# Effectiveness of Community Advocacy on the Uptake of COVID -19 Containment Measures among Adolescent's With Disability in Kakamega County, Kenya

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## ABSTRACT

This study assessed the effectiveness of adapted health communication materials and advocacy interventions on uptake of COVID-19 containment measures among adolescents with disability. Mixed research design was used involving survey and quasi-experimental stud. Advocacy for thorough hand washing & proper putting of masks was done through various types of training, capacity building of community volunteers focusing on adolescents with disabilities and their caregivers. 200 participants aged ten (10) to twenty (20) years old with physical, intellectual and visual impairments from twelve sub-counties of Kakamega County were involved. Instruments of data collection were: Self-structured questionaires, a twelve-week home-based advocacy intervention programme and an adapted health communication material. Chi-square and dependent t-test were used to analyse data at 0.05 alpha levels**.** Study outcomes demonstrated that majorit**y** of the respondents were male ($n$ = 126, 62%) who were aged 13 – 15 years ($n$ = 107, 53%) with a mean (±SD) of 14.30 (±2.45) years. Majority of the respondents belonged to special schools ($n$ = 102, 50%) and were in the class called foundation one ($n$ = 36, 18%). All variables except class ($\chi 2$ (DF=15) =30.0, p=0.11) were statistically significant and therefore the associations were not completely due to randomness. Higher proportions of respondents were aware of the origin of COVID-19 in the post-intervention study compared to the pre-intervention The result of the two-tailed paired samples $t$-test was significant at 0.05, $t(216) = -3.42$, $p < .001$ Thus the null hypothesis was rejected. The research study concluded that the intervention programme had significant effect and should be sustained. Study recommends replication of this study in all counties in Kenya and other countries as a model of disability mainstreaming in COVID -19 containment.

**Key Words:** Awareness, Adolescent, Disability, Advocacy, COVID-19

## INTRODUCTION

Coronavirus disease (COVID-19) which is caused by SARS-COV2 has the causative agent of a potentially risky disease which is of great public health concern [1]. Most individuals infected with the virus experience mild to moderate respiratory illnesses and may recover without undergoing special treatment. In other cases the symptoms become severe which may lead to death. . Studies reveals that the virus originated from the Chinese city of Wuhan December 2019, where it was established that it causes a respiratory illness called COVID-19 and that it could spread from person to person[2]. The most common symptoms at onset of COVID-19 illness are fever, cough, and fatigue, while other symptoms include sputum production, headache, haemoptysis, diarrhea, dyspnea, and lymphopenia [3]. The pandemic has created a global health crisis that has resulted to health challenges to all people including vulnerable population such as elderly, those with underlying medical conditions and to a greater extent, persons with disabilities [4].

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The UN Convention on the Rights of Persons with Disabilities (UNCRPD)[5] defines persons with a disability as including those who have long-term physical, mental, intellectual or sensory impairments which in interaction with various barriers may hinder their full and effective participation in society on an equal basis with others. More than one billion people; (15% of population) in the world live with some form of disability with an estimated 60-80 million of them resident in Africa [6,7]. According to the 2019 census, 2.2% (0.9 million people) of Kenyans live with some form of disability [8]. It has been reported that out of the total population nearly 200 million of persons with disabilities in the world experience considerable difficulties in functioning hence a major challenge to their health

COVID-19 restriction measures have affected everybody in the world, it is even worse for persons with disabilities. World Health Organization [4] has drawn the world's attention to the plight of this population in the war against COVID-19 Pandemic. It states that persons with disabilities are at greater risk of contracting COVID-19 due to a number of barriers and challenges they face or developing more severe cases of COVID-19 if they become infected, as a result of: the disruption of services they rely on for survival, their health conditions relating to respiratory function, immune system function, heart disease or diabetes. They face Barriers to implementing basic hygiene measures, such as hand washing (i.e. hand basins, sinks or water pumps may be physically inaccessible, or a person may have physical difficulty rubbing their hands together thoroughly); difficulty in enacting social distancing because of additional support needs and the need to touch things to obtain information from the environment or for physical support [4]. There is therefore need for inclusive targeted containment intervention that incorporate disability specific health promotion and communication strategies and materials to prevent the transmission or better prepare them and their caregivers for COVID-19 transmission should it occur within their environment.

Health communication is a key and necessary factor in saving lives during the COVID-19 pandemic crisis. It is a key tool for ensuring behavior change, both on the individual as well as on the community level. The scale of the crisis and governments' responses have been matched by a colossal flow of information about COVID-19 in terms of 24/7 news coverage, televised press conferences provided by both political leaders and health authorities. This massive flow of health information and viewpoints on the pandemic is unprecedented and varied [9]. Persons with disabilities have however experienced barriers to accessing this public health information [4]. In Kenya the current communication strategies used by the ministry of health in the prevention of the pandemic are not inclusive of all categories of disability (physical, deaf-blind, emotional and behavioral disorders, Intellectual disability, developmental disabilities and visually impaired persons) and their caregivers. There is need to therefore prepare and convert public material to formats that are accessible and relevant to all adolescents with various disabilities.

During adolescent stage attitudes are formed and behavior affirmed, hence a critical period to target in developing positive lifelong health behaviors. In the face of the present COVID-19 pandemic adolescents with disabilities may not benefits from current avenues and social distance containment measures, therefore additional measures in health advocacy through use of adapted communication materials may boost their protection by enhancing their knowledge levels and preparedness to deal with the pandemic.

There is therefore need for advocacy to enhance COVID-19 awareness levels among adolescent with disabilities in kakamega County, Kenya. Based on the forgoing the study evaluated the variables of disability advocacy through adapted health communication materials, as additional measure to COVID-19 containment measure among adolescents with disabilities aged 10-21years old. The study objectives were to: a)determine demographic characteristics(b), establish current status of COVID-19 awareness levels, and c) assess effect of adapted health communication material on uptake of COVID-19 containment measure among adolescents with disabilities in Kakamega County, Kenya. : The null hypothesis tested in this study was, **$H0_1$:** There is no significant effect of adapted health communication material on uptake of COVID-19 containment measures among adolescents with disability in Kakamega County, Kenya.

This study was significant as it provide important information to guide public health and health promotion professionals and relevant stakeholders so that they are able to implement an effective adapted health communication materials to enhance awareness levels for adolescents with disabilities in the COVID-19 pandemic period in order to protect and improve their health. This may inform the National policy

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Framework for inclusive advocacy and multi-agency working group that plan and promote cross-disciplinary planning and collaboration in the field of public health for persons with disabilities. The outcome may also add to national, regional and local public awareness campaigns around COVID-19 containment measures so as it reflects the diversity of the population and address the simple and broad opportunities that exist for health advocacy. The study outcome may also inform media to develop inclusive strategies and allot space for diversity of adapted health communication materials and portray images of children and adults with a disability in publicity material regarding COVID-19 containment measures. The results may also inform global actions to promote the realization of the SDGs 4 for persons with disabilities. The study outcome ensured that public health information and communication around COVID-19 is fully accessible through disability inclusive strategy.

This study was anchored on social cognitive theory [10]. Health behavior is defined as 'behavior patterns, actions, and habits that relate to health maintenance, health restoration and to health improvement [11]. An adolescent's behavior towards their health is influenced by their social, cultural and physical environments (i.e Engaging in health- enhancing behaviors, being aware of COVID -19 and following instructions. In developing and implementing health communication interventions for adolescents, it is critical to understand the determinants and correlates of public health behavior [4]. One of the theories that has received widespread attention in predicting and explaining health behaviors is Bandura's social cognitive theory [12, 13, 14].

Social cognitive theory emphasizes reciprocal determinism in person–environment interaction. Social cognitive theory posits that individual behavior is determined by the dynamic interaction of personal, behavioral, and environmental influences. While this theory recognizes how environments affect behavior, it also focuses on the individual's potential abilities to alter environments to achieve his or her purpose [11]. The two primary determinants of behavior in social cognitive theory are self-efficacy and outcome expectations. Self-efficacy is defined as an individual's beliefs about his or her capacity to perform behavior [14]. As presented in *Figure 1*, self-efficacy is expected to have a direct influence on behavior as well as indirect influences through all other components in social cognitive theory. Self-efficacy is widely recognized as one of the strongest determinants of behavior change through advocacy [15], and the majority of studies have identified that self-efficacy is consistently and strongly associated with advocacy and knowledge [16]

Outcome expectations represent an individual's beliefs about the value and likelihood of the consequences of performing a behavior [14]. Social cognitive theory assumes that the individual will act in ways that he or she believes will lead to positive outcomes and avoid behaviors that he or she believes will result in negative outcomes [17]. Goals and socio-structural factors are other core constructs of the social cognitive theory. Goals provide further guides and self-incentives for performing behavior. Long-term goals can serve as a general guide and short-term goals can inform current actions [11]. Socio-structural factors such as social support and the environment can be impediments and facilitators to performing behavior and are expected to influence behavior indirectly through goal setting [14]. These factors are also assumed to mediate the effect of self-efficacy on behavior. Across studies, social cognitive theory constructs are consistently and strongly associated with health behaviour practices hence determining the outcome of an intervention among adolescents [18].Therefore this theory was used to evaluate COVID-19 awareness levels, before and after intervention.

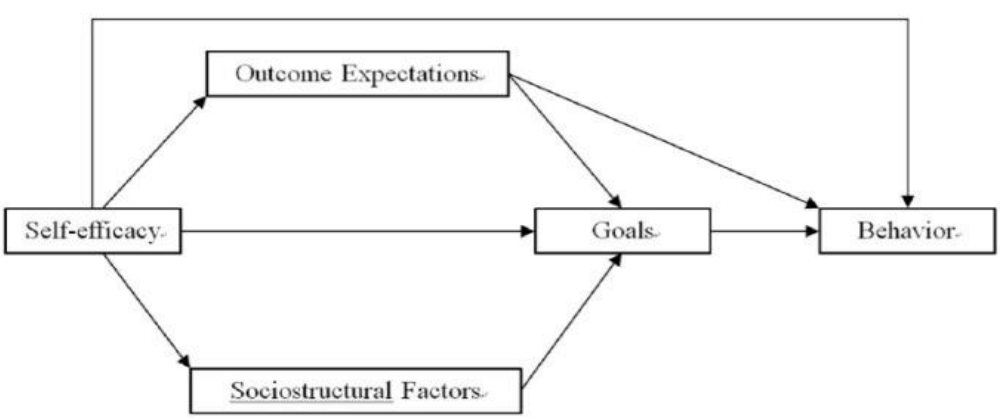


Figure 1: Social Cognitive Theory (Bandura, 2004).

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# METHODS AND MATERIALS

This study adopted a mixed research design consisting of descriptive baseline survey and quasi-experimental research design. This involved array of health promotion programmes based on advocacy, hand washing and importance of masking through various types of trainings, workshops, seminars for capacity building of commnity volunteers, focusing on the adolescent living with disability and their caregivers in Kakamega County,Kenya.

**Study site**

This Study locale was Kakamega County. Kakamega County is one of the 47 devolved units in Kenya under the new constitution (2010). The choice was necessitated by it having high the prevalence rate of disabilities among children aged 0-21 reported to be 13.5% which is comparable to the global estimate of 15% [19]. Kakamega has a high prevalence rate of children with disabilities at 14.7 %, this is higher than the national prevalence rate estimate 13.5 % [20], and highest number of persons with disability experiencing activity limitation [21]. Map of Kakamega County is presented in appendix

**Participants**

Study population comprised of adolescents with Physical, Visual, Intellectual and developmental disabilities aged between ten (10) to twenty-one (21) years in Kakamega County, Kenya. Records from NCPWD, County social services department, community volunteers and youth leaders were used to access the location and home of the study population

**Sampling techniques**

Purposive sampling technique was used used to select adolescents with Physical, Visual, Intellectual and developmental disabilities from all the twelve (12) sub-counties of Kakamega County, Kenya.

G*Power was used to calculate sample size of adolescents with disability included in the study as follows:

$\alpha$ err prob = 0.05

Power (1-$\beta$ err prob) = 0.9861291

Df = 197

Effect size $f^2$ = 0.0744622

Total sample size n= 200

**Data collection procedure**

The researcher obtained research permit from Mastermind Muliro University of Science and Technology Scientific Ethical Review Committee (ISERC) and National Centre for Science,Technology and Innovation(NACOSTI with authorization from County and sub-county commissioners in Kakamega County. Informed consent was sought from parents/guardians/caregivers of adolescents below the age of 18 and those who cannot give consent due their impairment restrictions, after briefing them. All the adolescents with disabilities were requested to give their assent orally before inclusion in the programme.

After ethical and administrative permission was granted, the study was carried as follows:-

The study commenced with baseline survey to establish the socio-demographic characteristics, current level of awareness and adherence to COVID-19 prevention and control measures. This was necessary in building a stronger understanding of the key socio-behavioral factors that may influence a COVID-19 outbreak and response in the target area; build on local knowledge and skills that may address barriers to prevention like

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access, information, health status, accessibility and norms;. Specific information was on proper sanitation, including hand washing with soap, wearing masks, social distance.

The research team coordinated research activities in order to strengthen public health strategies in the fight against COVID-19 through communication and community engagement by health promotion and advocacy , through trainings, seminars for capacity building of community volunteers, religious leaders, , heads of Nyumba Kumi, Community social workers, local administration, members of the public of all groups, taking in to cognizance of their diversity in terms of Gender age, disability type on sanitation and hygiene practices on COVID-19 prevention from selected zones zone in the County mapped out using Geographical information system.

**Data collection Instruments**

The study used a variety of data collection instruments to gather up-to-date information on awareness on COVID-19 containment measures. . The data collection instruments included: semi-structured questionnaire and a twelve week advocacy programme as part of COVID-19 containment measures by adolescent with disability in Kakamega County, Kenya .The questionnaire was administered before and after the advocacy intervention and sensitization programme. Participants assisted by their caregivers/guardians were asked to answer all items in the questionare by ticking only one of the alternatives provided at the end of each statement. They included the following alternatives: 5=Strongly agree, 4=Agree,3= Not sure, 2=Disagree and 1=Strongly Disagree, there was provision in the questionnaire where participants were required to give their opinions in the management of COVID-19 pandemic, the questionare is presented in table 1

Table 1: Awareness of Coronavirus disease (COVID 19)

| **Item** | **Strongly Agree** | **Agree** | **Not sure** | **Disagree** | **Strongly Disagree** |
|---|---|---|---|---|---|
| I am aware of the origin of Coronavirus disease (COVID 19) outbreak | | | | | |
| The COVID-19 virus spreads via respiratory droplets of infected individuals | | | | | |
| Public Health Authorities in Kenya are putting in place enough to control the COVID-19 outbreak among adolescents with disabilities | | | | | |
| Hand Hygiene / Hand cleaning is important in the control of the spread of the Coronavirus disease COVID-19 outbreak | | | | | |
| To prevent getting infected by Coronavirus disease (COVID-19), individuals should wear masks and avoid going to crowded places | | | | | |
| Clinical symptoms of COVID-19 include Fever, Fatigue, Dry cough and skin rashes | | | | | |
| There currently is no effective cure for COVID-2019, but early symptomatic and supportive treatment can help most patients recover from the infection | | | | | |
| Isolation and treatment of people who are infected with the COVID-19 virus are effective ways to reduce the spread of the virus. | | | | | |
| I/I know somebody who has been affected by the | | | | | |

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| | | | | | |
|---|---|---|---|---|---|
| COVID-19 | | | | | |
| Not all persons with COVID-2019 will develop to severe cases. | | | | | |
| Only those who are elderly, have chronic illnesses, and are obese are more likely to develop severe cases of Covid 19 | | | | | |
| Antibiotics can be effective in preventing Coronavirus disease (COVID-19) outbreak | | | | | |

Give your opinion on health challenges faced during the COVID 19 Pandemic----------
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Give possible solutions to the health challenges listed above----------
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**Pilot Study**

A pilot study was conducted in Mbale sub-county of Vihiga County consisting 20 adolescents with disabilities and their caregivers. This was to ascertain the reliability and validity of the research instruments [22].The population to be piloted was 10% of the proposed study sample size as has been recommended by researchers [23] who suggests that 10-30 participants are ideal for a pilot study. These results helped the researchers to identify poorly constructed aspects of the questionnaire, remove ambiguities; simplify the questions and further develop questions for easier coding.

**Validity and reliability of the data collection instrument**

Validity is the accuracy and soundness or effectiveness with which an instrument measures what it was intended to measure [24].In this study, validation of the instrument (questionnaires) was done to ensure that the content and format of the questionaires was consistent with study variables. In this case face validation, content and construct of the questionnaires reliability index were assessed by experts from directorate of research of Masinde Muliro University of Science and Technology. Comments from the experts were incorporated into the instrument before being used in the field.construct validity was measured by administering afew questions to adolescent with disability, their parents/guardians and special needs teachers in Vihiga County during pretest and analyzing the results to evaluate whether the questionaire measured what it intended to measure. Criterion validity was measured by analyzing the outcome provided by the data collected using questionaire.

To strengthen the reliability of the tool, study used internal consistency techniques. This involved correlating a score in one item with scores obtained from other items in the instrument. In this case cronbach,s alpha, which is a general form of Kuder-Richardson(K-R) 20 formular was used[25].Cronbach,s alpha was interpreted as the mean of all possible split-half coefficients and it was considered to be a measure of scale reliability. The reliability co-efficient of the study's questionaire was found to be 0.75.The test was conducted in Statistical package for Social Sciences version 25.0.It is noteworthy that cronbach,s reliability co-efficient of.70 or higher is considered acceptable[26].

**Data analysis and presentation**

Both quantitative and qualitative analysis was used. Data was cleaned, coded and organized appropriately using SPSS version 24.Descriptive statistics and dependent t-test was used to analyze the variables under investigation. Results were presented using descriptions, charts, percentages, tables and histograms

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# RESULTS AND DISCUSSION

## Fidelity of Implementation

Results on fidelity of implementation is presented in table 3.1

Table 3.1: Number and percentage of surveyed sub counties and assessed children as compared to number of planned number of children.

| | **Clusters/Overall** | **Number of Respondents expected** | **Number of respondents surveyed** | **%** |
|---|---|---|---|---|
| | **KAKAMEGA TOTAL** | **200** | **203** | **101.5%** |
| 1 | Kakamega Central | 20 | 34 | 170% |
| 2 | Kakamega South | 20 | 40 | 200% |
| 3 | Lugari | 20 | 6 | 30% |
| 4 | Lurambi | 20 | 50 | 250% |
| 5 | Malava | 20 | 12 | 60% |
| 6 | Matungu | 20 | 14 | 70% |
| 7 | Mumias West | 20 | 2 | 10% |
| 8 | Mumias East | 20 | 16 | 80% |
| 9 | Navakholo | 20 | 25 | 125% |
| 10 | Shinyalu | 20 | 4 | 20% |

The number of questionnaires scheduled and number of questionnaires completed is included in Table 3.1. The overall response rate was 101.5% (*n*=203). The percentage of completed questionnaires was ranging from lowest in Shinyalu (*n* = 4, 2.0%) to highest in Lurambi (*n* = 50, 24.6%). The per sub-county response rates were 170% in Kakamega central, 200% in Kakamega South, 30% in Lugari, 60% in Malava and 125% in Navakholo. There were some deviations from the intended sample size in various sub counties due to various reasons like, Time and distance constraints, Inaccessibility, Insecurity and lack of respondents. These missing respondents were randomly distributed among the other sub counties. There was no selection bias regarding the representativeness of the sample as shown in the results and statistical analysis presented in table 3.1

## Socio-demographic characteristics of the study participants

The demographic results of the respondents revealed that majority of the respondents were male (*n* = 126, 62%) who were aged 13 – 15 years (*n* = 107, 53%) with a mean (±SD) of 14.30 (±2.45) years. Majority of the respondents belonged to special schools (*n* = 102, 50%) and were in the class called foundation one (*n* = 36, 18%). Summary of findings in frequencies and percentages are presented in table 3.2.

Table 3.2 Socio-demographic characteristics of respondents

| | | **Disability type** | | | | |
|---|---|---|---|---|---|---|
| **Characteristics** | **HI** | **PC** | **MC** | **VI** | **Total** | **$\chi$2, p** |
| Gender | | | | | | |
| Male | 14 (74%) | 22 (54%) | 76 (59%) | 14 (100%) | 126 (62.07%) | 48.25, |

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| | | | | | | |
|---|---|---|---|---|---|---|
| Female | 5 (26%) | 19 (46%) | 53 (41%) | 0 (0%) | 77 (37.93%) | P<0.01* |
| School type | | | | | | |
| Regular | 17 (89%) | 2 (5%) | 69 (53%) | 13 (93%) | 101 (49.75%) | 45.59, |
| Special school | 2 (11%) | 39 (95%) | 60 (47%) | 1 (7%) | 102 (50.25%) | P<0.01* |
| Class | | | | | | |
| Foundation 1 | 16 (84%) | 2 (5%) | 17 (13%) | 1 (7%) | 36 (17.73%) | 30.0, |
| Class 8 | 0 (0%) | 4 (10%) | 9 (7%) | 0 (0%) | 13 (6.4%) | P=0.11* |
| Prevocational 1 | 0 (0%) | 1 (2%) | 7 (5%) | 0 (0%) | 8 (3.94%) | |
| Class 7 | 1 (5%) | 6 (15%) | 15 (12%) | 0 (0%) | 22 (10.84%) | |
| Vocational | 1 (5%) | 4 (10%) | 5 (4%) | 0 (0%) | 10 (4.93%) | |
| Class 6 | 0 (0%) | 5 (12%) | 12 (9%) | 0 (0%) | 17 (8.37%) | |
| Class 5 | 0 (0%) | 6 (15%) | 14 (11%) | 10 (71%) | 30 (14.78%) | |
| Class 4 | 0 (0%) | 8 (20%) | 7 (5%) | 3 (21%) | 18 (8.87%) | |
| Class 3 | 0 (0%) | 1 (2%) | 1 (1%) | 0 (0%) | 2 (0.99%) | |
| Prevocational 2 | 0 (0%) | 2 (5%) | 15 (12%) | 0 (0%) | 17 (8.37%) | |
| Class 1 | 0 (0%) | 1 (2%) | 2 (2%) | 0 (0%) | 3 (1.48%) | |
| Foundation 2 | 0 (0%) | 0 (0%) | 20 (16%) | 0 (0%) | 20 (9.85%) | |
| Form 1 | 0 (0%) | 0 (0%) | 1 (1%) | 0 (0%) | 1 (0.49%) | |
| Class 2 | 0 (0%) | 1 (2%) | 2 (2%) | 0 (0%) | 3 (1.48%) | |
| Intermediate level | 0 (0%) | 0 (0%) | 1 (1%) | 0 (0%) | 1 (0.49%) | |
| Foundation Class 3 | 1 (5%) | 0 (0%) | 1 (1%) | 0 (0%) | 2 (0.99%) | |
| Age group | | | | | | |
| 13-15 | 13 (68%) | 17 (41%) | 73 (57%) | 4 (29%) | 107 (52.71%) | 57.32, |
| 19 | 2 (11%) | 2 (5%) | 5 (4%) | 0 (0%) | 9 (4.43%) | P<0.01* |
| 16-18 | 2 (11%) | 10 (24%) | 25 (19%) | 8 (57%) | 45 (22.17%) | |
| 12 > | 2 (11%) | 12 (29%) | 26 (20%) | 2 (14%) | 42 (20.69%) | |

Note. Due to rounding errors, column wise percentages may not equal 100%. HI-hearing impairment; MC-mentally challenged; PC-Physically challenged; VI-Visual impairment

Results from the chi-square statistics showed that there were differences in proportion among the different disability types with regards to socio-demographic characteristics. All variables except class ($\chi 2(df=15) = 30.0$, $p=0.11$) were statistically significant and therefore the associations were not completely due to randomness as demonstrated in table 3.2

Results on COVID-19 awareness levels is presented in table 3.3

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Table 3.3 Means and Standard deviation on awareness on COVID 19

| **Knowledge Items** | **n** | **HI** | **PC** | **MC** | **VI** |
|---|---|---|---|---|---|
| I am aware of the origin of Coronavirus disease (COVID 19) outbreak | 203 | 2.85 ± 1.41 | 3.01 ± 1.0 | 2.33 ± 1.00 | 2.40 ± 1.46 |
| The COVID-19 virus spreads via respiratory droplets of infected individuals | 203 | 2.11 ± 1.88 | 3.22 ± 1.53 | 2.99 ± 1.10 | 3.04 ± 1.54 |
| Public Health Authorities in Kenya are putting in place enough to control the COVID-19 outbreak among adolescents with disabilities | 203 | 2.22 ± 1.53 | 3.10 ± 1.08 | 2.58 ± 1.58 | 3.27 ± 1.35 |
| Hand Hygiene / Hand cleaning is important in the control of the spread of the Coronavirus disease COVID-19 outbreak | 203 | 2.94 ± 1.37 | 2.95 ± 1.27 | 2.33 ± 1.00 | 2.40 ± 1.41 |
| To prevent getting infected by Coronavirus disease (COVID-19), individuals should wear masks and avoid going to crowded places | 203 | 2.35 ± 1.30 | 3.10 ± 1.47 | 2.85 ± 1.11 | 3.05 ± 1.00 |
| Clinical symptoms of COVID-19 include Fever, Fatigue, Dry cough and skin rashes | 203 | 2.81 ± 1.29 | 3.33 ± 1.03 | 2.94 ± 1.38 | 2.95 ± 1.14 |
| There currently is no effective cure for COVID-2019, but early symptomatic and supportive treatment can help most patients recover from the infection | 203 | 2.40 ± 1.99 | 2.81 ± 1.0 | 2.35 ± 1.46 | 3.10 ± 1.80 |
| Isolation and treatment of people who are infected with the COVID-19 virus are effective ways to reduce the spread of the virus. | 203 | 2.33 ± 1.54 | 2.40 ± 1.32 | 2.81 ± 1.70 | 3.33 ± 1.03 |
| I/I know somebody who has been affected by the COVID-19 | 203 | 2.99 ± 1.56 | 3.04 ± 1.0 | 2.35 ± 1.54 | 3.10 ± 1.53 |
| Not all persons with COVID-2019 will develop to severe cases. | 203 | 2.58 ± 1.48 | 3.27 ± 1.15 | 2.81 ± 1.00 | 3.33 ± 1.08 |
| Only those who are elderly, have chronic illnesses, and are obese are more likely to develop severe cases of Covid 19 | 203 | 2.83 ± 0.68 | 3.33 ± 1.0 | 2.40 ± 1.19 | 2.81 ± 1.00 |
| Antibiotics can be effective in preventing Coronavirus disease (COVID-19) outbreak | 203 | 2.22 ± 1.68 | 3.19 ± 1.19 | 0.85 ± 1.20 | 0.85 ± 1.14 |

Note. M= Mean; SD= Standard deviation HI-hearing impairment PC-physically challenged MC-mentally challenged, VI-visual impairment

Majority of the respondents strongly agreed that they were aware of the origin of COVID-19 ($n$ = 114, 56%), they strongly agreed that the virus spreads via respiratory droplets of infected individuals ($n$ = 135, 67%) and also that to prevent getting infected by COVID-19 individuals should wear masks and avoid going to crowded places. Majority agreed that the clinical symptoms of COVID-19 included fever, fatigue, dry cough and skin rashes ($n$ = 103, 50%). These findings are supported by those of [27], However, majority disagreed that isolation and treatment of people who are infected with the virus was an effective way to reduce the spread of the diseases ($n$ = 183, 90%).This results corroborate those of [28] policy brief which reported that persons with disability are negatively affected by lockdowns and isolation measures. However, the results are contrary to

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findings reported by International Disability Alliance[23],whose results reported less awareness by persons with disability occasioned by inappropriate communication materials. There is need for further research for positional stance on this aspect. Regarding their opinion on health challenges faced during the COVID- 19 pandemic, the responses were as follows; Some said it affected the economy, disrupted the education system and loss of jobs and this led to stress and poor health. Others mentioned fear of death on those infected, food shortage, fear of visiting hospitals hence increased disease due to poor home management. These findings are supported by United Nation's policy brief [22,4] which documented that youth with disabilities were not getting public health access to information on COVID--19 and also are faced by discrimination and human rights abuses, hence the need to adopt adapted health communication materials in advocating for an inclusive approach to COVID -19 prevention and management

A summary of the findings of effect of advocacy through adapted health communication materials is presented in Table 3.4.

Table 3.4 end line awareness on COVID 19

| Awareness items | *n* | *%* | *Mean (SD)* | *Knowledge level* |
|---|---|---|---|---|
| I am aware of the origin of Coronavirus disease (COVID 19) outbreak | | | | |
| Strongly Agree | 123 | 56.68 | 3.3 (±1.3) | Knowledgeable |
| Not sure | 49 | 22.58 | | |
| Disagree | 19 | 8.76 | | |
| Agree | 26 | 11.98 | | |
| The COVID-19 virus spreads via respiratory droplets of infected individuals | | | | |
| Strongly Agree | 33 | 15.21 | 3.2 (±1.2) | Knowledgeable |
| Not sure | 139 | 64.06 | | |
| Agree | 11 | 5.07 | | |
| Disagree | 34 | 15.67 | | |
| Public Health Authorities in Kenya are putting in place enough to control the COVID-19 outbreak among adolescents with disabilities | | | | |
| Strongly Agree | 38 | 17.51 | 3.1 (±1.8) | Knowledgeable |
| Not sure | 133 | 61.29 | | |
| Agree | 12 | 5.53 | | |
| Disagree | 34 | 15.67 | | |
| Hand Hygiene / Hand cleaning is important in the control of the spread of the Coronavirus disease COVID-19 outbreak | | | | |
| Strongly Agree | 35 | 16.13 | 3.5 (±1.0) | Knowledgeable |
| Not sure | 154 | 70.97 | | |
| Agree | 12 | 5.53 | | |
| Disagree | 16 | 7.37 | | |

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|---|---|---|---|---|
| To prevent getting infected by Coronavirus disease (COVID-19), individuals should wear masks and avoid going to crowded places | | | | |
| Strongly Agree | 149 | 68.66 | 3.3 (±1.91) | Knowledgeable |
| Not sure | 28 | 12.90 | | |
| Disagree | 8 | 3.69 | | |
| Agree | 32 | 14.75 | | |
| Clinical symptoms of COVID-19 include Fever, Fatigue, Dry cough and skin rashes | | | | |
| Strongly Agree | 111 | 51.15 | 3.0 (±1.87) | Knowledgeable |
| Not sure | 67 | 30.88 | | |
| Agree | 8 | 3.69 | | |
| Disagree | 31 | 14.29 | | |
| There currently is no effective cure for COVID-2019, but early symptomatic and supportive treatment can help most patients recover from the infection | | | | |
| Strongly Agree | 18 | 8.29 | 3.4 (±1.2) | Knowledgeable |
| Not sure | 107 | 49.31 | | |
| Disagree | 69 | 31.80 | | |
| Agree | 23 | 10.60 | | |
| Isolation and treatment of people who are infected with the COVID-19 virus are effective ways to reduce the spread of the virus. | | | | |
| Strongly Agree | 20 | 9.22 | 3.3 (±1.1) | Knowledgeable |
| Not sure | 9 | 4.15 | | |
| Disagree | 0 | 0.0 | | |
| Agree | 188 | 86.64 | | |
| Not all persons with COVID-2019 will develop to severe cases. | | | | |
| Strongly Agree | 99 | 45.62 | 3.1 (±1.3) | Knowledgeable |
| Not sure | 68 | 31.34 | | |
| Disagree | 31 | 14.29 | | |
| Agree | 19 | 8.76 | | |

Note. Due to rounding errors, percentages may not equal 100%. Mean +3 is Knowledgeable, 2.9 and below not knowledgeable.

On COVID-19 awareness, majority of the respondents strongly agreed that they were aware of the origin of COVID-19 (n = 123, 57%). they strongly agreed that the virus spreads via respiratory droplets of infected individuals (n = 139, 64%) and also that to prevent getting infected by COVID-19 individuals should wear masks and avoid going to crowded places. Majority agreed that the clinical symptoms of COVID-19 included fever, fatigue, dry cough and skin rashes (n = 111, 51%). However, majority disagreed that isolation and

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treatment of people who are infected with the virus was an effective way to reduce the spread of the diseases (n = 188, 87%). Generally, respondents were knowledgeable in most of the questions with regards to COVID-19.Summary of knowledge outcomes between baseline and end line is presented in Table 3.5

Table 3.5: Knowledge proportions between baseline and end line

| **Knowledge items** | **Baseline(n=203)** | **end line(n=189)** |
|---|---|---|
| I am aware of the origin of Coronavirus disease (COVID 19) outbreak | 36% [31.1-41.1] | 57% [52.8-61.8] |
| The COVID-19 virus spreads via respiratory droplets of infected individuals | 44% [38.8-49.1] | 49% [44.3-53.4] |
| Public Health Authorities in Kenya are putting in place enough to control the COVID-19 outbreak among adolescents with disabilities | 36% [31.1-41.1] | 43% [38.2-47.2] |
| Hand Hygiene / Hand cleaning is important in the control of the spread of the Coronavirus disease COVID-19 outbreak | 26.6% [22.1-31.4] | 26% [22.4-30.4] |
| To prevent getting infected by Coronavirus disease (COVID-19), individuals should wear masks and avoid going to crowded places | 6.5% [4.2-9.5] | 9% [6.2-11.3] |
| Clinical symptoms of COVID-19 include Fever, Fatigue, Dry cough | 20.9% [16.3-25.3] | 31% [26.5-34.9] |
| There currently is no effective cure for COVID-2019, but early symptomatic and supportive treatment can help most patients recover from the infection | 16.2% [12.6-20.4] | 12% [9.4-15.5] |
| Isolation and treatment of people who are infected with the COVID-19 virus are effective ways to reduce the spread of the virus. | 6.5% [4.2-9.5] | 9% [6.8-12.3] |
| Not all persons with COVID-2019 will develop to severe cases. | 4.4% [2.5-6.9] | 2.7% [1.4-4.6] |

Results revealed that there were higher proportions of respondents who aware of the origin of COVID-19 in the post-intervention study compared to the per-intervention. With regards to COVID-19 spreading via respiratory droplets of infected people, it was higher in the post intervention. Generally, all proportions of knowledge items were lower in the End line study compared to the baseline study.

A meta-analysis was done to compare proportions between the two studies (baseline and post- intervention). The overall finding on prevalence reveals that the odds favored the end line study compared to the baseline study. This means that the awareness prevalence rates of COVID-19 had red increased during post-intervention. Results are presented in figure 3.1

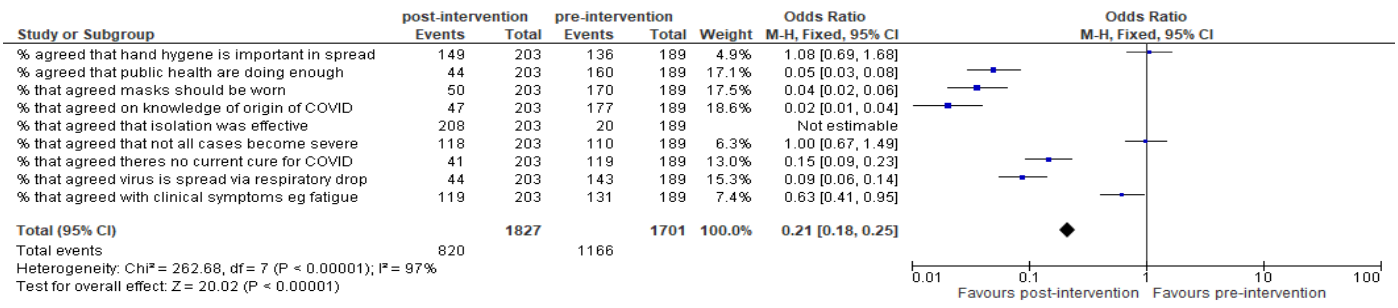


Figure 3.1 Forest plot of comparison of knowledge responses between baseline and end line

A two-tailed paired samples *t*-test was conducted to examine whether the mean difference of pre intervention and post intervention was significantly different from zero. With regards to the assumption of normality, Shapiro-Wilk test was conducted to determine whether the differences in pre intervention and post intervention could have been produced by a normal distribution [29]. The results of the Shapiro-Wilk test were significant

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based on an alpha value of 0.05, $W = 0.79$, $p < .001$. This result suggests that differences in pre intervention and post intervention are unlikely to have been produced by a normal distribution, indicating the normality assumption is violated. With regards to the assumption of homogeneity of variance, Levine's test was conducted to assess whether the variances of pre intervention and post intervention were significantly different. The result of Levine's test was significant based on an alpha value of 0.05, $F$ (1, 432) = 6.75, $p$ = .010. This result suggests it is unlikely that pre intervention and post intervention were produced by distributions with equal variances, indicating the assumption of homogeneity of variance was violated.

The result of the two-tailed paired samples *t*-test was significant based on an alpha value of 0.05, $t$ (216) = -3.42, $p < .001$, indicating the null hypothesis was rejected. This finding suggests the difference in the mean of pre intervention and the mean of post intervention was significantly different from zero. The mean of pre intervention was significantly lower than the mean of post-intervention; hence, the effectiveness of the programme in enhancing awareness levels on COVID-19 among adolescents with disability in Kakamega County, Kenya. The results of two-tailed paired t-test is presented in Table 3.5.

Table 3.5: Two-Tailed Paired Samples t-Test for the Difference Between pre intervention and post intervention

| Pre intervention | | Post intervention | | | | |
|---|---|---|---|---|---|---|
| *M* | *SD* | *M* | *SD* | *t* | *p* | *d* |
| 5.36 | 2.44 | 5.94 | 2.25 | -3.42 | < .001 | 0.23 |

Note. N = 217. Degrees of Freedom for the *t*-statistic = 216. *d* represents Cohen's *d.*

A bar plot of the means is presented in Figure 3.2.

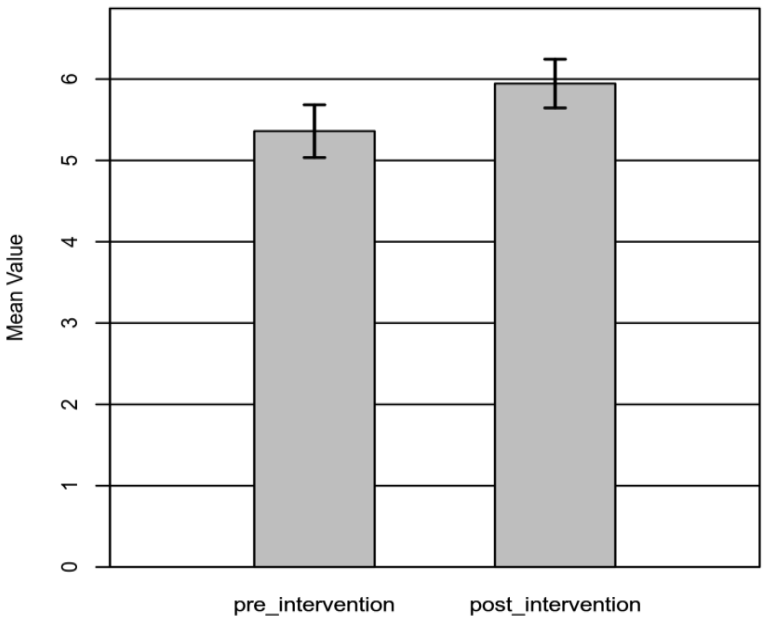


Figure 3.2. The means of pre intervention and post intervention with 95% CI Error Bars

These findings are in agreement with those of other researchers [27,28,29] which indicated that adapted health communication materials enhances access to health communication messages on COVID-19 containment measures among youth with disabilities and should be adopted by global governments to shield vulnerable groups including adolescent with disability from adverse effects of the pandemic. Similarly the study findings also find support from [30,31] which recommended use of braille and sign language interpretation to enhance

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COVID-19 awareness among children with hearing impairments and their caregivers during the global crisis and provide guidelines for non-discriminatory advocacy in treatment of COVID -19 patients living with disabilities.

## CONCLUSION AND RECOMMENDATIONS

Generally, respondents were knowledgeable in most of the questions with regards to COVID 19 knowledge levels. Adolescence with disability were moderately aware of origin of COVID-19 and containment measure and that they were more impacted by lockdown and restriction of movements. The study recommended that adolescence with disability should be involved in raising awareness on COVID-19 and should form part of protection campaigns in Kakamega County. Further, the study recommended that adolescence with disability should be allowed to participate fully in decisions that affect their lives regarding COVID-19 containment as they are diverse, non-homogeneous populations who possess unique abilities and lived experience of disability that others do not have. The study recommends further research on the sociolect-economic impact of COVID-19 on adolescence with disabilities.

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**Informed Consent Statement:** informed consent was obtained from all participants involved in the Study:

**About Authors:** Dr. Roselyn Odiango(PhD) contributed to the design and implementation of the research M/s Edina Sabiri contributed with data collection, report writing and editing of the manuscript and professor Gordon Nguka contributed to the analysis and interpretation of the research findings.

**Statement of Conflict of Interest:**

Authors have declared no competing conflict of interests with regards to research, authorship and publication of this article.

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