbidity and most important public health issues causing health, economic and social crisis. Schools are considered to be the natural hub for community services to promote healthy practices. Supporting evidences suggested that schools based interventions have a multiplier effect in that school students reach out and influence their families, friends and neighbors to adopt health practices. Perceived performance of such intervention on malaria is not examined yet.

**Objectives:** To determine perceived performance of peer learning and education approach on malaria prevention and control and its associated factors through schools communities in Jimma Zone, southwest Ethiopia 2020

**Methods:** Various educational and capacity building interventions were done in 75 rural primary schools in Jimma, for intensive schools participation in malaria prevention communications. Post-intervention cross-sectional study design using both quantitative and qualitative methods was conducted from April 02 to Jun 08 2020. A total of 404 randomly selected trained peer educators from 75 schools were participated. Interviewer- administered structured questionnaire was used to collect the data. Means and proportions were calculated as part of descriptive statistics. Multiple linear regression models were conducted to identify independent factors associated with outcome variable [perceived performance of peer learning and education approach on malaria prevention]. Level of statistical significance was considered at p- value less than 0.05. Nine in-depth-interviews were conducted with selected lead peer educators. Analysis of qualitative data was supported by Atlas ti7 software and findings were used to interpret and explain findings of quantitative study.

**Results:** Four hundred and one (99.2%) of the respondents completed the interview. The mean score of knowledge on essential malaria action was 0.6474 (SD=0.1753), and Attitude towards malaria preventive measures was 38.5387(SD=6.86033). The mean score of the perceived performance was 44.31(SD=6.13) which were above expected mean level with the range of 11-55. Feasibility ( $\beta = 0.253$ , 95% CI = [0.313, 0.682]), and appropriateness ( $\beta = 0.163$ , 95% CI = [0.099, 0.442]) were significantly associated with perceived performance. Self efficacy, risk perception about malaria, experience of eager to share and learn from each other's and favorite more than one subject were significantly associated with perceived performance of PLEA with ( $\beta = 0.097$ , CI = [0.017, 0.242]), ( $\beta = 0.143$ , CI = [0.071, 0.233]), ( $\beta = 0.207$ , CI = [0.308, 0.826]) and ( $\beta = 0.075$ , CI = [0.084, 2.511]) at 95% respectively. Peer learning and education approach Perceived effectiveness (acceptance and appropriateness) was observed.

**Conclusion:** Overall; the finding indicated that, Considerable high level of perceived performance of peer learning and education approach on malaria prevention and control in school. Certainly considering Feasibility and appropriateness of peer learning and education approach in school would be enhance students' perceived performance of peer learning and education approach on malaria prevention. Again Self efficacy, risk perception about malaria, sharing Experience and controlling challenge promote members for better performances of PLEA in school.

**Key words:** peer learning, peer educators, Malaria prevention, school

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## **ABBREVIATION AND ACRONYMS**

ACP	Advancing Community's Practice
AIM	Acceptability of Intervention Measure
BCC	Behavioral change communication
CHW	Community health worker
EMA	Essential Malaria Activities
FGD	Focus group Discussion
FIM	Feasibility of Intervention Measure
FMOH	Federal Ministry of Health
HMIS	Health Management information system
IEC	Information education communication
IRS	Indoor residual spry
IPC	Intermittent (malaria) Parasite Clearance
IPT	Intermittent preventive treatment
IAM	Intervention Appropriateness Measure
LLITN	long-lasting insecticide-treated nets
NMSP	national malaria strategic plan
PEs	Peer educators
PLEA	peer learning and education Approach
SBCC	Social and behavioral communication
TFA	Theoretical framework of acceptability
TOT	Training of trainees
USAID	United States Agency for International Development
WHO	World health organization

## CHAPTER ONE: INTRODUCTION

### 1.1 Background

Malaria is one of the oldest vector borne diseases transmitted by mosquito species called anopheles mosquito. Currently, over 400 species of the malarial parasites are said to exist in the world wide (1,2). Majority of them are said to be infective to wide variety of wild animals among which only four routinely infect humans. Malaria is transmitted from one person to another by the bite of an infected female *Anopheles spp.* Mosquito (1,3). Malaria in human is caused by four different Plasmodium species. These are Plasmodium falciparum, malariae, ovale and vivax. Often infection among human may occur with other Plasmodium species like plasmodium knowlesi (4). Plasmodium falciparum is said to be highly distributed tropical Africa while Plasmodium vivax prevail it in South America. The south-eastern Asia and western Pacific are characterized by both species. Plasmodium ovale is principally found in tropical Africa whereas Plasmodium knowlesi infection occurs only in forested areas of South-East Asia((5–7).

Geographically, the distribution and transmission of malaria is affected by altitude, temperature and humidity. P. falciparum is prevalent in tropical regions of the world. A temperatures ranging 21°-32°C and with humidity above 60% are conducive for maintenance of transmission. The human body temperature of higher than 37°C is appropriate for the parasites performance and that's why the rise of core temperature is recorded during the infection. Altitude is the most significant condition in determining global distribution of malaria and this varies across the world. In Africa, for instance, altitudes greater than 1500m are considered safe from malaria. This figures may vary with continuing climatic change(8).

Malaria is classified as an acute febrile illness having an incubation period of less than a week. The clinical features of malaria caused by P. falciparum include fever, chills, headache, muscular aching and weakness, vomiting, cough, diarrhea and abdominal pain(3,4)

Peer education is a popular concept that implies an approach, a communication channel, a methodology, and a strategy used for Behavior change of individuals. School based peer led education is the most preferred strategy to teach adolescents about health issues because they share key characteristics such as behavior, experience, status or cultural background that makes them more credible source of information than adult. Peers play a critical role in the lives of adolescents by serving as support for each other, as formal and informal models of behaviors, and as trusted sources of information. Peers strongly influence behavior of their fellow peers therefore should be trained and role model their fellow peers to help them to adopt preventive health behaviors (9–11). Peer education within the context of health promotion has been applied to a wide variety of health topics and in many different settings such as in schools((13, 14).

Schools are considered to be the natural hub for community services to promote healthy practices. Supporting evidences suggested that schools based interventions have a multiplier effect in that school students reach out and influence their families, friends and neighbors to adopt health practices. School children are not merely recipients of health education, but also contribute to malaria control and prevention by playing the role of change agents in the community(14). Indeed; a recent study suggested further research on means (strategy) to improve a collaborative work among health agencies and education system, so as to increase the effectiveness of the school health programs, through school peer educations (15).

Considering PLEA programs that had been conducted in primary school which mainly focus on individuals educating and capacity building on use of insecticide nets (ITNS), appropriate & timely seeking care for malaria, appropriate use of quality anti-malaria drugs, acceptance of insecticide residual spray (IRS), and draining of potential breeding sources in the villages, this study seeks to identify predictors of perceived performance of PLEA on malaria prevention and control in school among school community.

## 1.2 Statement of the Problem

According to the latest World malaria report of 2019, there were 228 million cases of malaria, 219 million cases of malaria in 2017, and 217 million cases of malaria in 2016. With over half of the world at risk of the disease that malaria is a leading cause of morbidity and mortality in much of the developing world(16). In 2017 most malaria cases were in African Region (92%) And accounted for 93% of all malaria deaths (17,18). In Ethiopia there was about 1,530,739 confirmed malaria illnesses with 356 reported deaths due to malaria in Between June 2016 and July 2017(19).

Malaria is the most important public health issues causing health, economic and social crisis at both individuals and governments' levels. There was no significant global reduction in malaria cases between the periods 2015 and 2017. The top 10 highest burden countries affected by an increase in malaria cases between 2016 and 2017 were all Africa. There were an estimated 435,000 deaths from malaria globally, compared with 451 000 estimated deaths in 2017. *Plasmodium falciparum* is the most prevalent malaria parasite in sub-Saharan Africa, accounting for 99.7% of estimated malaria cases in 2017 (4,18).

Malaria affects the lives of almost all people living in the malaria prone areas(5). Young child children and pregnant women are the most vulnerable group of population at risk to malaria. Malaria affects this directly through infection and indirectly causing co-morbidity such as anemia and other nutritional deficiencies. Among children who tested positive for malaria; the prevalence of any form of anemia was 79%, mild anemia 21%, moderate anemia 50% and severe anemia 8% in Africa between 2015 and 2017 (18). Children with malaria infection, and younger age were more likely to be stunted and wasted, that results16% of all repetitions in primary school are associated with stunting(20). Apart from its health impacts; malaria was supposed to be one of the health problems that affect economy either via direct investment on its prevention or its potential to causing social crisis. For instance in 2017 alone; an estimated US\$ 3.1 billion was invested in malaria control and elimination efforts globally by governments of malaria endemic countries and international partners. The majority (74%) of investments were channeled to WHO African Region (18)

Malaria infection reaches its peak during major harvesting and economic activities season in many African countries affecting the subsistence Economy. The occurrences of major epidemics make malaria not just a health issue but a food-security. The socioeconomic burden resulting from malaria is immense: First; the high morbidity and mortality rate in the adult population significantly reduces production activities. Second; the increased school absenteeism during malaria epidemics significantly reduces learning capacity of students and third; coping with malaria prevention efforts overwhelms the capacity of the health services leading to a sustained increases in public health expenditures (21). In school a study showed, malaria is the first cause of school absenteeism in Africa(22).

The current malaria cases resurgence worldwide in general and Africa in particular may call for more coordinated and novel approach to curb the incidence. As a part of strategic goals; Ethiopia has three major visions by 2020 that include maintaining near zero malaria deaths (no more than 1 confirmed malaria death per 100,000 populations at risk), to reduce malaria cases by 40 percent from baseline of 2016 and to eliminate malaria from Ethiopia(19). The global malaria elimination program of (2020-2030)(22-24) laid ground for Ethiopia to give considerable attention to malaria elimination program with a vision to pave way to malaria free nation by 2030(25,26) Improving local community understanding of malaria and use of preventive strategies are among the key priority intervention areas for sustained control and the move toward the elimination targets (24-27).

To control the trends of the expansion and the consequences of malaria, countries in malaria endemic areas have launched malaria prevention and control strategies that are believed to combat the disease. However, the occurrence of malaria is very complex and affected by multiple factors. The efficacy of the prevention and control strategies and their effects, especially in the reduction of malaria-related mortalities and morbidities among the most vulnerable segments of these populations, need to be monitored. Assessment of the effectiveness of malaria prevention programmes is either neglected or not planned due to limited resources. Health authorities in malaria endemic areas conduct indoor residual sprays (IRS) every year. But the outcomes and impacts of this service have not been regularly evaluated to improve the subsequent preventive activities in terms of the effectiveness of the programme and the wise use

of scarce resources(28). Some countries with ongoing malaria transmission do not have proper documentation for tracking malaria control programmes hampering the efforts of roll back malaria (RBM)programmes(29).

The use of insecticide-based vector control, long lasting insecticidal nets and indoor residual spraying (IRS), has been the most successful method for reducing the incidence of malaria. Insecticide resistance is a major threat to vector control when we consider its entomological outcome, but its epidemiological impact is less obvious than expected. Considering the ecological interactions between vector, parasite, and environmental factors reveals that the impact of insecticides on malaria transmission is not straightforward and may explain their persisting efficacy despite widespread insecticide resistance. However, we should also keep in mind that increasing insecticide selective pressure due to country-wide vector control implementation may increase the probability of operational failure(30). So PMI can particularly add value to these efforts to move toward pre-elimination and eventual elimination by supporting countries to develop the information systems that will be essential in reaching those targets(7).

In Ethiopia; it is estimated that three-fourths of the land is below 2000 meters is malarias with two-thirds of the country's population at risk(5). Peak malaria transmission occurs between September and December in most parts of Ethiopia, after the main rainy season (19). The use of prevention methods was determined by different factors; perception of causes and disease transmission; mosquito nuisance; affordability and climate. The reported practices on maintaining personal and environmental hygiene for malaria prevention were consistent with the local perception of causes and disease transmission (31). According to the 2017 FMOH malaria risk stratification; the proportion of the population at risk of malaria is about 60 percent Between June 2016 and July 2017(19). There significant regional variation with malaria distribution in Ethiopia. The most populous and malaria-prone regions of Ethiopia is the Oromia region(32).

Unequivocally, malaria remains a major public health problem among school-aged children, affecting the critical period of learning and development (19,30, 31). Less emphasis was given to school-aged children for malaria control, yet the prevalence of *Plasmodium* infection in this age group often exceeds that seen in younger children(21,35). For instance; the overall prevalence of Plasmodium infection in Oromia, Ethiopia was found to be 0.56% (with 53% of infections due to

*P.falciparum* and 47% due to *P.vivax*). The anemia prevalence among the children surveyed was 17.6% in 2011(36).

To this regard; the Ethiopian Federal Ministry of Health (FMOH) has distributed 29.6 million long-lasting insecticide-treated nets (LLINs) to protect peoples living in areas with high malaria transmission between the 2015 and 2016. The government has achieved 100 percent IRS coverage in areas where malaria burden is high(19). Furthermore; Ethiopia has planned to raise community awareness on causation and preventive measures of malaria to 100% by 2020 (19,37,38). The LLIN is one of the key national malaria control strategies (39,40) and the national target sets a 100% coverage of all households in malarias areas with at least two LLINs per household(21) and reach 86% LLIN use among vulnerable groups by 2020(38). Similarly, early recognition and prompt care seeking is vital for effective diagnosis and management of malaria (41)

Perceptions and risk-reduction practices were unsatisfactory among the Community. Peer education played an important role in determining ones' knowledge and practice. Low Visibility of “IEC materials/advertisements” on malaria can affect the level of individuals knowledge about malaria(42). Theory posits that certain individuals (opinion leaders) from a given population act as agents of behavioral change by disseminating information and influencing group norms in their community (43). Peer education draws from elements of each of these behavioral theories as it implicitly asserts that certain members of a given peer group (peer educators) can be influential in eliciting behavioral change among their peers in deferent settings and even in the community (11).

Despite different countries emphasized on malaria prevention and control, and targeted global malaria elimination by 2030(25,26), still there are gaps of knowledge, attitude, health seeking behaviors and use preventive measures in many countries of sub Saharan Africa. For instance, Knowledge on cause and transmission of malaria was ranging from 19.2% in Zimbabwe to 85% in Nigeria and the attitude was low. level of practice of malaria prevention ranging from 32.4% in Malawi to 67.9% in Kenyan schoolchildren(44). In Ethiopia Jimma knowledge gap on the cause and transmission of malaria, especially 15.7% of students believed that drinking dirty water/eating dirty food cause malaria and concerning mode of transmission, bodily contact with



malaria patient, breathing and flies and Child to Parent Communication Regarding Prevention and Control of Malaria about 49.5%(45). These, gaps can be reduced when proper emphasis is given to per learning and education approach on malaria prevention and control in school.

Peer education is one of the most effective strategies for changing behavior and have been used as public health strategies to promote various positive health behaviors resulting in transfer of knowledge, experience into members of the same group and empowers peers by creating a sense of teamwork and collaboration. adolescents are more likely to change their attitudes if they receive health information from their peers who have similar concerns and problems, in addition the high acceptance level of school peer education method between adolescents showed(11,46,47) Through schools many countries have produced economic health improvements via students exposure to PLEA messages in school(48,49)

Globally, school health initiatives have encompassed strategies aimed to improving the capacity, knowledge, and decision making skills that help to promote health and prevent diseases among school children, and their families(50–52). In this regard, school students were also perceived to play a pivotal role in keeping the health of their families and communities. Malaria is one of the focal topics of the school health program globally (50-54). School Health Malaria Control has been associated with significant reduction in malaria-related morbidity and mortality as well as improvements in educational outcomes including improved school examination scores(55)

Indeed; Peer health education has been in use in developed and developing countries and studies have reported its efficacy in change belief of students that enhance their performance on disease prevention and control(46). Very few studies reported Peer educators gained more knowledge and skills that decreased their high-risk behavior(11), benefited experience as educators that lead to attitude and behavior change(56), overall gains in three domains cognitive and behavioral; connectedness and self-concept; and changes in information. Despite its wide use, perception of peer educators on peer education has not been reported.

Peer learning and education approach intervention contributes to the decreased malaria prevalence among children. It had a positive impact not only on school children, but also on community adults, through the improvement of knowledge and practices. It can be applied as a complementary approach to existing malaria control strategies and should be strengthened in the schools to advance malaria knowledge and foster communication behavior of the students with their parents(57).

This study hypothesized that school-based PLEA is an effective strategy for malaria prevention and control. It was focused on enhancing the students and their family on malaria prevention and control skills/practice by empowering school community through students' peer education, and ultimately reaching out to their families and neighbors with messages. So, Targeting the school peer educators; this study aimed to measure perceived performance of peer learning and education approach on school engaged malaria prevention and control among schools lead peer educators in Jimma

### **1.3 Significance of the study**

Malaria morbidity and mortality is mainly occurred as results of poor prevention and control strategic practices of message distribution and community awareness(58). Ethiopia is not achieving the goal on malaria prevention and control(26) and the situation is frustrating as it is one of the high burden countries of the world, which call for strengthening the existing prevention and control strategies(23,59). So that; this study was focused on perceived performance of peer learning and education approach on school engaged malaria prevention and control among trained peer educators in primary school. This provides Evidence based interventions information for policy makers, program planners, managers, donors, field workers and beneficiaries to counter act the cruel outcome on day to day health focusing on peer learning education approach intervention on malaria prevention and control in schools.

In addition it helped to make meaningful interpretation of the outcome/success of the peer learning and education approach intervention for sound conclusions and recommendations for future health promotion programming especially malaria prevention and control strategy.

Furthermore, this study is unique to this country, so the finding might benefit researchers who pertinent in this area of study in providing baseline information for further investigation.

## **CHAPTER TWO: LITERATURE REVIEW**

### **2.1. Overview about school peer learning and education approach**

Globally, the strong connection between health and education is recognized(60). Schools recognized as a center for improving the health and well-being of young people. Since the establishment of the Millennium Development Goals , promoting universal primary education, school-enrollment has been increasing in developing countries and school-based interventions have the potential to reach significant numbers of students as well as their parents in these countries(60,61).

Finding from scoping review of literatures about impact of school-based interventions on health outcomes in developing countries suggest advancing ability of school based intervention beyond the school age children to guardians including those without children. For instance; mean knowledge, attitudes and practice scores of students and family in the target group was increased significantly 1 month after school based malaria health education and promotion. This realization and the interest in obtaining results has led to a growth of evidence-based interventions (EBI) in line with an approach that considers and summarizes empirical experience, professional expertise, and student characteristics in connection with the intervention(60,62).

Global Perspectives on Peer Sex Education for College Students showed that Peer education has become more appealing during recent years due to the changing dynamics of education and the influence of some non-governmental organizations. Peer education is promoted as empowering, beneficial and acceptable for students and Cost savings is noted as a salient reason for peer education as well(63).

Study conducted in Scotland aimed of Implementation of a peer-led school based smoking prevention programme demonstrated that it is feasible and acceptable to deliver the prevention programme with a high level of outcomes or effects(64).

Narrative Review on the Peer Education Approach in Adolescents revealed young people in developing the knowledge, attitudes, and skills that are necessary for positive preventive behavior of disease through the establishment of accessible and inexpensive preventive and psychosocial support(65)

## **2.2 Perceived Performance of Peer learning and education approach**

### **2.2.1. Implementation outcome of the intervention and associated factors.**

Study conducted in Malawi on Malaria control in implementing peer health education for behavior change showed that peer education effective intervention for ITNs, prompt care-seeking for fever and intermittent preventive therapy, and Appropriate and acceptable by both provider and beneficiary, which are key for uptake and local influential support(66).

Systematic review study revealed that Acceptability implied in which people delivering/receiving healthcare interventions consider it to be appropriate, based on their anticipated or experienced cognitive and emotional responses to the interventional programs. The theoretical framework of acceptability (TFA) consists of different component constructs, such as affective attitude, perceived effectiveness, ethicality, and self-efficacy. Acceptability consideration in the designing, evaluation, and implementation of healthcare interventions is enormous, but acceptability is a necessary but not sufficient condition for perceiving effectiveness of an intervention. So, perceiving successful implementation depends on the acceptability of the intervention to both intervention deliverers and recipients(67).

Behavioral intervention technology implementation science can be advanced and further exploration of the empirical behavioral intervention technology development related outcomes such as acceptability, feasibility, and appropriateness are identified(68).

Implementation research in Moldova result confirmed that collaborative learning approach is feasible, with the vast majority of youth's services successfully implementing and highly acceptable to both participants and moderators and appears to have benefits for both participants and the health services. Key benefits were participants appear to include improved knowledge and use of evidence-based resources on adolescent health; strengthened teamwork and cooperation; and increased confidence to provide high quality, holistic care. It contribute to the commitment, confidence, and ability of providers to deliver health services in accordance with quality standards and guidelines of the program interventions(69)

### **2.2.2 Implication: Acceptability of Intervention Measure, Intervention Appropriateness Measure, & Feasibility of Intervention Measure.**

Psychometric assessment of three newly developed implementation outcome measures defined acceptability, appropriateness, and feasibility as follows:- Acceptability is the perception among implementation stakeholders that a given treatment, service, practice, or innovation is agreeable, palatable, or satisfactory. Appropriateness is the perceived fit, relevance, or compatibility of the innovation or evidence-based practice for a given practice setting, provider, or consumer; and/ or perceived fit of the innovation to address a particular issue or problem. Feasibility is defined as the extent to which a new interventions, or an innovation, can be successfully used or carried out within a given agency or setting. Finally they developed three new measures (the Acceptability of Implementation Measure, Implementation Appropriateness Measure, and Feasibility of Intervention Measure) that are considered to be important implementation outcomes in their own right as well as considered as leading indicators of implementation outcomes(70).

Outcome of implementation research indicated the Acceptability of Intervention Measure, Intervention Appropriateness Measure, and Feasibility of Intervention Measure are three-item measures of implementation outcomes that are often considered “leading indicators” of implementation success. The measures can be used independently or together. The measures were designed to be as pragmatic as possible. Readability is at the 5th grade level. No specialized training is needed to administer, score, or interpret the measures. Cut-off scores for interpretation are not yet available; however, higher scores indicate greater acceptability, appropriateness, and feasibility(71).

## **2.3 Determinants of Perceived performance of PLEA on malaria prevention and control**

### **2.3.1 Psychographic variables toward PLEA**

Study conducted in Ghana show that School-based malaria education intervention engaging School children as health messenger has a substantial impact not only on school children, but also on community adults in improving knowledge on cause and prevention practices and associated with the

decrease in the malaria prevalence observed in the school children. These activities were socially and culturally acceptable(57).

Study conducted in Rome showed that the perception of peer educators toward the importance of peer-led group showed a significant improvements in skills, knowledge, attitudes, risk perception and preventive skills of students(65). Other study suggested that the positive perception of peers toward peer education, peers are more likely to hear and personalize messages, and thus to change their attitudes and behaviors. Peer education can support them in developing positive group norms and in making healthy decisions about health issues(72).

Mixed study design in Nepal on school-based health education intervention demonstrated that knowledge and practice regarding mass drug administration for lymphatic Filariasis among the school children were low before the implementation of the intervention, but after its implementation, results showed significant increases in mean knowledge (3.03 to 6.15) and practice (69.78% to 89.6%) for children in the intervention group(73).

Evaluation of a school-based Health Education Program in rural South Western, Nigeria showed that Peer education alone and mixed intervention had a significant impact on the students' attitude and perceived self-efficacy(11).

School Peer education evaluation report in Turkey revealed that self-efficacy significantly increased after the program shows the effectiveness of PE and made great positive contributions to the self confidences, motivations, and peer relationships of the students(74).

### **2.3.2 Peers experiences, Perceived Efficacy, Suggestions and Contribution of the Peer learning and Education**

Study conducted in turkey on Peer Education from the Perspective of Peer Educators showed that 90% of peers were experienced exhilaration during the training and conversely some of the peers had difficulties in gaining the attention of the audience during the training due to chatting and did not listen, and became desperate to silence the class. Around 75% of peers self-confidence and knowledge enhanced and they feel grow stronger. Shyness decreased and feeling more popular also developed to peers after training. Becoming peer educators has advantage of family proud to their child since their

child being peer educators and peers develops nice feeling to themselves. The communication and social skills of PEs was enhanced after being peer educators(75).

Qualitative study conducted in Duzce, Turkey revealed that Peer education implementation increase self efficacy of peer around 45%(75). Other positive effects reported by peer educators are noted as responsibility, self-acceptance, awareness, and clarification of self-identify, Again peer educators reported increased concern about the health of others, increased knowledge, awareness of their own health, changes in attitudes and increased communication skills(63).

Schools malaria intervention evidence in Mali shows that Malaria education activities in schools help to increase use of nets among schoolchildren and thereby contribute to higher levels of community coverage as well. Improved malaria control in schools thus has the potential to generate both immediate and longer term benefits for schoolchildren, and for the communities in which they live(21).

Study conducted in Thailand indicated peer education contributed increment of schoolchildren's knowledge about malaria encourage students hear about malaria more often. Again after the schools actively implemented malaria education, positive changes in schoolchildren's behavior towards malaria prevention and they got capacity of issuing newsletters or posting billboards with IEC materials made by the students themselves(76).

### **2.3.3 Student parent communication status and parent readiness.**

Cross sectional study conducted in Jimma primary school show that age was associated to increase the likelihood of children to parent communication. Comprehensive Knowledge related to malaria was positively associated with child to parent communication. Perceived Parental readiness to learn from children also positively associated with child to parent communication (45). Another study shows that students in the intervention area are more likely to talk about malaria than those in the control area (57).

Interventional study conducted in Ghana showed that the frequencies of talking with children and guardians/neighbors about malaria unexpectedly decreased at the post-intervention survey. But, at the baseline, the frequency of talking between children and guardians/neighbors in intervention groups is much higher than those in control groups(57).



Study conducted in Ghana show that School-based malaria education intervention engaging School children as health messenger, community awareness raised by the children about the malaria likely has a substantial impact on increasing net treatment practices. School students successfully adopted education activities using the PLEA approach, such as role-playing, poetry recitals, slogan chanting, song composition and dramatization(57).

School Health as a Strategy to Improve Both Public Health and Education revealed that working together with students play increasingly complex, instrumental, and expanding roles in preventing, detecting, and treating health problems of families, and community that also improve the educational performance of all students(15).

The End of Project Evaluation of the School Health Malaria Control Initiative report in Spanish showed that the child to parent approach was rather successful since most pupils (46%) reportedly passed health related messages to their parents, which represents a marked improvement from only 6% of parents who reported to have received malaria information from their children at baseline. In addition, 78% of respondents learnt from their children malaria control messages(55).

Study conducted on success of school-based malaria control program in primary schools in Thailand showed that schoolchildren's active participation for the program, the schoolchildren started to play important roles as messengers for malaria prevention using newsletter/posting IEC material made involvement of parents and community members appealing for malaria prevention messages(76).

#### **2.3.4. Practice of Peer learning and education perception**

Study conducted in USA showed that Peer teaching by students is perceived as an effective teaching method for use than that used traditional classroom lecture and laboratory. Peer educators wish to consider using this model of peer teaching to augment their teaching strategies for a class in any issues that they want to discuss in detail(77).

Study conducted in England on Evaluating the Peer Education Project in secondary schools show that Students have 18% positive feedback on the training of peer education and 69 % recommended peer program for others. Again 60% of students' trainee responded usefulness of learning from a peer educator compared to a normal teacher. There were significant changes in student-reported key skills

for both peer educators and student trainees, and in understanding of key terms and readiness to support others for student trainees(12).

Evaluating the Peer Education Project in secondary schools results in London UK, showed significant changes in student-reported key skills for both peer educators and student trainees, and in understanding of key terms and readiness to support others for student trainees(12)

Community-based pre-posttest study conducted in Jimma showed that school-based communication has produced significant findings on changes in community malaria messages exposure and preventive actions of malaria(78).

A systematic review revealed that Health Education in Community based Malaria Prevention and Control Interventions in sub-Saharan Africa increased uptake of malaria prevention and control among family and community as large(79)

Generally, Peer education is a strategy in which peers provide information, training, or resources to their peers that used to protected them from disease or risk taking behavior(56). Mixed study indicated that peer education has been a popular method of health education for malaria prevention; because of the positive interaction it brings between peers, students and parents(66). Systematic review Study aimed to examines effect of peer education indicated feasibility and widely used intervention for malaria prevention especially among students as well as their parents(64,80). While multiple reviews have examined effect of peer learning and education at school, few studies have focused primarily on the perceived performance or effect of peer education on malaria through school especially in terms of “leading indicators” factors. So that, understanding the extent and predictors for perceived performance of students on PLEA is essential in developing targeted intervention to protect the students, their family as well as community from malaria disease

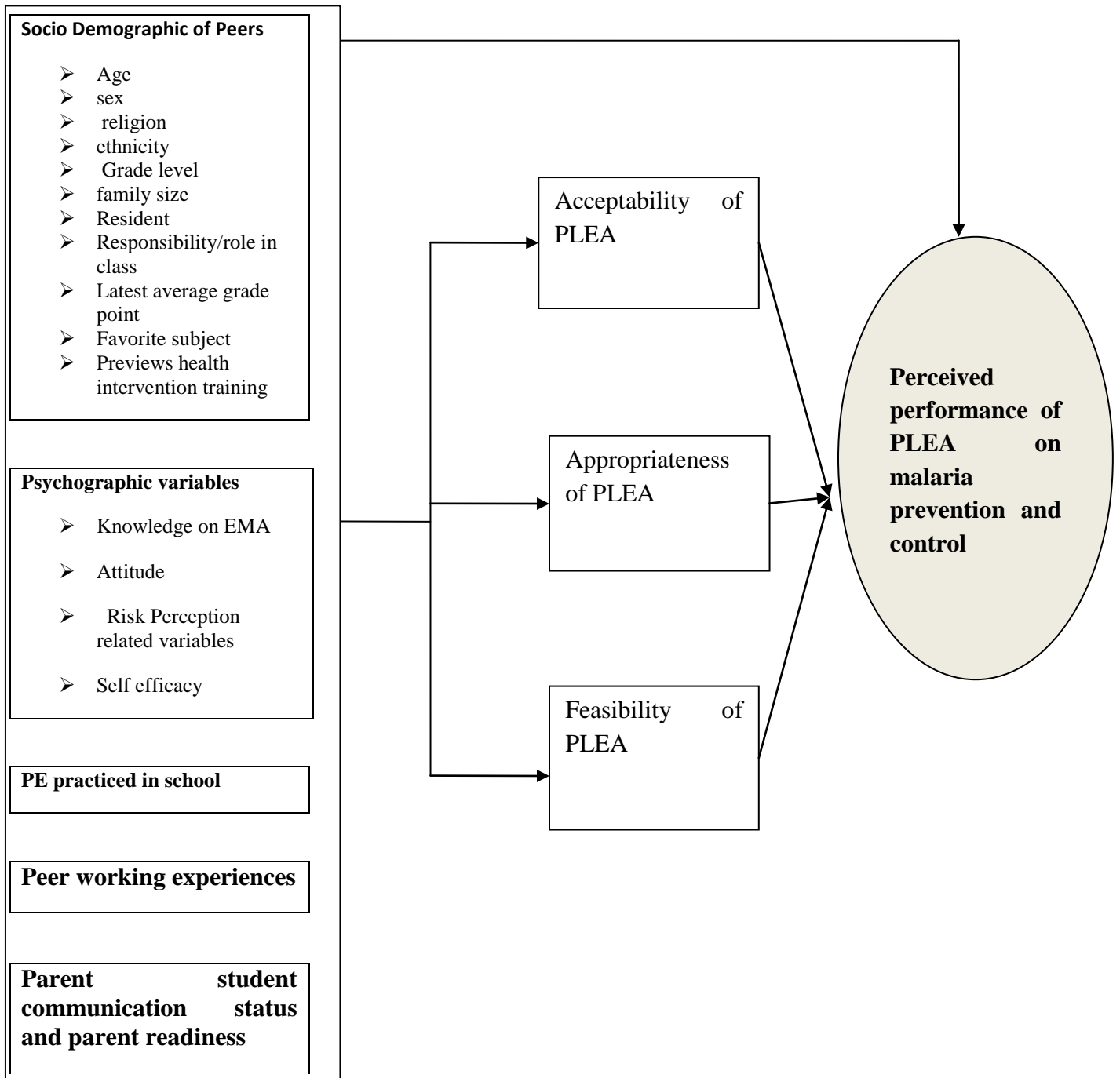


Figure 1 Conceptual frame work of the study adapted from different literatures (Proctor *et al.*, 2011), (Weiner *et al.*, 2017) and (81) with modification: peer educators' perspectives

## **CHAPTER THREE: OBJECTIVE OF THE STUDY**

### **3.1 General Objective**

- To determine perceived performance of peer learning and education approach on malaria prevention and control and its associated factors through primary schools communities in Jimma Zone, southwest Ethiopia 2020: Peer educators' perspectives.

### **3.2 Specific Objectives**

1. To determine perceived performance of peer learning and education approach on malaria prevention and control through primary schools communities in Jimma Zone, southwest Ethiopia 2020
2. To identify the associated factors of perceived performance of peer learning and education approach on malaria prevention and control through primary schools communities in Jimma Zone, southwest Ethiopia 2020

## **CHAPTER FOUR: METHODS AND MATERIALS**

### **4.1 Study area and period**

The study was conducted from April 02 to Jun 08 2020 among trained peer educators of primary student (6-8grade) in Jimma zone. Jimma Zone is one of the administrative zones of Oromia national regional states, which located around 352 km away from Addis Ababa. The zone generally lies with the altitude ranges between 1000 and 3500 meters above sea level. The zone covers an area of 199316.18km<sup>2</sup>. The total population was 2,770,329 out of which about 89.1% of the populations are living in the rural areas and 10.9% are living in the urban areas. The zone consisted of 23 districts and 17(73%) of the villages (kebeles) are malarias and 85% of the population of the zone lives in malaria risk areas. In terms of stratification of risks, 41%, 32% and 27% of the Kebeles are at high, medium and low risk of malaria transmission respectively. In 2014/15 a total of 19,945 malaria cases (confirmed plus clinical) were reported, in which nearly half (49%) of the cases were *P.falciparum*. In 2015/2016, a total of 11,259 malaria cases were reported in Jimma Zone.

### **4.2 Overview of the school based SBCC interventions**

The school engaged SBCC interventions employed various educational and capacity building activities (training, communication resource supports, and follow up supervision) to empower schools and representatives of the local community to cooperatively plan and implement the key malaria preventive actions. It was implemented in a total of 75 *kebeles* (*smallest administrative villages that consist of up to 500 households*) and 75 schools with moderate malaria transmission settings for intensive engagement on malaria communication. Targeting multilevel and complex personal, organizational, and community factors; the interventions were ultimately designed to facilitate behavioral changes by promoting the five key malaria prevention and control practices both at schools and community levels. These were the use of insecticide nets (ITNs), appropriate & timely seeking care for malaria, appropriate use of quality anti-malaria drugs, acceptance of insecticide residual spray (IRS), and draining of potential breeding sources in the villages.

The program was first initiated through participatory consultations of stakeholders or representative of the community including key peoples from health offices, education offices,

health extension workers (HEWs), village leaders and schools. Supervisory committee was established before the actual participatory situation analysis to identify malaria situations, the community needs and intervention strategies. Based on the need assessment results; joint planning (i.e. identifications of roles, developing goals/objectives, devising monitoring and evaluation mechanisms). Finally; the plan was implemented over the period of two and half years through active engagement of the community, health institutions and primary schools.

Accordingly, heads of health offices, education offices, malaria focal persons, health extension workers (HEWs) and village leaders recruited and received first level basic training on community mobilization and malaria prevention and control programs. Schools principals, teachers, and anti-malaria club focal persons and members received basic training on malaria and essential malaria actions and how to lead malaria programs at schools. They were encouraged to cascade down the training through “one-to-five” peer learning networks among school students. “One-to-five” peer learning networks is a kind of social network that consists of 6 individuals (1 leader and the other 5 members) in one group. The purpose is to promote supports among students through a peer learning network. Trained teachers and anti-malaria club members were encouraged to facilitate peer education among school students and finally students were sent to teach their peers, parents, neighbors, and community members through the process called peer learning and education approach (PLEA) in this intervention. Malaria guides and various health learning materials (HLMs) such as flip charts and leaflets were provided.

In addition to PLEA, school communities have supervised to conduct various educational activities within school and in nearby communities using a variety of approaches such as social dramas, campaigns, and community gathering programs. Finally; rigorous monitoring and evaluation activities were implemented to ensure the quality and sustainability of the proposed SBCC activities.

### **4.3 Study Design**

Post-intervention cross-sectional study design was conducted using both quantitative and qualitative methods.

## **4.4 Population**

### **4.4.1. Source population**

The source populations for this study were all trained peer educators students who were learning grade 6-8 in Jimma Zone in 75 primary schools. There were around 8842 peer educators in 75 primary schools trained on malaria prevention and control, and have been undertaking the malaria communication interventions both at schools and community levels in intervention area.

### **4.4.2. Study population**

All selected trained peer educators students who were learning grade 6-8 in Jimma Zone.

## **4.5 Inclusion and Exclusion Criteria**

### **4.5.1. Inclusion Criteria**

Trained peer educators students who were learning grade 6-8, in selected school were included in the study.

### **4.5.2. Exclusion Criteria**

Trained peer educators students who were seriously ill during data collection were excluded.

## **4.6 Sample size**

**4.6.1 Quantitative study:** - The sample size was determined by using a single population proportion formula as follows:

$$n = (Z_{\alpha/2})^2 \frac{P(1-P)}{d^2}, \quad \text{Where:-}$$

n=desired sample size,

P= 0.5 Proportion of perceived performance of trained peer Educators which indicates the maximum variability of study population and gives maximum sample size was considered, since there were no previous studies in Ethiopia that can specially help to address our objectives

z- Confidence interval – 95%,

d- Desired precision (%) – 5 %=0.05,

Using the formula, the sample size become n=384.

Since the source population is less than 10, 000, the population correction formula was used:

$$n_f = \frac{n}{1+\frac{n}{N}}, \quad n_f = \frac{384}{1+\frac{384}{8842}}=368$$

Where,  $n_f$  = the final sample size,  $n$  = initial sample size (384),  $N$ ; Source population all trained peer Educator students = 8,842. In addition, 10% non-response was added. Finally, the calculated sample size becomes **404**. of trained peer educator students. One point five design effect was planned but during data collection school was closed due to COVID 19 so it was omitted considering resource and feasibility of data collection from students through House to House.

**4.6.2. Qualitative study:-**Nine in-depth interviews were conducted consisting of 5 male and 4 females from the lead peer educator students [who had special role in the PLEA activities] from out of those schools selected for quantitative data collection. Further sampling was guided by the emerging concerns or issues from the previous interviews.

#### **4.7 Sampling procedure**

The target participants for this study were trained peer Educator students in Jimma zone of five districts which include 75 primary schools. A total population size of at least 8,842 primary peer educators (class representatives and 1-5 social network leaders) have got the training from school focal teachers in the 75 intervention schools. This gives an expected number of 118 trained peer educators per schools. Three districts were randomly selected. In each district around 15 primary schools were included in intervention( $N=3*15*118= 5310$ ) and 15 schools from all district to realize representative of 30% and 5 schools from each district were included as well by using equal allocation proportion. So, to draw a sample size of 404 from 15 schools; an approximately 27 peer educators have to be selected from each school. Finally; 27 peer educators; 9 from each grade 6<sup>th</sup> 7<sup>th</sup> and 8<sup>th</sup> were included. Since the schools were closed due to COVID 19 during data collection, after taking a complete list of trained peer educator's students from each school as sampling frame, house to House data collection was conducted taking in to account the preventive measures of COVID 19.



For qualitative study, purposive sampling technique was employed by considering maximum variability with the assumption of obtaining “rich” information.

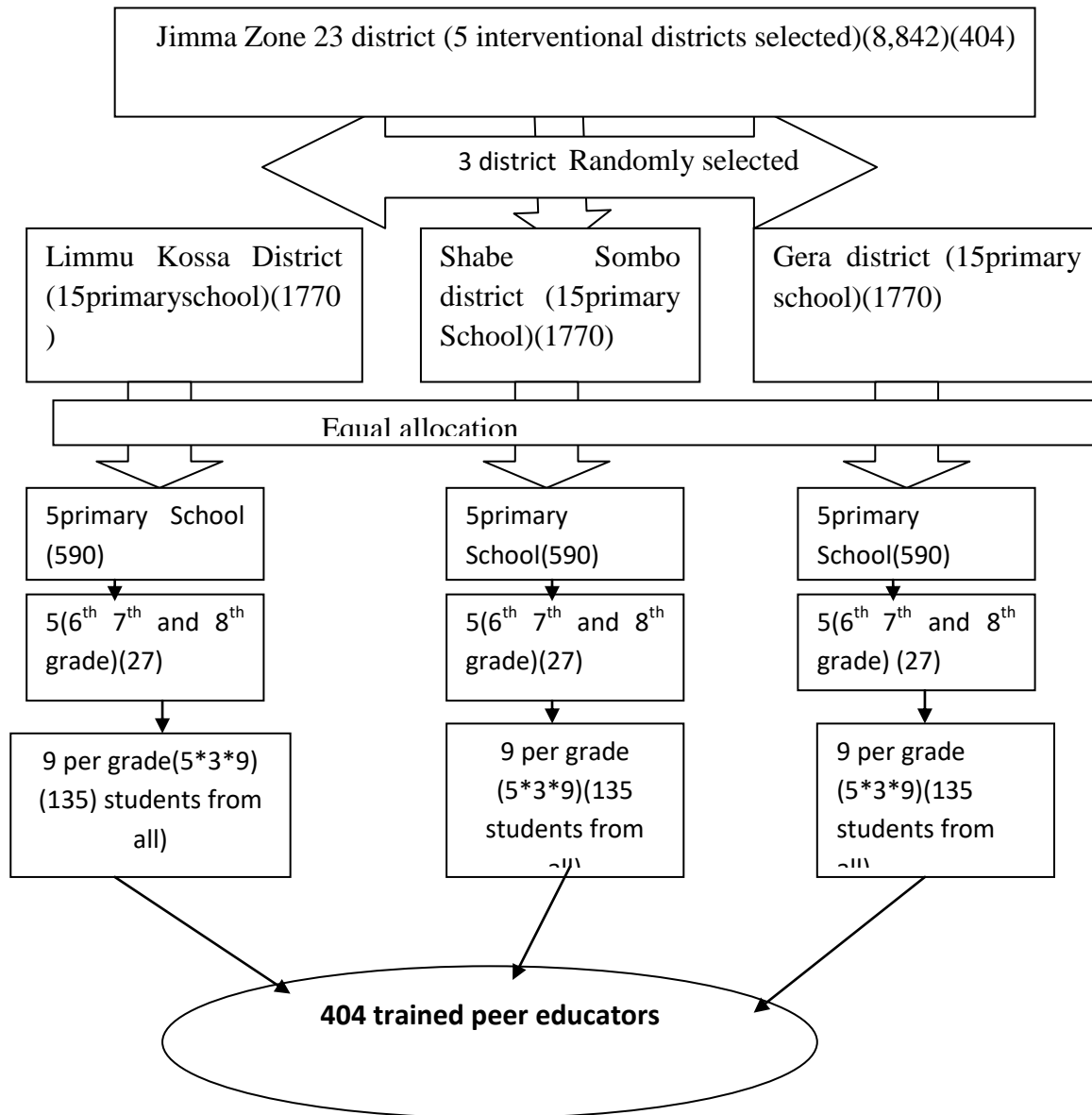


Figure 2:-The diagrammatic presentation of the Sampling procedures of trained peer educators who were participated in the study in Jimma Zone, Ethiopia 2020.

#### **4.8 Data collection tool and procedure**

The questionnaire for addressing the socio-demographic factors and psychographic adapted from different literatures(65,80). Furthermore; questionnaires addressing the intervention outcomes, perceptions and peer education experiences was adapted from previous related studies on program implementation documents(5,65,77,82).This translated semi structured interviewer-administered questionnaire was pre-tested at institutional setting before actual data collection. So, finally the questionnaire contains listed above variables on malaria prevention and control program at school was used for data collection.

Data was collected by health extension worker and teachers with health professional supervisors. Data collectors and supervisors received one-day training on the purpose and procedure of data collection related to this research by principal investigator. Data was checked for completeness and consistency after each day of data collection by supervisors. The overall data collection process was coordinated by the principal investigator.

For qualitative part; It was collected by one health education MPH student and one health worker using interview guide by applying of interview with trained peer educators students. Interview guides developed from review of different evidences and was used as a tool to collect the data. Tape recorder was used during data collection and note was taken. In addition; field notes was address contexts, behaviors, challenges, field based decisions and reflection on daily activities with supervisor was carried out.

## 4.9 Study variables

**Table 1: Dependent and independent variables of the study**

S.N	Independent variables	Dependent variables
1	<p><b>Socio-demographic variables</b></p> <ul style="list-style-type: none"> <li>➤ Age</li> <li>➤ sex</li> <li>➤ religion</li> <li>➤ ethnicity</li> <li>➤ Grade level</li> <li>➤ family size</li> <li>➤ Resident</li> <li>➤ Responsibility/role in class</li> <li>➤ Latest average grade point</li> <li>➤ Favorite subject</li> <li>➤ Previews health intervention training</li> </ul>	<ul style="list-style-type: none"> <li>➤ Perceived performance of Peer learning education approach on prevention and control of malaria</li> </ul>
2	<p><b>Psychographic related Variables</b></p> <ul style="list-style-type: none"> <li>➤ Knowledge on EMA</li> <li>➤ Attitude</li> <li>➤ Risk Perception related variables</li> <li>➤ Self efficacy</li> </ul>	
3	<p><b>Psychometric/lead indicators of Perceived performance related variables</b></p> <ul style="list-style-type: none"> <li>➤ Acceptability of PLEA</li> <li>➤ Appropriateness of PLEA</li> <li>➤ Feasibility of PLEA</li> </ul>	
4	<p><b>Peer working experiences</b></p>	
5	<p><b>Peer education practices in school (frequency, participation etc.)</b></p>	
6	<p><b>Perceived Parent and student communication status (parent readiness/interpersonal communication)</b></p>	

#### **4.10 Operational Definition and Measurements**

**Perceived performance:** The degree to which trained per educator students believe that using peer learning education approach will enhance their performance on malaria prevention and control, students understanding of how well a Peer learning education approach engaged on school based malaria prevention and control functions(70,83). Five points Likert scale was used. Scores were computed. High score indicating high perceived performance

**Table 2:** Measurement and operational definitions of the research

<b>S.N</b>	<b>Dimensions</b>	<b>Operational definition</b>	<b>Measurements and scoring</b>
1	Socio-demographic factors	All factors such as age, religion, ethnicity, residence, grade level, cGPA, roles in school, Number of family, sex of students, previews training and favorite subject). Fifteen questions were used.	All were asked on the basis of different questions
2	Knowledge	Multidimensional questions was used to measure comprehensive malaria knowledge related to cause of malaria, sign and symptoms, prevention measures, about vulnerable groups and malaria biting vector behaviors knowledge for key EMAs (specific to the intervention) were used. Eleven questions were used.	Yes=1/No=0, multiple questions are used. Correct answers were counted down in which higher score showed higher the knowledge level.
3	Attitude	Attitude is defined as respondent's evaluative feeling towards malaria prevention and control measures. Ten items( $\alpha=0.76$ ) that covered insecticide treated net use (3 items), care seeking (2 items), proper use of anti-malarial drugs (2 items) and acceptance for indoor residual spray (1 items), vulnerable groups and malaria situation in the area (2 items) were used.	Five point Likert scale.  The items were summed up to create composite scores. The higher the score shows favorable attitude.

4	Perception of risk	Both perceived susceptibility to malaria infection defined individuals perception vulnerability to malaria based on their daily experiences about the presence of malaria, individuals who caught malaria in neighbor or in the family (six items ( $\alpha=0.73$ )). Likewise; perceived severity explores student perception of the bad consequences resulting from malaria in causing pain, death, interruption with their daily works; such as schooling and its impact on their academic performances(78) (five Items( $\alpha=0.74$ )). Eleven items were used.	Five point Likert scale.  Reverse scoring were done for negatively worded statements. Weighted scores of susceptibility and severity summed up and divided by two to create weighted score of risk perception about malaria.
5	Parent student Communication practices on malaria issues	This kind of formal or informal discussions/talks with parents, peers and others that influence the decision making and behaviors. Students was asked if they have had the discussions in the last 12months on issues like health and particularly on malaria preventive measures (About LLINs, care seeking for fever, cleaning for stagnant water, rate and frequency of parent communication,). Four questions were used	Yes=1, No=0 formats was used based on the nature of the questions. Frequency and rate of communication scored.
6	Malaria preventive practices	Any efforts undertaken by peer educators including sleeping under LLINs last night, removal of stagnant water/cleaning around houses and health seeking for those felt fever(84). Six question were used	Behavioral measures; type of participation on malaria prevention and time of care seeking was measured in “days”

7	<p><b>Perceive performance (dependent variable).</b> This is an outcome variable which was designed to explore the overall perceptions of performance of the school based PLEA intervention in that specific schools and settings. Given their experiences as part of the project facilitators; this further explored perceptions of peer educators about how much or likely the school based PLEA intervention would be practical (like reaching parents and local communities with malaria messages); to leading to the desired outcomes or effects (i.e. improvement in malaria related KAP of students and communities at large); under this particular settings. Eleven items (<math>\alpha=0.84</math>) were used</p>		<p>Five point Likert scale to measure this component. Composite higher showed higher level of perceived performance of the intervention</p>
7.1	<p>Acceptability of implementation measures- (AIM)</p>	<p>This indicates the peer educators perceptions of acceptance/attitude towards the PLEA intervention regarding its benefits to them and to others in terms of their expectations, preferences, felt needs etc. while they were trying to work with team mates or parents on the issue(85). Seven items were designed to capture their judgment on the importance of the PLEA intervention to addressing malaria problems in the area. Seven items (<math>\alpha=0.74</math>) were used</p>	<p>The five points Likert scale ranging from (1) strongly disagree to (5) strongly agree was used.</p> <p>Items were summed up to form scores with high score indicating high Acceptance of PLEA</p>
7.2	<p>Measures of implementation appropriateness (MIA)</p>	<p>Designated to capture peer educators perception of or subjective feeling about how much an intervention can be successfully used or carried out within a given agency or settings. Given the circumstances, supports and resources (time, skills, money, materials); how well they rate to questions consisting of</p>	<p>The five points Likert scale was used.</p> <p>Items were summed up to form scores with high score indicating high perceived</p>

		six each items (73,86). six items ( $\alpha=0.82$ ) were used.	appropriateness
7.3	Measures of implementation Feasibility(MIF)	Defined as the extent to which a PLEA intervention, can be successfully used or carried out within a given school or setting. How well they rate to questions consisting of six items(68,70). Six items ( $\alpha=0.71$ ) were used.	The five points Likert scale was used. Items were summed up to form scores with high score indicating high perceived feasibility
8	Self Efficacy with the given context	The goal of peer education is to primarily empower the peer educators. In effect of their positive or negative experiences the peer educators are supposed to gain from the school based PLEA on malaria interventions(85). This dimension was explore peer educators' immediate psychological empowerment resulting from improved knowledge and SE related to the subject matter (82,86). Ten items ( $\alpha=0.83$ ) were used.	Five point Likert scale to capture their degree of confidence they have about knowledge and skills they gained from participating in the program as peer educators  Items were summed up to form scores with high score indicating high self efficacy
9	Team level experiences	For team level experiences related factor analysis was executed for 15 items with likert scale. By the process of principal component analysis three meaningful factors were emerged. The three factors emerged were	PCA was done.  Factor score was used for farther analysis for each components.



		Experience of eager to share and learn from each other's, Comfortable for team building process and Respective full between team member experiences and the amount of variance explained by each factor was (38.9%), (9.3%) and (7.047%) respectively and jointly they explained (55.2%) of variance.	
9.1	Experience of eager to share and learn from each other's	Peer educators are the most important part of the process, having the ability and credibility to learn and to teach members for better performances(87). Six items ( $\alpha=0.84$ ) were used.	Items were summed up to form scores with high score indicating high Explained in terms of experience share and learn from each other.
9.2	Comfortable for team building process	The peer educators' team level experiences from the start of team formation in schools. Four items ( $\alpha=0.72$ ) were used.	Items were summed up to form scores with high score indicating high Team building process.
9.3	Respective full between team member experience	Peer education is a kind of team work characterized by dynamic interaction, negotiation, participation with goal of teaching or sharing of information and behaviors by members of similar age or status(80). For items ( $\alpha=0.74$ ) were used	Items were summed up to form scores with high score indicating high Respectfully between members.

## **4.11 Data Analyses**

**4.11.1 Quantitative Data:** All responses to the survey questionnaires/ the data was checked for completeness and internal consistency by cross checking and then was coded and double entered into Epi Data 3.1 computer software package. Data was exported to SPSS 24.0 statistical package program for analyses. The distribution of the variables was explored and data cleaning was performed to identify outliers/inconsistency, errors and missing.

The normality of the distribution of outcome variables was assessed using various options including statistical tests (Kolmogorov-Smirnov and Shapiro-Wilk tests) and visual evaluation of histogram and probability plots was done. The major assumptions of the Pearson correlation (normality and linearity of association) were checked. No variations of the assumptions were found.

Descriptive Statistical measures like mean and standard deviation was done and the data was presented using narrative text and frequency tables. The Pearson's correlation analysis was carried out to examine the association between perceived performance and psychometric, experiences again as well as with psychographic predictors as bivariate analysis. Similarly; an independent sample t-test and one way ANOVA was carried out to explore the associations between perceived performance and categorical socio demographic variables, with other variables. In the case of one-way ANOVA where it showed significant mean difference, post hoc test was computed. Those variables which have significant associations with perceived performance at  $p < 0.05$  in bi-variate analysis were qualified for multiple linear regression analysis. Finally, Multiple linear regression model was conducted to identify independent factors associated to perceived performance of peer learning and education approach which included in the final model. Regression coefficients (beta) with 95% CI was interpreted to understand the effects of predictors on the outcome variable.

**5.11.2 Qualitative data:-**Audio records transcribed to Afaan Oromo and translated to English and field note was added to the transcription. The translated documents were imported to Atlas. ti software version 7.1.4 for analysis. Coding and similar codes are categorized (under one family). Again similar family were organized in one super family which finally form Themes through doing

both inductively based on predetermined concepts/objectives of the study. Besides, quotes of participants' expressions that exemplify key concepts were used directly during analysis and interpretation. Finally, the thematically analyzed findings from qualitative data were triangulated with that of the quantitative results and discussions.

## **4.12 Data Quality management and Trustworthiness**

**4.12.1 Quantitative data:-** The quality of data was assured at the maximum attainable level by using standardized adapted questionnaire and following the necessary procedures in order to get the intended results. Such as Questionnaire prepared in English was translated to Afaan Oromo language by language expert who has Masters of Art in Afaan Oromo language and was translated back to English language by other individuals who has MSc in English and was blind to the original English version and comparisons was made to check for its consistency. To ensure quality of data, by taking 5% of the total sample size to pre-test data collection tools was done on trained peer educator students at Nono/alga primary school which were not included in the sample population. Data collectors and supervisors were given training/orientation. Supervisors were monitoring the completeness and consistency of the collected data along with the principal investigator on daily bases at the spot during the data collection time.

**4.12.2 Qualitative data:** -Interview guide was developed in line with the objective of the study. Interview/Facilitation was conducted by experienced and trained data collectors. Conducting debriefing discussion sessions on each day during the entire field work was encouraged to deal with any emerging issues. This Debriefing discussion with advisors, supervisors and data collectors was done, in order to ensure that the interpretation of the finding.

## **4.13 Ethical Consideration**

The ethics of the study was ensured by Institutional Review Board (IRB) of Jimma University; institute of health. Approval letter from health, behavior and society department was obtained to Jimma Zone health office. Again from Jimma Zone health office to each selected District. From

each health sectors and education sectors Approval letter was obtained to each health post and school respectively. School directors were briefed on the objectives of the study and permission to conduct the study was obtained from participating schools. Informed consent was obtained from each study subject after explanation of the objective of the study and children less than 18 years old; family was asked for consent on behalf the students and the students also asked for their willingness to participate in the study. Participant's right to self-determination and autonomy was respected. In order to protect the confidentiality of the information, names and ID numbers was not recorded on the questionnaire and privacy was maintained by independently answering the questionnaire. Code was used for interview.

In addition:- From starting of data collection, issues of COVOD 19 prevention and control was briefly discussed with data collectors and supervisors, again protective equipments (face mask) and sanitizer were issued for data collectors during data collection in order to prevent both responders and data collectors. .

#### **4.14 Dissemination of results**

The research will be presented for research examiners and submit to Jimma University institute of health, Faculty of Public Health, Department of Health, Behavior and Society. Again Copy of the research will be submitted to Jimma Administrative zone, health office, districts education office and health offices covered by study/concerned body. Finally Effort will be made to present it in different seminars and workshops and it will be published.

## CHAPTER FIVE: RESULT

### 5.1. Socio demographic characteristics of respondents

A total of 401 students were involved in this study, making the response rate 99.2%. Out of the total Respondents, 242(60.3%) were male and, 229(57.1%) found in age group 15-19 years. Mean age was 15.59 ( $\pm$ SD 2.24). Majority of them were rural residences 340(84.8%), and 295(73.6%) were Muslim followers, and Around one fifth of respondents 72(18.0%) were took health training others than malaria. Majority of respondents, 344(85.8%) of respondents were Oromo in ethnicity and the mean family size of the respondents were, 6.75 ( $\pm$ SD 2.134).

**Table 3. Socio demographic Characteristics of the participants, Jimma Zone, south west Ethiopia, 2020.**

Variables n=401	Categories	Frequency	Percent (%)
Place of residence	Urban	61	15.2
	Rural	340	84.8
Sex	Male	242	60.3
	Female	159	39.7
Age of students	10-14	144	35.9
	15-19	229	57.1
	20-24	28	7.0
Religion	Muslim	295	73.6
	Orthodox	72	18.0
	Protestant	34	8.5
Ethnic group of students	Oromo	344	85.8
	Amhara	31	7.7
	Kafa	17	4.2
	Other	9	2.2

Role in class	Class leader	69	17.2
	Vice leader	57	14.2
	Other	275	68.6
Health intervention training other than Malaria	Participate	72	18.0
	Not participate	329	82.0
Latest average point	Excellent	48	12.0
	Very good	155	38.7
	Satisfactory	182	45.4
	Fair	14	3.5
	Poor	2	0.5

## 5.2 Malaria related knowledge

The study revealed that almost all, 395(98.5%) of the respondents have heard of malaria. The mean score of trained peer students for knowledge related to Essential Malaria Action, was 0.6474 (SD=0.1753). More than half of the students, 212(52.9) were score knowledge regarding EMA above the mean.

Majority of respondents (346=86.0%) reported that fever was the main symptoms of malaria and 6(1.5%) don't know. Almost all 372(92.8%) respondent reported Mosquito bites was the cause of malaria and 5(1.2%) don't know. Almost all of respondents 377(94.0%) reported that sleeping under mosquito net can protect individual from malaria and less than five respondents don't know. From respondents majority of them know pregnant women and child under three years were more risk group than others (342=85.3%) and 17(4.2%) don't know risk group.

Misconceptions about the causes of malaria were pointed such as drinking dirty water(82=20.4%), getting soaked with rain(78=19.5%), cold and changed weather(73=18.2%), shaking hands of person with malaria(40=10.0%) and eating sugarcane(29=7.2%) were cited as the causes of malaria.

**Table 4: Frequency of the respondents' knowledge about Malaria signs and symptoms, risks of transmission, and prevention methods in Jimma Zone, southwest, Ethiopia, 2020.**

Variables		Yes (f)	%	No	%
Symptoms	Fever	346	86.3	55	13.5
	Feeling cold	224	55.9	177	44.1
	Headache	291	72.6	110	27.4
	Nausea and Vomiting	102	25.4	299	74.6
	Diarrhea	68	17.0	333	83.0
	Dizziness	106	26.4	295	73.6
	Loss of appetite	245	61.1	156	38.9
	Body ache or joint pain	175	43.6	226	56.4
	Pale eyes	93	23.2	308	76.8
	Body weakness	169	42.1	232	57.9
	I don't know	6	1.5	395	98.5
Causes malaria	Mosquito bites	372	92.8	29	7.2
	Eating sugarcane	29	7.2	372	92.8
	hunger (empty stomach)	97	24.2	304	75.8
	Drinking other dirty water	82	20.4	319	79.6
	Getting soaked with rain	78	19.5	323	80.5
	Cold or changing weather	73	18.2	328	81.8
	Lack of hygiene	144	35.9	257	64.1
	shaking hands of person with malaria	40	10.0	359	89.5
	don't know	5	1.2	396	98.8
Protect themselves against malaria	Sleep under a mosquito net	377	94.0	24	6.0
	Using repellants	71	17.7	330	82.3
	not staying out home at night	96	23.9	305	76.1

	Spray house with insecticide	236	58.9	165	41.1
	Keep house surroundings clean	192	47.9	209	52.1
	Fill in puddles (stagnant water)	229	57.1	172	42.9
	early diagnosis and treatment for fever	105	26.2	296	73.8
	Anti malarial drug compliance	246	61.3	155	38.7
	Don't know	2	0.5	399	99.5
Risk groups	Pregnant mother and child under 3 years	342	85.3		
	Adult women	17	4.2		
	Adult man	10	2.5		
	Child of six years old	15	3.7		
	Don't know	17	4.2		

### 5.3 Parent student communication status and parent readiness

Majority of 304(75.8%) of students, reported that they communicated about malaria with their family in the 12 month past. The communication was reported mostly to happen occasionally 203(50.6%) and 22(5.5%) of them reported only one day. The discussion points were about preventive methods, Sleeping under ITN (174=43.4%) and 104(27.7%) discussed about fever treatment. Regarding parents readiness to communication, students reported, 160(39.9%) good, 57(14.2%) poor, 55(13.7%) Excellent, 17(4.2%) undetermined and 15(3.7%) of them report quite poor.



**Table 5: Parent student communication and family readiness in Jimma Zone, Ethiopia 2020.**

Variables	Frequency	Percentage
Talk about malaria in general with parents in 12 months past		
Yes	304	75.8
No	97	24.2
Frequency of talk about malaria with family		
Only one day	22	5.5
Rare	47	11.7
Occasionally	203	50.6
Always	32	8.0
Point of discussion(communication)		
ITN	174	43.4
Fever treatment	104	25.9
Anti malaria drug utilization	111	27.7
Disposing stagnant water	150	37.4

#### **5.4 Peer education practice in school**

Majority, 341(85.0%) of students reported that they had conducted peer education in school in the two Years past and the schedule was majorly every two weeks which accounts (124=30.9%). But currently peer education is conducted among 156(38.9%) and majority of 245(61.1%) them report they are not currently conducting peer education in their school.

**Table 6: Peer education conducted in two years past and currently conducted schedule in school in Jimma Zone, Ethiopia 2020.**

Schedule	Past two years		Currently conducting	
	Frequency	Percent	Frequency	Percent
every day	14	3.5	14	3.5
every week	90	22.4	30	7.5
every two weeks	124	30.9	65	16.2
every three weeks	9	2.2	4	1.0
every four weeks	24	6.0	9	2.2
only some times	80	20.0	34	8.5
Total conducted	341	85.0	156	38.9

### **5.5 Descriptive statistics of perceived performance, psychometric, psychographic and Team level experience**

The study revealed that the mean score of the perceived performance scale was  $44.31 \pm 6.13$ , which were above expected mean value and more than half of the trained peer educator students (226=56.4%) were scored above the mean value. The mean score of Appropriateness was  $24.24 \pm 3.91$ , Acceptability was  $26.76 \pm 4.35$  and Feasibility was  $22.74 \pm 3.32$  and majority (223=55.6%), (240=59.9%) and (233=58.1%) of trained peer educator students scored more than the mean value respectively. Again more than half of the trained peer educator students (231=57.6%) scored attitude about malaria greater than the mean ( $38.54 \pm 6.86$ ) but around half the students scored self efficacy (202=50.4%) and risk perception (205=51.5%) about malaria less than the mean scored ( $41.14 \pm 4.89$ ) and ( $18.75 \pm 3.06$ ) respectively.

There were 15 items for team level experience. One weakly correlated item were excluded from any of the factor emerged and 14 items were loaded under the three factors 6 for factor one, 4 for remaining two factors each. The mean score for experience of eager to share and learn from each other's was  $24.69 \pm 3.76$   $16.23 \pm 2.39$ ,  $16.72 \pm 2.53$  for comfortable for team building process and for respective full between team member experience respectively.

**Table 7: Descriptive statistics for dependent and independent variables of trained peer educator's student in Jimma zone**

S.N	Variables	Number of Items	Scale possible range	Observed range	Scale mean	SD	Cronbach's Alpha
1	Acceptability	7	7-35	11-35	26.76	4.35	0.74
2	Appropriateness	6	6-30	6-30	24.24	3.91	0.82
3	Feasibility	6	6-30	6-30	22.74	3.32	0.71
4	Perceived performance	11	11-55	11-55	44.31	6.53	0.84
5	Attitude	10	10-50	17-50	38.54	6.86	0.76
6	Self efficacy	10	10-50	18-50	41.14	4.89	0.85
7	Risk perception		5.5-27.5	7.5-25.5	18.75	3.06	
8	Eager to share and learn from each other	6	6-30	6-30	24.69	3.76	0.84
9	Team building process	4	4-20	8-20	16.23	2.39	0.72
10	Respectful between team members	4	4-20	7-20	16.72	2.53	0.74

## **5.6 Relationship between Perceived performance, socio demographic factors and other Variables**

Mean scores difference for perceived performance was assessed by one way ANOVA and independent sample t test. The F-test/ANOVA indicated that, there was statistically significant mean difference in perceived performance related to peer learning and education among students in different grade level ( $F= 2.362$ ,  $DF= 2$ ,  $p= 0.039$ ), mean score for grade six were (43.15), grade seven (44.76) and grade eight (45.02). Post hoc test, was used to identify the source of the significant F, and indicated that the mean perceived performance score for grade six ( $43.15\pm 7.49$ ) was significantly lower than the mean received performance for the grade seven and grade eight. Again favorite subject was statistically significant mean difference in perceived performance related to peer education among students ( $F= 4.36$ ,  $DF= 10$ ,  $p<0.001$ ). Similarly Post hoc test, was used to identify the source of the significant F, and indicated that the mean perceived performance score for favorite more than one subject ( $47.77\pm 3.31$ ) was significantly greater than the mean perceived performance for favorite Afan oromo ( $42.28\pm 6.55$ ) and favorite of chemistry ( $41.76\pm 7.54$ ).

The t-test/independent Sample t-test indicated that, there was statistically significant mean difference in perceived performance of peer education among students in different practice level in their school ( $t= 2.095$ ,  $DF= 68.611$ ,  $p= 0.04$ ) mean score for those who practiced peer learning in school ( $44.68\pm 5.96$ ) score was significantly higher than those who were not practiced ( $42.18\pm 8.89$ ).

## **5.7 Association between dependent and continuous independent variables**

The Pearson's correlation coefficients showed that other than attitude and latest Average all continuous variables were significantly and positively correlated with perceived performance. The highest and lowest positive correlation was observed between perceived performance and Appropriateness ( $r = 0.603$ ,  $p< 0.01$ ) and between perceived performance and knowledge for EMA ( $r=0.172$ ,  $p<0.01$ ) respectively. No strong multi collinerity had been seen between each independent variable. This correlation is required to decide whether to run or not the regression analysis.

**Table 8: Pearson's Correlation between dependent with independent and Socio demographic variables (n= 401)**

Components	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Perceived performance	1													
Age	.195**	1												
latest average point	.030	.001	1											
Family size	-.194**	.083	-.031	1										
Acceptability	.388**	.202**	.109*	-.223**	1									
Appropriateness	.603**	.145**	.034	-.195**	.556**	1								
Feasibility	.600**	.123*	.053	-.124*	.475**	.682**	1							
Self efficacy	.489**	.016	-.030	-.275**	.303**	.474**	.422**	1						
Knowledge for EMA	.172**	.109*	-.018	-.022	.239**	.262**	.173**	.224**	1					
Attitude	.068	-.269**	-.007	-.084	.091	.049	.140**	.118*	.108*	1				
Respective full between team member	.522**	.045	-.054	-.163**	.248**	.482**	.473**	.485**	.244**	.122*	1			
Eager to sharing Experience and learn from each other	.586**	.082	-.036	-.216**	.300**	.469**	.420**	.545**	.269**	.054	.617**	1		
Happy to team formation process	.520**	.062	.019	-.118*	.352**	.545**	.483**	.442**	.184**	.055	.633**	.482**	1	
Risk perception	.360**	.404**	.047	-.086	.193**	.225**	.155**	.145**	.070	-.290**	.151**	.306**	.241**	1

\*\* Correlation is significant at the 0.01 level (2-tailed). \* Correlation is significant at the 0.05 level (2-tailed).

## 5.7 Factors associated perceived performance of PLEA

In the bivariate analysis it was found that from socio demographic variables all of them: age, sex, resident, family Size, role in class, latest average point, favorite subject, previews training on other health issue and grade level were entered in vicariate Analysis. From that Age, Family Size, And favorite Subject (Afan oromo, chemistry and favorite to more than one subject) were candidate for multiple linear regression analysis with  $p$ -value  $< 0.05$ . From psychographic related variables all (knowledge about EMA, Attitude, risk perception and self efficacy) were candidate for multiple linear regression except Attitude, psychometric related Variables all (Appropriateness, acceptability and Feasibility) were also candidate for multiple linear regression. Again from team level Experience after conducting PCA (respective full between team member Experience, eager to sharing Experience and learn from each other and happy to team formation process experiences), practicing peer education in school and Communicating about Malaria with Family were identified significantly associated with  $p$ -value of  $<0.05$ .

Prediction of perceived performance to PLEA in Multiple linear regression indicate that with standardized regression coefficients, Feasibility of PLEA in school ( $\beta= 0.253$ ,  $p < 0.05$ ) was found to be the best factor followed by Eager to share experience and learn from each other Experience ( $\beta= 0.207$ ,  $p < 0.05$ ). This indicates; Feasibility of PLEA in school and Eager to share experience and learn from each other increase perceived performance of trained peer educator students toward PLEA in school. Trained students who were perceived Feasibility of PLEA in school will have 25.3% higher perceived performance than their counterparts. The experience sharing and learning from each other increases a unit perceived performance of trained students toward malaria control and prevention by 20.7% keeping other conditions constant. Similarly, a unit-positive think Appropriateness of PLEA in trained students will increase the perception performance of individuals by 16.3 % provided that all the other factors kept unvaried. Similarly in this study, Risk perception about Malaria, self efficacy toward conducting PLEA and favorite more than one subject was found to be will increase perceived performance of PLEA in malaria prevention and control by factors of ( $\beta= 0.143$ ,  $p < 0.001$ ), ( $\beta= 0.097$ ,  $p < 0.024$ ) and ( $\beta= 0.075$ ,  $p < 0.036$ ) respectively.

**Table 9: Multivariable Linear Regression for perceived performance toward PLEA among Jimma Zone trained peer educator students, South West Ethiopia, 2020.**

<b>Variables</b>	<b>Standardized <math>\beta</math></b>	<b>P-value</b>	<b>95% CI for <math>\beta</math></b>
age	0.048	0.200	[-0.75, 0.355]
Family Size	-0.025	0.490	[-0.290, 0.139]
Favorite of A/Oromo	-0.033	0.341	[-1.975, 0.684]
Favorite of chemistry	-0.058	0.102	[-2.712, 0.247]
Favorite of More than one subject*	0.075	0.036	[0.084, 2.511]
Knowledge of EMA	-0.050	0.160	[-0.309, 0.051]
Self efficacy*	0.097	0.024	[0.017, 0.242]
Feasibility*	0.253	0.000	[0.313, 0.682]
Acceptability	-0.003	0.953	[-0.129, 0.122]
Appropriateness*	0.163	0.002	[0.099, 0.442]
Peer education practice	0.021	0.550	[-0.861, 0.614]
Communicating with family	0.034	0.327	[-0.518, 1.553]
Risk perception*	0.143	0.000	[0.142, 0.466]
respective full between team member experience	0.066	0.190	[-0.060, 0.301]
happy to team formation process experiences	0.072	.125	[-0.052, 0.424]
eager to sharing Experience and learn from each other*	0.207	.000	[0.308, 0.826]

\* significant at  $p < 0.05$

### **5.7.1 Perceived implementation of PLEA**

Mentioning the unprecedented historical impacts of malaria morbidity that was infested in the area; participants stressed that the community has high concern of vulnerability to the disease and consequently eager to attend or participate in any available malaria related educations or campaigns. This implies that such school based PLEA intervention appears appropriate as it has got high attention and acceptance in the area to addressing community's needs

### **5.7.2 Peers commitment as result of PLEA effectiveness**

Having little support from school and projects, students reported that students have commitments to practice peer education and community/family have good acceptance for that program(PLEA), since it has good effective for malaria prevention and control. This indicate that since programs have enormous advantage for preventing them from malaria, due to high commitment of students and acceptance of community/family, programs can be sustained if some program runner take responsibility for coordination.

### **5.7.3 Team level expierances and skills**

Regarding Team level for peer education found in school, students reported that challenges occurred at the beginning of the program solved using different techniques, and team formation comes from different backgrounds this encourage teams for sharing experience, respecting each other and helped them to develop various skills. This means the way of forming teams in school can help students share their ability/skills for each other and has great role in solving challenges.



**Table 10. Shows qualitative findings, from IDI, Jimma Zone , southwest , Ethiopia, 2020 (N= 9 individuals across 4 female and 5 Male IDIs ).**

Major themes: on PLEA interventions	Descriptions for the major themes (data based)	Supportive quotations (from the interviews)
<p><b>1.PLEA Implementation outcome</b></p> <p>1.1 acceptability</p> <p>1.2 appropriateness</p> <p>1.3 concern of vulnerability or risk</p>	<p>PLEA programs were liked and accepted very well among students, family and community</p> <p>Implementing PLEA were appropriate in school and as well in the community</p> <p>malaria can harm all and child were more vulnerable as the result community use appropriate prevention method</p>	<p><i>Grade 8 male student said, I liked it. Our message has a big acceptance by our families and Community support as, Especially while dispose stagnant water, cleaning environment</i></p> <p><i>Grade 8 male students said, learning in this style and learning about this disease is very good and important as I think...”</i></p> <p><i>“Grade 6 student said, Malaria can cause great morbidity, so we use ITN, disposing stagnant water and keeping our environment clean. In our local no more burdens of malaria but in some occasion in appeared while it harms some peoples. Especially child.</i></p>
<p><b>2.Perceived effectiveness of PLEA</b></p> <p>2.1 Sustainability</p> <p>2.2 community engagement</p> <p>2.3 Peer education practiced, school community accept and little support from school</p>	<p>PLEA program can be sustained but need support from government and responsible body</p> <p>Since PLEA have great benefit for malaria prevention and control community participate actively</p> <p>Students have good commitment to conduct peer education in school and</p>	<p><i>Grade 8 male student said, The program should be continued, it brings a great benefit regarding to prevent malaria, But it needs government support and good follow up from responsible body to sustain it.</i></p> <p><i>Grade 8 male student said, Community support as, this also done with community as well. Community participates on this actively because they know the disease has great impact on their health.</i></p> <p><i>Grade 7student male said, I dint see any support from school other than training or Advice, but they gave as big registration and manual/guide that we</i></p>

	campaign in the community even they didn't get more support.	<i>read. It is difficult to say there was good support. But we trained many times to educate others using free class time, even our friends out of school.</i>
<b>3. Team level experience and skills</b> 3.1 Team formation process 3.2 experience share 3.3 group relation and challenge faced	<p>Team formation were based different criteria, such as academic performance, proximity, gender..etc</p> <p>Student share their experience freely for each other and raised different idea that resulted from their different background</p> <p>Students faced challenge around the beginning of the program but solved it using different techniques.</p>	<p><i>Grade 7 female student said, First student those were academically clever were selected. Other student, it may include female student, it may depend on proximity.... randomly grouped under that clever student. That clever student is leader, other writer, vice leader selected. He/she bring any order from the top and told to his/her member.</i></p> <p><i>Grade 8 male student said, The experience we get from the circle is we learn how much working by team is effective rather than individual, the members respects each other and the group leader, there was active participation because it is on our health issues.</i></p> <p><i>Grade 7 female student said, Around the beginning some students disturb the program, a few disagreements among the members, some of them ignore as, sometimes there also scorn the issues but it has been handled by gradual discussion and reporting to the supervisors.</i></p>

## CHAPTER SIX: DISCUSSION

This study tried to determine perceived performance of PLEA and its associated psychometric Measurements, psychographic determinants and socio-demographic factors of trained PE students to which students believe that using peer learning education approach enhance their performance on malaria prevention and control. To this regard the study revealed that the mean score of the perceived performance of PLEA was 44.31 which were above expected mean level. This is relatively higher than similar study reported from England(12) and Eritrea (9). The difference may be due to study setting as well as study time that our study was done latter after due attention has been given to peer learning and education approach in most developed and developing country. Regarding from psychometric variables Feasibility (perception of PLEA can be successfully used or Carried out within a school) had statistically significant higher than Appropriateness (perceived fit, relevance of PLEA) to perceived performance which students believe that using peer learning education approach enhanced their performance on malaria prevention and control. This imply that Peer learning and educational approach intervention in school was feasible and appropriate that indicated the program was produced desired effect on malaria prevention and control practice. Similar study explain the feasibility of peer education in china(88), in Nepal(73) and Moldova result confirmed that collaborative learning approach was feasible(69). Assessment of three newly developed implementation outcome measures defined acceptability, appropriateness, and feasibility(70) but acceptability(the perception among trained peer educators that a given PLEA in school was agreeable, palatable, or satisfactory for malaria prevention and control) was not significantly associated in this study this may be due to study design and study setting.

In this study, (qualitative finding) mentioning the unprecedented historical impacts of malaria morbidity that was infested in the area of program interventions, community has high concern of vulnerability to the disease and consequently eager to attend or participate in any available malaria related educations or campaigns. This implies that such school based PLEA intervention appears appropriate as it has got high attention and acceptance in the area to addressing community's needs. Similar finding in Thailand showed that school-based malaria control program was found appropriate and had effective in changing schoolchildren's and community malaria preventive behaviors(76). Other study in turkey showed that positive contributions of the peer education

program and peers have accepted the programs that it protects them and their peers as well as their community from risk behaviors(75)

In this study (qualitative) there were little support from school and projects, even most of the time no constant program for peer learning and education in school. But students have commitments to practice peer education and community/family has good acceptance for PLEA. This was due to good effectiveness of the intervention programs for malaria prevention and control. This indicate that since programs have enormous advantage for preventing them from malaria, due to high commitment of students and acceptance of community/family, programs can be sustained if some program runner take responsibility for coordination. Similar study in London UK revealed that perceived quality of relationships and support within schools affect the implementation of peer education but recommend to other students to participate(12). Other qualitative findings from the Nepal as the students perceived the program to be sustainable(21). Again other finding indicated that Effective learning and a supportive school environment appear to be important components to support implementation(73). Similar report indicated in Spanish challenges were rather logistical nature from project and school(55). Peer educators evaluation from world vision reported schools were supportive of the program and provided the necessary support and space to the peer educators and all the schools expressed an interest in continuing with the project, even the school that has not implemented was keen to continue with the program(74).

Acceptability had no significant adjusted effect in perceived performance from the quantitative finding. This is contrary, with study conducted on Mental Health and Mental Health Services Research done on Acceptability of Intervention Measure(71). The difference may be due to the variation of study design. Qualitative finding of this study indicated that high acceptance of PLEA program in perspective of peer educators. This qualitative finding was similar with study conducted in Scotland on peer-led school based smoking prevention program of mixed design, as peer led school interventions had positive impact to protect them from risk behaviors, as the result students like the program(64).

In this study; having self efficacy about effect of school based PLEA on malaria interventions was significantly and positively associated with perceived performance. Self efficacy is again important and necessary for Appropriateness of peer learning and education to predict perceived performance of trained Peer educator students toward PLEA. This finding suggests; self efficacy might have positive impact on appropriateness and Feasibility to influence trained peer educators perception toward PLEA. Similar finding was reported from related studies done on High school in Western Cape that self efficacy had relationship with peer learning in school(13) and Qualitative study conducted in Duzce, Turkey similarly Peer education implementation increase self efficacy(75).

Regarding risk Perception; perception of risk to malaria was significantly and positively associated with perceived performance of peer learning and education approach on malaria prevention and control. Risk perception is again important and necessary for Appropriateness and Feasibility to predict perceived performance of trained PEs students toward peer learning and education approach program. This finding suggests; perceiving susceptible and vulnerable to malaria infection have positive impact on perceived performance of PLEA that lead them to practice of malaria prevention and control as well as has positive impact on both appropriateness and Feasibility to influence trained peer educators perception toward PLEA. Similar finding was reported from related studies done in Zanzibar that risk perception positively associated with peer education program(89) and again Study conducted in Rome showed that the significant Association of risk perception and perception of peer educators(65). Study conducted in Jimma also revealed that Perceived risk of malaria advised preventive practices of students and community that implemented in the PLEA program(78).

Qualitative finding, Regarding Team level for peer education found in school, challenges occurred at the begging of the program was solved using different techniques, and team formation comes from different backgrounds, this encourage teams share experience, respecting each other and help them developing different malaria prevention skills. This means the way of forming teams in school can help students to share their experience freely and the way of selecting leader to members lead them to solve challenges. Similar project study reported from Limestone Coast region that Peer education based on the concept of equality; it allows interactions between individuals of similar

age, experience and backgrounds(56). Again similar Study finding conducted in South Australia(77), peer educators share their experience and ensured safe learning environment, coped different challenges. They actively participated in differ activities of the peer education programs.

Regarding Team level experience, this study showed that, Eager to sharing Experience and learns from each other was significantly and positively associated with perceived performance from other team level experiences. This finding was in line with Study conducted in Eritrea on effects of Peer Education on Peer Educators(9) and finding from Australia peer education program encourage individuals share their experience and support each other on health information(77)

In this study, qualitative finding revealed that, trained peer educators had faced scorn, disturbed while teaching and rejected by their fellow peers at the start of the program. Trained peer educators reported that most of the problems they faced were resolved through process and reporting for supervises. Similar study reported in Evaluating Youth Sexual Health Peer Education Programs Challenges in Canada and Turkey(90)(91)

Regarding, the results of this study revealed from socio-demographic variables only favorite of more than one subject was significantly predicted Perceived performance of peer learning and education approach. Trained peer educators students who were favorite /like more than one subjects positively predicted perceived performance or belief that peer learning and education approach that conducted in school help them and their peer as well their family on malaria prevention. Finding was reported from related studies done in University of Connecticut, relationship between perception of peer learning and subject matters they like (92) and other study in Virginia, United States revealed that as relationship between favorite of subject matters and peer learning perception (93).

### **Strengths and Limitations of the study**

This study had strength by considering malaria prevention and control strategy that of individual behavioral performance indicators required in the period of malaria elimination-eradication plans. Schools and school-based peer learning and education approach are currently getting global attention for involvement in public health. Again the study has the strength of combining both

quantitative and qualitative methods of data collection as well as using validated tools. However, the study has the Limitation of; due to the nature of cross sectional study design, it is difficult to establish the cause effect relationship between the associated factors and outcome variables. Recall bias may be one of the limitations of the study and Interviewer bias may also have occurred. Data was collected based on participants' self-reports, which may be associated with socially desirable bias. Qualitative data collection was collected by in-depth interview due to COVID 19 but it was better if collected by FGD because most of students fear to talk while they are alone and difficult to probe questions.

## **CHAPTER SEVEN: CONCLUSION AND RECOMMENDATION**

### **7.1 CONCLUSION**

Overall; the study revealed that, Considerable high level of perceived performance of PLEA on malaria prevention and control in school. The perceived performance of peer learning and education approach was a function of Feasibility and appropriateness of peer learning and education approach on malaria prevention and control. PLEA was accepted both by trained students and their family as well. Self efficacy and risk perception about malaria produce positive belief about PLEA. Again Eager to sharing Experience and learns from each other at team level and controlling challenge of trained peer educators promote members for better performances of PLEA in school. Favorite more than one subject from socio-demographic variables was significantly associated to perceived performance.

### **7.2 RECOMMENDATION**

Based on the above findings, the following recommendations are forwarded:

- ❖ Health professionals should develop Targeted message and guideline for malaria prevention and control that trained peer educator students regularly used in school based education and should used the students as messenger for family/Community.

- ❖ Health and Education office should have active commitment and demonstrable support for ongoing implementation, renewal, monitoring and evaluation of the PLEA strategy in school.
- ❖ Government Administrative should give emphasis on peer learning and education in school for effective malaria prevention and control and should work on continuity of the program throughout all school.
- ❖ Researchers need to perform further research on practice level of this group and it is better to conduct more institutional based studies and to identify qualified trained peer while giving training for their groups. Again better to measure Effect of PLEA at Community level.
- ❖ Public health managers planer and health policy makers should give due attention in considering Feasibility and appropriateness of peer learning and education approach in school while implementing of PE strategies which can be integrated into existing school program.
- ❖ So malaria peer learning should be strengthened in the schools to advance malaria prevention and control behavior of the students and family being in collaboration with trained teachers and health facilities. Health policy makers, Woreda health offices and health facilities should give attention for schools based peer learning education approach about malaria prevention and control strategies conducted to meet national malaria elimination plan program using primary students as change agents.



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## ANNEXS

### ANNEXS 1

#### STUDY INFORMATION SHEET AND VERBAL CONSENT JIMMA UNIVERSITY INSTITUTE OF HEALTH, FACULTY OF PUBLIC HEALTH

##### **Informed Consent format**

**Title of Study:** Perceived performance of peer learning and education approach on malaria prevention and control and its associated factors through schools communities in jimma: peer educators perspectives, south west ethiopia, 2020

**Background:** You are being requested to take part in a research study. Before you decide to take part in this study, it is important that you realize why the research is being done and what it will involve. Please take the time to read the following information carefully. Please ask the researcher if there is anything that is not clear of if you need more information.

**Study Procedure:** Your estimated time commitment for this study is: 25-30 minutes.

**Risks:** The risks of this study are negligible. These risks are similar to those you experience when revealing work-related information to others. The topics in the survey may indignity some respondents. You may decline to answer any or all questions and you may terminate your involvement at any time if you choose.

**Benefits:** There will be no direct benefit to you for your participation in this study. However, we hope that the information obtained from this study may be useful for planning an intervention measures at school setting and at community level as well.

**Alternative Procedures:** If you do not want to be in the study, you may choose not to participate and you can told to as you going to leave the interview.

**Confidentiality:** Please we do not going to write any identifying information on your questionnaire. Your responses will be unnamed.

**Costs to Subject:** There are no costs to you for your participation in this study.

**Compensation:** There is no financial compensation to you for your participation in this study.

**Consent:** I confirm that I have understood the information and have had the opportunity to ask questions. So, i understood that my participation is voluntary and that I am free to take out at any time, without giving a reason and without cost.

I Agree  I Disagree

**Name of investigator:** \_\_\_\_\_ **Address:** Jimma University, Institute of Health, Faculty of Public Health

**Survey questionnaires in English version. An Interviewed administered questionnaire for Primary school students.**

Part I: Socio-demographic characteristics		
	Items	Alternatives
1	District name	_____
2	Altitude at the center of the Kebele	
3	Kebele name	_____
4	School name	_____
5	Residence	1. Urban 2. Rural
6	What is your age?	_____ [completed years]
7	Sex	1. Male 2. Female
8	Grade level	1. 6 <sup>th</sup> 2. 7 <sup>th</sup> , 3. 8 <sup>th</sup>
9	What is your latest average grade point?	Mention: _____
10	What is your (best) favorite subject?	Mention: _____
11	Role in the class?	1. Leader 2. Deputy leader 3. Other _____
12	What is your religion	1. Muslim 2. Orthodox

		3. Protestant 4. Other [specify]_____
13	What is your ethnicity	1. Oromo 2. Ahmara 3. kafa 4. Other]_____
14	What is the number of people you live within the family? (who lived for >=6 months)	Mention:_____ (Male:_____, Female____)
15	Did you participate in any health intervention training, other than this project so far?	1.yes 2. No
16	If Yes, on Q15 please mention here	1. _____ 2. _____ 3. _____

**Part II: knowledge about essential malaria actions, risk perceptions, attitude, parent- student communication and PE practiced on/about malaria that engaged school based malaria prevention and control Jimma Zone, Ethiopia.**

D-1	Knowledge items	Answers
17	Have you ever heard of or know an illness called malaria/woba/busu?	1. Yes 2. No,
18	Can you tell me the main symptoms of malaria?  Don't read options MULTIPLE RESPONSES PROBE ONCE (Anything else?)	1. Don't know 2. Fever 3. Feeling cold 4. Headache 5. Nausea and Vomiting 6. Diarrhea 7. Dizziness 8. Loss of appetite/refuse to eat/drink 9. Body ache or joint pain 10. Pale eyes 11. Body weakness 12. Other (Specify)_____
19	In your opinion, what causes malaria?	1. don't know 2. Mosquito bites 3. Eating sugarcane



	<p>Don't read option</p> <p>MULTIPLE RESPONSES</p> <p>PROBE ONCE (Anything else?)</p>	<ol style="list-style-type: none"> <li>4. hunger (empty stomach)</li> <li>5. Drinking other dirty water</li> <li>6. Getting soaked with rain</li> <li>7. Cold or changing weather</li> <li>8. Lack of hygiene</li> <li>9. shaking hands of person with malaria</li> <li>10. Other (Specify)_____</li> </ol>
20	<p>How can a person protect themselves against malaria?</p> <p>Don't read options</p> <p>MULTIPLE RESPONSES</p> <p>PROBE ONCE (Anything else?)</p>	<ol style="list-style-type: none"> <li>1. Don't know</li> <li>2. Sleep under a mosquito net</li> <li>3. Using repellants</li> <li>4. not staying out home at night</li> <li>5. Spray house with insecticide</li> <li>6. Keep house surroundings clean</li> <li>7. Fill in puddles (stagnant water)</li> <li>8. Don't get soaked with rain</li> <li>9. early diagnosis and treatment for fever</li> <li>10. antimalarial drug compliance</li> <li>11. Other (Specify)_____</li> </ol>
21	<p>In your opinion, who is most likely to get a <u>serious case</u> of "malaria" among families?</p>	<ol style="list-style-type: none"> <li>1. don't know</li> <li>2. Adult man</li> <li>3. Adult women</li> <li>4. Pregnant women and child under 3 years</li> <li>5. A child of six years old</li> </ol>
22	<p>Does your household have mosquito nets that can be used while sleeping?</p>	<ol style="list-style-type: none"> <li>1. Yes <span style="float: right;">If 2,</span></li> <li style="padding-left: 100px;">skip to Q28</li> <li>2. No</li> </ol>
23	<p>How many mosquito nets does your family/household have?</p>	<p>_____ [number of nets]</p>
24	<p>Did you slept under net previous night?</p>	<ol style="list-style-type: none"> <li>1. yes</li> <li>2. no</li> </ol>
25	<p>Would you mention some of activities you participate in for the purpose of controlling mosquito</p>	<ol style="list-style-type: none"> <li>1. Nothing</li> <li>2. Clean/dispose stagnant water around school/ Home</li> <li>3. Planting flower</li> </ol>

	breeding last time?	
26	Have you been sick from fever during the last 2 weeks?	1. Yes      2. No      If 2, Skip to 30_____
27	Did you seek advice or treatment for the fever from any source?	1. Yes      2. No      If 2, Skip to__30__
28	How many days after the fever began did you seek treatment?	Mention: _____ (in days)
29	Was the case or fever confirmed by health workers?	1. Yes      2. No
30	<p><b>Knowledge on EMAs</b></p> <p>Would you please mention the eight essential malaria actions (EMAs) which has been implemented in this school over the last two and half years?</p> <p>NOTE: Don't read from the questions, just PROBE and record (tick) the response as they mention</p>	<ol style="list-style-type: none"> <li>1. I don't know</li> <li>2. All family members should sleep under LLINs, every night.</li> <li>3. Give priority to pregnant women and children under five (U5) to sleep under LLINs, every night.</li> <li>4. Whenever a family member has a fever, take them to the nearest health facility, immediately.</li> <li>5. Take full dose of the anti-malaria drugs prescribed to you by health personnel, including HEWs.</li> <li>6. Do not interrupt or share your anti-malaria drugs prescribed to you by health personnel</li> <li>7. Cooperate with sprayers during indoor residual spraying (IRS) period.</li> <li>8. Do not re-plaster your home for six months after your house has been sprayed.</li> <li>9. Wash your LLIN with „regular“ soap and hang or lay to dry in the shade.</li> <li>10. Others; _____</li> </ol>
D-2	<b>Peer education practice in school</b>	
31	Did you have peer education activities on malaria issues in your schools in the last two years?	1. Yes      0. No
32	If YES; what was the schedule?	<ol style="list-style-type: none"> <li>1. Every day</li> <li>2. Every week</li> <li>4. Every three weeks</li> <li>5. Every four weeks</li> </ol>

		3. Every two weeks 6. Only some times
33	Do you currently conduct peer education activities on malaria issues in your schools?	1. Yes 0. No
34	If YES; what is the schedule?	1. Every day 4. Every three weeks 2. Every week 5. Every four weeks 3. Every two weeks 6. Only some times
35	What is the number of individuals/members in your team of peer education?	1. Four 2. Five 3. Six 4. Seven 5. More than seven
36	What is the number of female students in your team?	1. One 2. Two 3. Three 4. Four 5. Five and more
37	What were the criteria used to select group member for peer education teams?	1. Based on close proximity (neighborhood) 2. Based on gender mix 3. Based on academic performances 4. Based on your seats in the class 5. Based on friendship 6. Others; _____
<b>D-3</b>	<b>Malaria related attitude/beliefs</b>	<b>SD D UD A SA</b>
38	Malaria is a disease of only pregnant women and small kids	
39	Sleeping under ITN every night seldom prevents malaria	
40	ITN is only used for pregnant women and small kids	
41	I don't like the odor of ITN	
42	Fever goes by itself	
43	Health workers has nothing to do with fever	
44	The best place to seek treatment for a fever/malaria is health facility	
45	Anti-malarial drugs tastes bad	

46	Stopping taking the prescribed medicine when fever goes is normal					
47	Indoor residual spraying (IRS) pollutes house.					
<b>D-4</b>	<b>Perceived susceptibility from risk of malaria: Now, I ask your beliefs about the likelihood of your exposure to malaria. [Read the responses, &amp; check “√” in front of each question under the responded option]</b>	<b>SD =1</b>	<b>D= 2</b>	<b>UD =3</b>	<b>A = 4</b>	<b>SA =5</b>
48	I feel that the chances are high that I can get malaria					
49	During the rainy season, I worry almost every day that I may get malaria*					
50	People only get malaria when there are lots of mosquitoes					
51	People in this community only get malaria during rainy season					
52	Every year, someone in this community gets a serious case of malaria*					
53	A pregnant women is more at risk of malaria than other person					
<b>D-5</b>	<b>Perceived severity of risk of malaria [check “√” in front of each question)</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
54	Infections with malaria can potentially lead to death					
55	For someone malaria, I usually expect to completely recover in a few days*					
56	Malaria can seriously affect pregnant woman and her fetus					
57	I may drop schooling if I caught malaria					
58	Infection from malaria may reduce my school achievement					
<b>D.6</b>	<b>Parent student communication and parent readiness</b>					
59	In the past 12 months, did you talk about malaria in general with your parents?	1. Yes      2. No    if no skip to_____				

60	How often did you talk about malaria with your family/guardians	Always =4      Occasionally=3 Rare=2    Only one day=1
61	Specific to malaria, about what did talk with your family in the past 12 months?	1. Sleeping under ITN 2. Environmental sanitation activities 3. Sign and symptom 4. Importance of spraying 5. Not plastering walls after spraying 6. Seek treatment for fever
62	How well would you rate your parent`s readiness on malaria communication.	Quite poor =1    Poor=2 UD=3    Good=4    Excellent=5

**Part III. psycho measurement factors to Percived Performance of peer learning and education approach**

D-1	<b>Acceptability:</b> It`s your perceptions that the school based PLEA approach is palatable or satisfactory to improving the desired goals (i.e. malaria related knowledge, attitude and preventive skills of students/ parents). Indicate your agreement or disagreement to these statements. 1=SD, 2=D, 3=UD, 4=A, 5=SA	1	2	3	4	5
63	This school based PLEA approach on malaria prevention meets your/your school`s needs					
64	You liked the school based PLEA approach on malaria prevention					
65	This school based PLEA approach is satisfactory					
66	This school based PLEA approach on malaria prevention seems boring					
67	This school based PLEA approach is appealing					
68	This school based PLEA approach on malaria intervention will do.					
69	I would recommend/welcome if such program is to be					

	implemented in other schools					
<b>D-2</b>	<b>Appropriateness</b>					
70	This school based PLEA approach on malaria seems fitting for this area.					
71	This school based PLEA approach on malaria seems suitable through school settings.					
72	This school based PLEA approach on malaria seems applicable to existing malaria problems.					
73	This school based PLEA approach on malaria seems like a good match to school systems.					
74	This school based PLEA approach on malaria seems well aligned to school system.					
75	You found participating schools in malaria PLEA approach was appropriate					
<b>D-3</b>	<b>Feasibility</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
76	The school based PLEA approach on malaria prevention is practical					
77	The school based PLEA approach on malaria prevention is easy to implement					
78	This school base PLEA approach on malaria prevention seems realistic					
79	This school base PLEA approach on malaria seems implementable					
80	This school base PLEA approach seems possible					
81	This school based PLEA approach seems challenging/confusing					
<b>Part IV</b>	<b>Self-efficacy regarding the school based malaria interventions. Below listed are statements supposed to describe your opinions or beliefs about improvement in</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>

	<b>your skills ability due to participating in the program? Would you please indicate the extent to which you agree or disagree that each one describes your opinions? 1=SD, 2=D, 3=UD, 4=A, 5=SA.</b>					
82	I have knowledge about essential malaria information/actions?					
83	I am able to utilize guidelines available to teach students or public regarding malaria?					
84	I got experience from participation in this program so far					
85	I am able to understand malaria specific messages					
86	I am able to identify person with fever/malaria					
87	I am to demonstrate how to handle and use LLINs					
88	I am able to identify a person with fever and refer to health facilities					
89	I got skills to conduct malaria education to students or others					
90	I got skills to develop malaria messages to my school					
91	I got confidence to provide consultation to others on malaria key actions					
<b>Part V</b>	<b>Perceived performance: These questions are designed assess your opinion/beliefs about the success or implementation outcome/success of the school engaged malaria intervention. Would you please indicate your beliefs about to what extent you agree or disagree to each statements? 1=SD, D=2, UD=3, 4=A, 5=SA</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
92	Given that its effective implementation; the PLEA is likely to produce desired effects (improvement in KAP regarding malaria) in the community					
93	Students have conducted effective PE in on malaria education activities					
94	Students have addressed all key malaria messages at PE sessions					

95	Supervision by assigned teachers has conducted as planned					
96	The project personnel has made frequent supervisions					
97	The key messages on malaria have successfully reached the parents					
98	Parents were more receptive to malaria education by students					
99	There were successful campaigns on malaria at school levels					
100	Generally; the school PLEA was well implemented					
101	I can recommend the PLEA to be implemented in other schools					
102	I would you be happy to continue the PLEA in my school					
<b>Part VI</b>	<b>Team level experiences: the following questions examine your opinion on the process of team building, commitment, collect efficacy, and respect of team members for each other. 1=SD, D=2, UD=3, 4=A, 5=SA</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
103	The mix of skills, gender, proximity to work together was considered during team formation					
104	Team formation process was participatory					
105	Attention was given to my concerns during the team formation process					
106	Team members are friendly with each other					
107	I am comfortable sharing ideas in class. .					
108	My team seems strong to run the PLEA on malaria					
109	My team seems committed to continue doing the PLEA					
110	Members exhibit cooperative working desire					
111	Members are punctual and show better concern of team work					
112	Members are eager to sharing experiences and learning from each other					



113	Members have a strong believe in doing tasks in team					
114	Members show senses of respect to each other					
115	Members show senses of respect to leaders					
116	We had strong team spirit					
117	Members tend to offer constructive comments in trying to resolve issues					

## ANNEXS 1 Afaan Oromo

### **Inistiitiyuutii Fayyaa Yuniivesersitii Jimmaatti. Damee Saayinsii Fayyaa Hawaasummaa Oorneelii/Format/ odeffannoo qorannoo fi fedhii hirmannaa**

#### **Waliigaltee fedhii hirmaannaa (Informed Consent format)**

**Mata Duree Qorannoo:** Miira raawwii tarsiimoo barnoota dhibee busaa ittisuu irratti karaa mala hiriyaan hiriyaan barattootaaf manneen barumsaa godina Jimma keessatti kenname.

**Seensa:** Ati warren qorannoo kanarratti hirmaachuuf filataman keessaa tokko dha. Qorannoo kana irratti hirmaachuu keen dura, qorannoon Kun maaliif akka barbaachisee fi maal of keessaa qaba kan jedhu beekuunii adda baafachuun baay’ee barbaachisaa dha. Kanaafuu, maloo yeroo fudhachuun odeeffannowwan armaan gadittikename kana qalbiin dubbisi. Tarii yoo waanti ifa hin taane yoo jiraate,qoraticha gaafachuun ni dandahama.

**Adeemsa qorannichaa:** Gaaffiin qorannoo jalqabamee xumuramuuf tilmaamaan daqiiqaa 25 handa 30 fudhachuu ni dandaha.

**Miidhaa hirmachuun geessisu:** Qorannoo kana irratti hirmaachuu keen miidhaan sirra gahuu dandaha jedhamee yaadamu hin jiru.Odeeffannoo akkasii kennuun akkuma odeeffannoo dhimma hojii wajjin wal qabatee kennamu wajjin kan wal fakkaatu dha.

Namoonni tokko tokko mata duree qorannoo keessaa waan isaan hin barbaanne isaan mudachuu dandaha. Atis wanta akkasii yoo kan si mudatu tahe.mata dureewwan akkasii ykn immoo guutummaa gaaffiilee adda muruun yeroo feetetti bahuu ni dandeessa.

**Faayidaan qorannoo kana irraa argamu:**Qorannoo kana irratti hirmaachuu keen faayidaan kallattiin ati argattu hin jiraatu. Haa ta’u malee,odeeffannoon ati nuuf kennitu kun karoorawwan dhibee busaa mana barumsaa fi hawaasa keessti karoorfamuuf shoora guddaa waan taphatuuf atis as keessatti qaama fayyadamaa taata jennee abdanna.

**Fedhii qorqnnoo irratti hirmaachu:** Qorannoo kana hirmaachuuf fedhii hin qabaanne, fedhii akka hin qabaanne qof himuun addaan murtee bahuun ni dandahama.

**Iciitii hirmaataa eeguu :** Qorannoo kana irratti hirmaachuu kee kan muldhisu maqaas tahe waanti eenyummaa kee ibsu hin jiru. Deebii ati kennitus namni beeku/ waraabamu hinjiru.

**Kafaltii:** Qorannoo hirmaachuuf kaffaltiin dhuunfaan godhamu hin jiru

**Beenyaa(compensation):** Qorannoo kana irratti hirmaachuu keetiif beenyaan maallaqaa kaffalamu hin jiru

**Walii galtee hirmaannaa:** odeeffannoowwan armaan olitti eeraman qalbiin dubbisee kan naaf hin galle irratti gaaffii kaasuun deebii quubsaa argadhee yaada isaa sirriitti hubadhee jiraachuu koo nan mirkaneessa. kanaafuu qorannoo kana irratti yeroon hirmaadhu dhiibbaa tokko malee fedhii mataa koon, yoo hin barnaannes dhiisuu fi kaffaltii tokko malee irratti hirmaachuuf murteesseera.

Itti fufu  hin barbaadu

Galatoomaa!!

**Maqaa qoratichaa:** \_\_\_\_\_

**Teessoo: Inistiitiyuutii Fayyaa Yuniivesersitii Jimmaatti.Damee Saayinsii Fayyaa Hawaasummaa**

**Gaaffilee Qorannoo mana barnootaa sadarkaa Iffaatti godhamuuf qophaaye, kan qorataan guutama.**

<b>kutaa I: Gaaffii dhimma hawaasummaa fi dhalootaa</b>		
Lakk.	Gaaffii	Filannoowwan
1	Maqaa Aanaa	_____
2	Olka'insa lafaa walakkeessa gandaatti??	
3	Maqaa Gandaa	_____
4	Maqaa mana barnootaa	_____
5	Bakka jireenyaa	1. Magaala 2. Baadiyyaa
6	Umriin kee meeqa?	_____ [Waggaa guutuun]
7	Saala	1. Dhiira 2. Dhalaa
8	Sadaarkaa/kutaa barnootaa	1. 6 <sup>ffaa</sup> 2. 7 <sup>ffaa</sup> , 3. 8 <sup>ffaa</sup>

9	Qabxiin giddugaleessa dhiyeenyatti galmeessiifte?	barreessi:_____
10	Gosa barnootaa irra caalaa jaallattu?	barreessi_____
11	Gaheen hojii ati kutaa keessatti qabdu maali?	1. Dura bu;aa 2. Itti aanaa 3. Kan biraa_____
12	Amantiin ati hordoftu maalii?	1. Musiliima 2. Ortoodoksii 3. Pirotestaantii 4. Kan biroo [barreessi]_____
13	Sabummaan kee maalii?	1. Oromoo 2. Amaraa 3. kafaa 4. Kan biro(barreesi)_____
14	Baayyina matii ati waliin jiraattuu meeqa? ( ji'a >=6 )	lakk:_____ (dhiira:_____, dhalaa____)
15	Piroojeectii kanaan ala leenjii fayyaa irratti fudhattee beektaa?	1.Eeyyee 2.lakki
16	Deebiin kee gaaffii lakk 15 irratti Eeyyee yoo tahe,gosa leenjii fudhattee tarreessi	1. _____ 2. _____ 3. _____
<b>kutaa II: Gaaffilee dhimma beekumsa gochawwan murteessoo dhibee busaa,hubannoo soda balaa fi odeeffannoo dhimma dhibee busaa akkasumas hubannoo bu'aawwan raawwii mana barnoota godinaa Jimmaa keessatti argaman ilaalchisee</b>		
	<b>Gaaffilee beekumsaaf</b>	<b>Deebii</b>
17	Waa'ee dhukkuba busaa jedhamu takkaa dhageessee ykn waan beektu ni jiraa?	1. Eeyyee 2. Lakki,

18	<p>Mallattoolee dhukkuba busaa maal fa'i? (Kan dhukkubsataan himatu)</p> <p>Filannoowwan kanneen hin dubbisiin</p> <p>Deebiin tokkoo fi isaa ol ni dandahama</p> <p>Deebii isaanii akka tarreessaniif jajjabeessi (kan biroo..?)</p>	<ol style="list-style-type: none"> <li>1. Hin beeku</li> <li>2. Ho'insa qaamaa(laaydaa)</li> <li>3. Miira dhaamochaa(qabbanaa)</li> <li>4. Mataa dhukkubbii(bowuu)</li> <li>5. Garaa hammeessuu fi hooqqisiisuu</li> <li>6. Deemsisaa(garaa baasaa)</li> <li>7. Lafaan martoo</li> <li>8. Fedhiin nyaataa hir'achuu</li> <li>9. Dhukkubbii qaamaa/buusaa</li> <li>10. Ijji addaachuu</li> <li>11. Dhadhabbii qaamaa</li> <li>12. Kan biroo (barreessi)_____</li> </ol>
19	<p>Akka ati yaadutti dhukkuba busaa maaltu namatti fidaa?</p> <p>Filannoowwan kanneen hin dubbisiin</p> <p>Deebiin tokkoo fi isaa ol ni dandahama</p> <p>Deebii isaanii akka tarreessaniif jajjabeessi (kan biroo..?)</p>	<ol style="list-style-type: none"> <li>1. Hin beeku</li> <li>2. Bookee busaan ciniinamuu</li> <li>3. Sukkaara Nyaachuun</li> <li>4. Beela'uu(garaa qullaa tahuu)</li> <li>5. Bishaan qulqullummaa hin qabne dhuguu</li> <li>6. Roobaan/bokkaan dhaanamuu</li> <li>7. Haala qilleensaa qorraa/jijjiirama qilleensaa</li> <li>8. Qulqullina eeggachuu dhabuu</li> <li>9. Nama dhukkuba busaan qabame harka fuudhuun</li> <li>10. Kan biraa (barreessi)_____</li> </ol>
20	<p>Dhukkuba busaa akkamiin ofirraa dhorkuun dandahamaa?</p> <p>Filannoowwan kanneen hin dubbisiin</p> <p>Deebiin tokkoo fi isaa ol ni dandahama</p> <p>Deebii isaanii akka tarreessaniif jajjabeessi (kan biroo..?)</p>	<ol style="list-style-type: none"> <li>1. Hin beeku</li> <li>2. Agoobara/saaphan bookee busaa ittisu jala rafuun</li> <li>3. Dibata adda addaa qaamaratti dibachuun</li> <li>4. Halkan ala turuu dhiisuu</li> <li>5. Kemikala farra bookee busaa mana irratti biiffachuun</li> <li>6. Qulqullina nannoo mana keenyaa eeggachuun</li> <li>7. Bishaan roobaa ciise jiru lolaasuun goggogsuun</li> <li>8. Rooba of dhaansisuu dhiisuu</li> <li>9. Yeroon of qorachiisuun yaala argachuu</li> <li>10. Qoricha farra dhukkuba busaa nuuf ajajame sirritti fudhachuu</li> <li>11. Kan biroo (ibsi)_____</li> </ol>

21	Akka yaada keetti maatii keessaa dhukkubni busaa kan irra caalaa itti hammaatu eenyu?  [fiannoowwan jiran dubbisiiti lama qofa haa filatan]	1. Hin beeku 2. Dhiira ga'eessa 3. Dhalaa ga'eessa 4. Dubartii ulfaa fi ijoollee waggaa sadii gadii 5. Ijoollee waggaa jahaa
22	Maatiin kee agoobara/saaphana bookee busaa ittisu ni qabuu?	1. Eeyyee 2. Lakki Deebiin yoo 2 tahe gara gaaffii lakk 28tti darbi
23	Gaaffii lakk 22 irratti deebiin kee 'Eeyyee yoo tahe, baayinni isaa meeqa ni taha?	_____ [lakkoofsa agoobaraa]
24	Halkan edaa agoobara jala raftee jirtaa?	1. Eeyyee 2. Lakki
25	Hajiiwwan to'annoo bakka walhormaata bookee busaa irratti godhaman irratti hirmaatte maal fa'a?	1. Irratti hin hirmaanne 2. Bishaan naannawaa mana barumsaa/ mana jireenyaa kuufaman qulqulleessuu fi yaasuu 3. Habaaboo dhaabuu
26	Torbeewwan lameen darbanitti dhukkubni ho'insa qaamaa/laaydaan si qabee jiraa?	1. Eeyyee      2. lakki yoo 2 tahe, gara lakk30 darbi
27	Gaaffii lakk 26 irratti deebiin kee 'Eeyyee yoo tahe, yaalaa fi gorsa ati argatte ni jiraa?	1. eeyyee      2.lakki      yoo 2 tahe, gara gaaffii lakk 30 darbi
28	Ho'insi qaamaa si jalqabee guyyaa meeqa booda yaala argatte?	Ibsi : _____ (guyyaan)
29	Dhukkubni/ho'inni qaamaa sun maal akka tahee ogeessa fayyaan waanti mirkanaaye ni jiraa?	1. eeyyee      2. Lakki
30	<b>Beekumsa      Tarkaanfiiwwan</b> <b>murteessoo      dhukkuba</b> <b>busaa(EMAs) irratti</b>  Waggoota 2 fi walakkaa darban keessatti      tarkaanfiiwwan murteessoo      dhukkuba busaa(EMAs)      ittisuuf gargaaran	1. Ani hin beeku 2. Maatiin hundi agoobara jala rafuu qaba. 3. Fayyadaminsa agoobaraa irratti,dubartii ulfaa fi ijoollee umrii waggaa 5 gadiiif dursi kennamuu qaba 4. Miseeansa maatii keessaa yoo dhukkuba qaama hu'isuun yoo qabama daddaffiin gara mana yaalaa

	<p>8n keessaa mana barnootaa kanatti hojjiirra oolfaman kam fa'i?</p> <p>HUB: Filannoowwan kanneen hin dubbisiin</p> <p>Deebiin tokkoo fi isaa ol ni dandahama</p> <p>Deebii isaanii akka tarreessaniif jajjabeessi (kan biroo..?)</p>	<p>geessuu</p> <p>5. Qoricha ogeessota fayyaa(Hojjettuu eksteenshini fayyaa dabalatee) ajajamu guutuutti fudhachuu</p> <p>6. Qoricha siif ajajame addaa muruus tahe nama biraaf qooduu dhiisuu</p> <p>7. Keemikala farra bookee busaa mana irratti akka biifamuuf hayyamuu</p> <p>8. . Keemikala farra bookee busaa erga mana irratti buufame booda dhokkee dhoobuu, waraqaa maxxansuu fi kkf gochuu dhiisuu</p> <p>9. Agoobara samunaa uffataan miccuun bakka gaaddisaatti akka qooru gochuu</p> <p>10. Kan biraa; _____</p>
D-1	<b>Raawwii Barnoota hiriyaan hiriyaan(Peer education practice in school)</b>	
31	Mana barumsaa kee keessatti Waggottan lamaan darbanitti baroonata hiriyaan hiriyaan irraa dhimma dhukkuba busaa irratti kennamu argattee turtee?	1. Eeyyee 0.lakki
32	Gaaffii lakk 31 irratti ; deebiin kee Eeyyee yoo tahe,sagantaan barnootichaa yoom ture?	<p>1. Yeroo hundaa</p> <p>2. Turban torbaniin</p> <p>3. Turban lama lamaan</p> <p>4. Turban sadii sadiin</p> <p>5. Ji'a ji'aan</p> <p>6. Yeroo tokko tokko qofa</p>
33	Yeroo dhiyoo asitti mana barumsaa kanatti barnoota dhukkuba busaa kan hiriyaan hiriyaan kennamu gaggeessitee(Conducted) jirtaa?	1. Eeyyee 0. Lakki
34	Gaaffii lakk 33 irratti yoo eeyyee tahe; sagantaan isaa yoom yoomi?	<p>1. Yeroo hundaa</p> <p>2. Turban torbaniin</p> <p>3. Turban lama lamaan</p> <p>4. Turban sadii sadiin</p> <p>5. Ji'a ji'aan</p> <p>6. Yeroo tokko tokko qofa</p>
35	Baayinni miseensota garee	1. Afur 2. Shan 3. Jah 4. Torba 5.

	barnoota hiriyaan hiriyaan keessatti hammatamanii meeqa?	Torbaa ol				
36	Baayinni barattoota dubaraa garee kana keessaa meeqa?	1. Tokko 2. Lama 3. Sadii 4. Afur 5. Shanii fi isaa ol 6. zeeroo				
37	Ulagaan garee kana gurmmeessuuf fayyadamtan?	1. Haala walitti dhiyeenyaan (neighborhood) 2. Makaa korniyaan/saalaan 3. Akkaataa dandeettii barnootaan 4. Akkaataa taa'umsa daree/kutaa keessan 5. Saayibummaan/hiriyyummaan 6. Kan biroo; _____				
D-2	Haala ilaalcha/amantii dhukkuba busaa wajjin wal qabatu (Malaria related attitude/beliefs) Fiannoowwan jiran keessaa mallattoo(√) gargaaramiitii sadarkaa walii galuu ykn walii galuu dhabuun kee irratti argamu agarsiisi HM=jabeesseen morma,NM= nan morma,YQ=yaada hin qabu,WG= waliin gala, BG= baay'ee waliin gala	HM =1	NM =2	YQ =3	WG =4	BG =5
38	Busaa dhukkuba dubartii ulfaa fi kan ijoollee xixiqqoo qofaa dha.					
39	Galgala yeroo hunda agoobara jala rafuun dhukkuba basaa hanga xiqqoo ittisa.					
40	Agoobarri dubartii ulfaa fi ijoollee xixiqqoo qofaaf fayyada.					
41	Ani foolii agoobaraa hin jaalladhu.					
42	Ho'inni qaamaa yaalamuu baatus ofii isaa ni dhabama.					
43	Ogeessonni fayyaa ho'insa qaamaaf wanti godhan hin jiru.					
44	Bakki filatamaan yaala ho'insa qaamaa itti argatamu dhaabbilee fayyaa ti.					
45	Qorichoonni farra dhukkuba busaa dhandhama badaa qabu.					
46	Qoricha farra dhukkuba busaa hanga ho'nni qaamaa badutti fudhannee booda adda muruun rakkoo hin qabu.					
47	Keemikaalli farra bookee busaa manatti yoo buufame					

	mana ni faala.					
D-3	Gaaffii waa'ee Miira saaxilamtummaa dhibee busaa (Perceived susceptibility from risk of malaria): Fiannoowwan jiran keessaa mallattoo(√) gargaaramiitii sadarkaa walii galuu ykn walii galuu dhabuun kee irratti argamu agarsiisi HM=jabeesseen morma,NM= nan morma,YQ=yaada hin qabu,WG= waliin gala, BG= baay'ee waliin gala	HM =1	NM =2	YQ =3	WG =4	BG =5
48	Ani carraan dhukkuba busaan qabamuu koo guddaadha jedheen keessi koo na sodaata					
49	Yeroo waqtii roobaa ani yeroo baayyee dhukkubni busaa na qabuu dandaha jedheen dhiphadha.					
50	Namoonni dhukkuba busaan kan qabaman yoo bookeen busaa baayyinaan jiraatte qofaa dha.					
51	Dhibeen busaa kan nama qabuu dandeessu waqtii roobaa qofa dha.					
52	Hawaasa ani keessa jiraadhu kana keessatti waggaa waggaa namoonni dhukkuba busaa hamaa taheen ni qabamu.					
53	Dubartoonni ulfaa namoota kamiyyuu caalaa dhibee busaan miidhamu.					
D-4	Gaaffii Miira dhibeen busaa akka dhibee hamaatti fudhachuu(Perceived severity of risk of malaria) Fiannoowwan jiran keessaa mallattoo(√) gargaaramiitii sadarkaa walii galuu ykn walii galuu dhabuun kee irratti argamu agarsiis HM=jabeesseen morma,NM= nan morma,YQ=yaada hin qabu,WG= waliin gala, BG= baay'ee waliin gala	HM =1	NM =2	YQ =3	WG =4	BG =5
54	Dhibeen busaa rakkoo hanga du'aa namarraan gahuu dandaha					
55	Namoota tokko tokko irratti dhibeen busaa guyyoota muraasa keessatti gutummaan guutuutti fayyuu dandaha jedheen yaada					
56	Dhibeen busaa dubartoota ulfaa fi ulfa ishee haalaan					



	miidhuu dandaha					
57	Dhibeen busaa yoo na qabe barnoota koo irra na hambisuu/ addaan na mursiisuu dandaha.					
58	Dhibeen busaa gahumsa barnootaa koo gadi buusuu dandaha.					
<b>D.5</b>	<b>Gaaffii waa'ee odeeffannoo barattootaa fi maatii isaanii gidduu fi qophii/fedhii maatiin odeeffannoo ijoollee isaanii irraa argachuuf qaban ilaalchisee(Parent student communication and parent readiness</b>					
59	Ji'oottan 12n darbanitti maatii kee waliin waa'ee dhibee busaa irratti marrii taasiftee jirtaa?	1. Eeyyee                      2. Lakki,                      yoo lakki tahe gara gaaffii----- darbi				
60	Maatii kee waliin waa'ee dhibee busaa irratti mariin isain gootin yeroo akkamiitii?	Yeroo hundaa =4                      darbee darbee=3                      yeroo xiqqoo=2                      guyyaa tokko qofa=1				
61	Ji'oottan 12n darbanitti waa'ee dhibee busaa ilaalchisee waan irratti mariyattan waa'ee maalii ture?	1.waa'eee aboobaraa 2.yaalii ho'insa qaamaa 3. fayyadaminsa qoricha farra dhibee busaa 4. waa'ee bishaan kuufamaa qulqulleessuu				
62	Marrii maatii kee waliin taasiftee irraa ka'uun,maatiin kee odeeffannoon isaan waa'ee dhibee busaa irratti qaban akkamitti ilaaltee?	Baay'ee gad bu'aa dha =1                      gad bu'aa dha=2 Kana jechuu hin dandahu =3                      gaarii dha=4 baay'ee gaarii dha=5				
<b>kutaa III. Madaallii xiinsammuu bu'aa tarsiimoon hiriyaan hiriyaan barnoota barachuu hojiitti jijjiiruu irratti qabu ilaalchisee</b>						
<b>(psycho measurement factors to implementation outcome/success of peer learning and education approach)</b>						
D-1	<b>Fudhatamummaa tarsiimoo kanaa(Acceptability): gaaffiileen kun tarsiimichi hangam galma gahuu isaa(Beekumsa,ilaalcha fi dandeettii dhibee busaa ittisuu argamsiisuu) irratti maal akka sitti dhagahamu(Your perception) beekuuf :</b>  Fiannoowwan jiran keessaa mallattoo(√) gargaaramiitii sadarkaa walii galuu ykn walii galuu dhabuun kee irratti	HM =1	NM =2	YQ =3	WG =4	BG =5

	argamu agarsiisi HM=jabeeseen morma,NM= nan morma,YQ=yaada hin qabu,WG= waliin gala, BG= baay'ee waliin gala					
63	Tarsiimoon hiriyaan hiriyaan barnoota barachuu (PLEA) dhibee busaa ittisuu irratti fedhii kee/kan mana barumsaa ni guutaa					
64	Tarsiimoon PLEA barnootaa dhibee busaa kun sitti tolee jira					
65	Tarsiimoon hiriyaan hiriyaan barnoota barachuu (PLEA) dhibee busaa ittisuu irratti kun quubsaa dha					
66	Tarsiimoon hiriyaan hiriyaan barnoota barachuu (PLEA) dhibee busaa ittisuu irratti kun nuffisiisaa dha					
67	Tarsiimoon hiriyaan hiriyaan barnoota barachuu (PLEA) dhibee busaa ittisuu irratti kun kaka'umsa/hawwataa addaa namatti hora					
68	Tarsiimoon hiriyaan hiriyaan barnoota barachuu (PLEA) dhibee busaa ittisuu irratti kun dhibee busaa ittisuuf fayyada					
69	Tarsiimoon kun manneen barnootaa birootti illee otoo babal'ate fayiidaa guddaa qaba jedheen yaada/rawwatamaa jedheen yaada					
<b>D-2</b>	<b>Barbaachisummaa Tarsiimoo kanaa(Appropriateness)</b> Fiannoowwan jiran keessaa mallattoo(√) gargaaramiitii sadarkaa walii galuu ykn walii galuu dhabuun kee irratti argamu agarsiisi  HM=jabeeseen morma,NM= nan morma,YQ=yaada hin qabu,WG= waliin gala, BG= baay'ee waliin gala	HM =1	NM =2	YQ =3	WG =4	BG =5
70	Tarsiimoon hiriyaan hiriyaan barnoota barachuu (PLEA) dhibee busaa ittisuu irratti naannoo kanatti mala gaarii fakkaata.					
71	Tarsiimoon hiriyaan hiriyaan barnoota barachuu (PLEA) dhibee busaa ittisuu irratti kun mana barnootaa hundaaf waan mijatu/gaarii fakkaata					
72	Tarsiimoon hiriyaan hiriyaan barnoota barachuu (PLEA)					

	dhibee busaa ittisuu irrattii kun rakkoowwan dhibee busaa tunan furuuf waan gargaaru fakkaata					
73	Tarsiimoon hiriyaan hiriyaan barnoota barachuu (PLEA) dhibee busaa ittisuu irratti kun sirna mana barumsichaa wajjin waan wal simate fakkaata					
74	Tarsiimoon hiriyaan hiriyaan barnoota barachuu (PLEA) dhibee busaa ittisuu irratti sirna mana barumsichaa wajjin waan wal unite fakkaata					
75	Tarsiimoon hiriyaan hiriyaan barnoota barachuu (PLEA) dhibee busaa ittisuu kana irratti carraa gaarii tahuu isaa argitee jirta					
D-3	<b>Milkaa'ina sagantaa kanaa ilaalchisee(Feasibility)</b>  Filannoowwan jiran keessaa mallattoo(√) gargaaramiitii sadarkaa walii galuu ykn walii galuu dhabuun kee irratti argamu agarsiisi  HM=jabeesseen morma,NM= nan morma,YQ=yaada hin qabu,WG= waliin gala, BG= baay'ee waliin gala	HM =1	NM =2	YQ =3	WG =4	BG =5
76	Tarsiimoon hiriyaan hiriyaan barnoota barachuu (PLEA) dhibee busaa ittisuu irratti kun qabatamaan waan hojiirra oolu fakkaata					
77	Tarsiimoon hiriyaan hiriyaan barnoota barachuu (PLEA) dhibee busaa ittisuu irratti kan hojiirra olchuun isaa salphaa fakkaata					
78	Tarsiimoon hiriyaan hiriyaan barnoota barachuu (PLEA) dhibee busaa ittisuu irratti kun qabatamaan fi firiin waan argamsiisu fakkaata					
79	Tarsiimoon hiriyaan hiriyaan barnoota barachuu (PLEA) dhibee busaa ittisuu irratti kana hojiitti hiikuun waan dandahamu fakkaata					
80	Tarsiimoon hiriyaan hiriyaadhan barnoota barachuu (PLEA) dhibee busaa ittisuu irratti mana barnootaatti ni dandahama.					
81	Tarsiimoon hiriyaan hiriyaan barnoota barachuu (PLEA) dhibee busaa ittisuu irratti kun waan rakkisaa fi bitaa nama galuu dha.					

kutaa IV	Ofitti amanamummaa hala bu`aa saganticha irraa argame (self-efficacy ). Filannoowwan jiran keessaa mallattoo(√) gargaaramiitii sadarkaa walii galuu ykn walii galuu dhabuun kee irratti argamu agarsiisi  HM=jabeesseen morma,NM= nan morma,YQ=yaada hin qabu,WG= waliin gala, BG= baay'ee waliin gala	HM =1	NM =2	YQ =3	WG =4	BG =5
82	Odeeffannoo/gochawwan ittisa dhibee busaa irratti beekumsa nan qaba.					
83	Barnoota dhibee busaa barsiisuuf qajeelcha kitaabota jiran nan gargaarama.					
84	Sagantaa akkasii kana irratti hirmaachuu koon muxannoo gaarii argadheen jira.					
85	Ergaawwan dhibee busaa ilchisanii darban nan hubadha.					
86	Nama dhibee busaa qabu adda baasee beekuu nan dandaha.					
87	Akkaataa qabannaa fi fayyadamiinsa agoobaraa gochaan agarsiisuu nan dandaha.					
88	Nama qaamni isaa ho'u adda baasuun gara mana yaalaa ergguu nan dandaha.					
89	Barnoota dhibee busaa barattootaafis tahu kan biroof kennuuf dandeetti argadheera.					
90	Mana barnootaa koof dandeettii ergaawwan dhibee busaa ittisuu qopheessuu argadheen jira					
91	Gochaawwan ijoo dhibee busaa ittisuu irratti gorsa(consult) kennuuf ofitti amanamummaa argadheen jira.					
Part V	Miira raawwattummaa( Perceived performance): Filannoowwan jiran keessaa mallattoo(√) gargaaramiitii sadarkaa walii galuu ykn walii galuu dhabuun kee irratti argamu agarsiisi  HM=Haalaan morma,NM= nan morma,YQ=yaada hin qabu,WG= waliin gala, BG= baay'ee waliin gala	HM =1	NM =2	YQ =3	WG =4	BG =5
92	Tarsiimoon hiriyaan hiriyaan barnoota barachuu (PLEA) dhibee busaa ittisuu kun haalaan yoo hojiirra oole,bu'aa					

	barbaadame(fooyya'insa beekumsaa,ilaalchaa fi raawwii dhibee busaa ittisuu) fiduuf carraan inni qabu ol aanaa dha.					
93	Wayitii hiriyaan hiriyaan barnoota barachuu (PE) busaa ittisuu kana irratti barattoonni gochaawwan bu'a qabeessa tahan raawwatanii jiru					
94	Wayitii hiriyaan hiriyaan barnoota barachuu (PE) busaa ittisuu kana irratti barattoonni ergaawwan ijoo fi murteessoo tahan argatanii jiru.					
95	Barsiisonni saganticha to'achuuf ramadaman akkaataa sagantaa bahee jiruun to'annoo(supervise) godhanii jiru					
96	To'ataan(supervisor) piroojectichaa to'annoo gahaa godhee jira					
97	Ergawwan murteessoo fi ijoo dhibee busaa ittisuuf oolan haala gaariin matii bira gahee jira					
98	Barnooni dhibee busaa ittisuu barattootaan matii isaniif kenname maatii isaanii biratti fudhatama argatee jira.					
99	Duulli dhibee ittisa busaa mana barnootaa haala bu'a qabeessa taheen godhameera					
100	Walumaagalatti,tarsiimoon hiriyaan hiriyaan barnoota barachuu (PLEA) dhibee busaa ittisuu kun haalaan hojiirra ooleera.					
101	Tarsiimoon hiriyaan hiriyaan barnoota barachuu (PLEA) dhibee busaa ittisuu kun manneen barnootaa biroottii illee yoo hojiitti galame gaariidha jedheen yaada.					
102	Sagantaan kun mana barnootaa keenya kanatti otoo kan itti fufu tahe natti tola					
kutaaVI	<b>Muxannoo sadarkaa gareettii (Team level experiences):</b> Gaaffileen armaan gadii ilaalcha kee kan haala adeemsa ijaarsa,murannoo fi walkabajuu garee keessaa qoruuf kan gaafatamu dha. Fiannoowwan jiran keessaa mallattoo(√) gargaaramiitii sadarkaa walii galuu ykn walii galuu dhabuun kee irratti argamu agarsiisi  HM=jabeesseen morma,NM= nan morma,YQ=yaada hin qabu,WG= waliin gala, BG= baay'ee waliin gala	HM =1	NM =2	YQ =3	WG =4	BG =5
103	Ijaarsi garee dandeettii garaa garaa,koorniya/saala lameen fi haala walitti dhiyeenya kan yaada keessa galche ture.					
104	Ijaarsi garee kun hirmaachisaa ture					
105	Adeemsa garee hundeessuu keessatti yaada koof					

	xiyyeennoon kennamee ture					
106	Miseensota garee gidduutti walhubannoo fi walii galteen ture					
107	Yaada koo namaaf qooduun natti toleera.					
108	Gareen keenya tarsiimoo hiriyaan hiriyaan barnoota barachuu (PLEA) dhibee busaa ittisuu kana raawwachiisuu irratti ga'umsa waan qabani natty fakkaata.					
109	Gareen keenya tarsiimoo hiriyaan hiriyaan barnoota barachuu (PLEA) dhibee busaa ittisuu kana itti fufsiisuuf murannoo(commitment) waan qabu fakkata.					
1110	Gareen koo fedhii hojii irratti wal utubbuu(cooperative) agarsiisu					
111	Gareen keenya sa'aa jedhanitti argamuu fi miira kaka'umsaa ni agarsiisu					
112	Garee keenya keessa fedhiin muxannoo walii qooduu fi barachuu olanaa dha.					
113	Gareen keenya hojii dhuunfaan hojjechuu caalaa gareen hojjechuu filatu					
114	Miseensonni garee hundi miira wal kabajuu ni agarsiisu.					
115	Miseensonni garee hundi miira kabajaa dura bu'aa isaaniif ni agarsiisu.					
116	Gareen keenya miira tokkummaa gaarii ni qaba ture.					
117	Gareen keenyaa rakkoo isaan mudate furuu irratti yaada ijaarsaa fi furmaataa ni dhiyeessu.					

**Yeroo keessan aarsaa gootanii odeeffannoo kana waan nuuf kennitaniif**

**BAAY'EE GALATOOMAA!!**

## ANNEX 2

Name of the Interview \_\_\_\_\_

### Information sheets

Topic;- perceived performance of peer learning and education approach on malaria prevention and control through schools communities in jimma, **south west Ethiopia, 2020.** peer educators perspectives

**Purpose:** To explore perceived performance of peer learning and education approach on malaria prevention and control through schools communities in jimma, south west, Ethiopia

**Risks/ discomfort:** There might be slight discomfort to share some personal information. However, we do not wish this to happen and you do not have to answer any of those questions if you do not want, and you may stop at any time..

**Benefits:** Although there are no direct benefits to you at this moment, your participation will help us to find out more about the students Experiences of peer education approach towards prevention and control of malaria through schools communities at school and in the community and designed for effective evaluation purposes.

**Incentives:** You will not be provided any incentive for your participation in the study. However, we will gratefully acknowledge your participation.

**Confidentiality:** The information that we collect in this study will be kept confidential. The recorded audio is confidential and will not be connected to your name or other identifies information. When using the information for research purpose, it will only be identified by code number. It will be kept under lock and will not be divulged to anyone except the investigators.

**Right to refuse or withdraw:** You do not have to take part in this research if you do not wish to do so, and refusing to participate will not affect your future education or elsewhere in any way. You may stop participating in the discussion at any time that you wish without losing any of your rights as a participant.

Consent form

I, understood that the purpose of this particular research project. I have been informed that the information I give will be used only for the purpose of this study; my identity, the information I give will be treated confidentially. I have also been informed that I can refuse to participate in the study, not to respond to question If am not interested or stop responding to question at any time in the process. Based on the above information I agree to participate in the research voluntarily.

Name: \_\_\_\_\_

Signature and Date: \_\_\_\_\_

For further information, you can contact the principal investigator using the following address

Alemayehu Deressa

Jimma University

Tel: +251917841709

Thank you for your cooperation!

Part I: General Information

District \_\_\_\_\_ school \_\_\_\_\_ Kebele \_\_\_\_\_

Part II. Interview Questions

s.n	Themes	Questions	Probes
	Theme I: Introduction: Malaria related concerns and contexts		
		How do you see malaria status in the area?	Is it really concerning? Why? Incidence?
		How common malaria vectors in this area?	Breeding sites, topography, Malaria preventive measures (KAP, beliefs of local community, efforts)
	Theme II: School level linkages, peer education and communication		
	School level activities	Tell me the story of malaria prevention communication activities at schools?	Flow of malaria communication look? Peer network? Peer leader?  Peer education look like? What is the schedule? How is it guided/ aided? What are



			the discussion topics?
	School monitoring	Would you tell me mechanism of monitoring of peer discussion on track? Roles of peer leaders?	schools (teachers and directors) support and supervisions (relationship, supports and students-students, student-teacher communications)
	School level campaign process	Did you have malaria communications campaign taking place at school level? What was the strategy you employed?	When was that?  What did you do then? e.g. drama & poems, mini-media, etc. use of IEC materials  Who were participants (other than students)?
Theme III: Dynamics of students group work or peer education process			
	Experience of team working	Can you tell me stories of how do you do in groups?	What circle of students? What is that? How was it organized?
	Working in team and interpersonal climate	Can you tell me how do you start, proceed and end group discussion process in student circles  Who initiate the PE activities?	How do you do? Questions and answer? Generating new idea? friendly, openly  Team spirit? Respect for leader or team members? Respect for teachers?
	Dynamics team working	Active participation, commitment, collect efficacy  How do you evaluate your team...?	Social loafing? Punctuality? Accountability? Levels of compliance to home take malaria messages and reporting? Skills, motivation, cooperation, sharing experience  Problem solving efforts, provide constructive feedback
	Perceptions about acceptability, appropriateness and	Would please tell me your perceptions and experiences about working in team to learn and then teach parents about malaria?	Do you like? Did it improve your KAP on malaria?  How did you find the team learning? Workable? Why? How did you find the teaching parents? Workable? Is easy or

	feasibility of PLEA	Learning in team in school settings Teaching parents on malaria	feasible to teach parents? Why? What are the challenges? Prospects?
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### Afaan oromoo interview guide

T.l ak k.	Ramaddii	Gaaffilee	Yaada dabalataa barbaaduu/Ibsa
1	Rammaddii I: Seensa : haala dhukkuba busaa fi wantoota naannoo ilaalchisee		
		Haalli dhukkubni busaa nannoo kana irra jiru akkamitti ilaaltaa?	Dhugumatti yaachisaadha? Maaliif ?
		Akkami haalli Bookee busaa naannoo kanatti?	bakka wal hormaata, taa`umsa naannoo, busaa iittisuuf tarkaanfilee fudhataman(beekumsi, ilaalchi fi gochi hawaasaa, haamileen isaan qaban)
2	Ramaddii II: walitti hidhamsiinsa bana barnoota keessaa, gareen barachuufi haala odeeffannoo wal jijjiiruu		
	Tarkaanfilee sadarkaa mana barnootatti	Seenaa Haala busaa ittisu fi odeeffannoo kennuu mana barumsaa keessatti ta`an natti himuu dandeessa?	Haaluma dhimma busaa irratti odeeffanno wal jijjiiruu maal fakkaata? Garee ? itti gaafatammummaa garee? Sagantaa gareen wal barsiisuu? Sagantaalee irratti marii`atamu? Maaliin deggaramee kennamaa ture?
	Hordooffii mana barnootaa	Haala hordooffii gareen/geengoon mari`achuu natty himuu dandeessaa? Itti gaafatammummaa dursa garee?	Gargaarsa mana barnootaa keessaa fi to`annoolee jiran?(walitti dhufeenya,gargaarsa fi barataaf barataa, barataa fi barsiisaa)

	adeemsa sadarkaa mana brnootattii duula gaggeeffamu	Mana barumsaa keessatti duulli busaa ittisuu godhamee ni beekaa? Haaloota akkamiin ture kan gaggeeffame?	Yoom turee? Sana booda maal gootan? Diraama, walaloo, mini media, meshaalee gocha barnootaan deggaramtanii,...?  Himaattootni eenyuufaa turan, barattootaan alatti?
3	Rammaddii III: hojii sossochii( Dynamics) garee barattootaan fi adeemsa odeeffannoo wal jijjiiruu		
	Muuxannoo gareen hojjechuu	Haala muxannoo gareen hojjechuu keessan natti himuu dandeessaa?	Geengoon Barattootaa maalii? Haala kamiin hundeeffamee?
	Gareen hojjechuu fi haala walitti dhufeenya namootaa	Akkamitti akka marii geengoo barattootaa jalqabdan, gaggeessitan fi itti xumurтан natti himuu dandeessaa?  Eenyuu kan gareen wal barsiisuu kana jajjabeessu/ho`isuu?	Akkamiin hojjetuu, gaaffii gaafachuu fi deebisuu? Yaadota haaraa burqisiisuu? Miira hiriyyummaa? Yaada bilisaa ibsuu? Miirri garee? Wal kabajuun? Gaggeessaa kabajuu?
	Gareen waliin hojjechuu	Hirmannaa ho`aa, itti gafatammumma(murannoo)ofitti amanamummaa walii gala?  Garee kee akkamiin madaaltaa?	Haala ho`ina sagantichaa? Sa`aa kabajuu? Itti gaafatammummaa? Haala murtoo ergaa busaa fudhanii manaan ga`uufi gabaasuu? Dandeettii? Haamilee ho`aa qabachuu? Waliin hojjechuu/ muxannoo wal jijjiiruu? Dandeetti rakkoo furuu? Duubdeebii yaada ijaarsaa kennuu?
	Fudhatammummaa tarsii moo kanaa(Acceptability): Milkaa`ina sagantaa kanaa ilaalchisee(Feasibility)  Barbaachisummaa Tarsii moo kanaa(Appropriate	Haala walii gala miira kee fi muuxannoo gareen barachuu fi maatii barsiisuu waa`ee busaa irratti natti himuu dandeessaa?  Gareen barachuu mana barnootaa keessaa?  Maatii dhimma busaa barsiisuurratti?	Jallatee jirtaa? Busaa irratti beekumsa kee, fedhii fi gochawwaan dhukkuba kana ittisuu sii foyyeessera?  Gareen barachuu kana akkamitti ilaalte?  Hojjechuu danda`amaa? Maaliif? Maatii barsiisuu akkamitti ilaaltee? Ni danda`ama jette yaaddaa? Akkamitti?

	ness		Hudhaaleen jiran maal fa`i? Abdiin jiruhoo maal fa`i?
4	Miira raawwattummaa( Perceived performance	Tarsiimoon hiriyaan hiriyaan barnoota barachuu dhibee busaa ittisuu kun walumaa galattii maal fakkaataa?	Itti fufiinsa isaa? Mana barnoota biroof otoo darbee maal jetta? Bu`aa barbaadamu gama dhukkuba busaa ittisuu irratti fideera? Kan biraa?
Sagantaa keenyaa xumuraa jirra. Yaada xumuraa/kan hafee yoo jiratee?			

Facilitator name \_\_\_\_\_ starting time \_\_\_\_\_ ending time \_\_\_\_\_

DECLARATION

I, the undersigned, declare that this thesis is my original work, has not been presented for a degree in this or any other university and that all sources of materials used for the thesis have been fully acknowledged.

**Alemayehu Deressa** \_\_\_\_\_

Name of the student

Signature

\_\_\_\_\_ Date

Name of the institution:

Jimma University

This thesis has been submitted for examination with my approval as University advisor

\_\_\_\_\_  
Name of the first advisor

Signature

Date

\_\_\_\_\_  
Name of the second advisor

Signature

\_\_\_\_\_ Date

\_\_\_\_\_  
Name of the examiner

Signature

\_\_\_\_\_ Date