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The effect of behavior changes initiatives on HIV prevalence in Juba, Central Equatoria State. A cross-sectional study.

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Abstract.

Background.

The health system in South Sudan faces numerous challenges, exacerbated by protracted conflicts that hinder effective healthcare delivery. Despite the adverse conditions, there are opportunities for strengthening health systems, which are crucial for enhancing HIV prevention services. This study determined the effect of behavior change initiatives on HIV prevalence in Juba, Central Equatoria State.

Methodology.

A cross-sectional study design was employed, utilizing both qualitative and quantitative research methods. Data were collected through surveys and interviews with 142 participants, including healthcare providers and residents of Juba. Statistical analyses were conducted using regression models and correlation matrices to evaluate the impact of the HIV prevention strategies. The study was conducted in Juba, the largest city and capital of Central Equatorial State, South Sudan, an area with diverse demographics and significant HIV/AIDS challenges.

Results.

(37%) of the participants identified as Catholic, higher frequency of singles (45%), 90.9% agreed that sex education programs (for example ABCD strategies) are carried out by government and NGOs in Juba, 91.6% of respondents approved that the media for disseminating information on HIV/AIDS are suitable to the audience, 68.2% of respondents agreed that sex education programs (ABCD) and other programs related to HIV target schools and tertiary institutions in the Juba, 97.7% of respondents agreed that abstinence from sex is a means for prevention of HIV/AIDS in their community.

Conclusion.

It was noted from the analysis that when the current behavior trend is reversed, then the chances of reducing HIV/AIDS prevalence are most likely going to increase and vice versa.

Recommendation.

The lack of participation of intended beneficiaries in decision-making has limited the would-be impact of the activity's HIV/AIDS service providers, therefore these studies recommend a participatory approach to behavior change strategies for reduction in HIV/AIDS prevalence.

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Background.

A comprehensive assessment of HIV knowledge and attitudes among women of child-bearing age in South Sudan reveals significant disparities in understanding and prevention practices. Although a substantial portion of women understand the basics of HIV prevention, there is a profound lack of comprehensive measures, particularly in Equatoria states, where prevalence rates of new infections among young women remain alarmingly high. This scenario is further complicated by nutritional challenges, where malnutrition is prevalent and closely linked to increased susceptibility to infectious diseases like HIV. Studies by Coleman et al. (2022) and (Dave et al., 2019) emphasize the dire need for integrated health services that include HIV awareness and nutritional support to mitigate this vulnerability. Moreover, the effectiveness of community-based HIV programs in conflict-affected areas like Yambio County has shown promising results in improving treatment adherence and reducing transmission rates, underscoring the importance of localized health interventions in combating HIV in South Sudan.

The health system in South Sudan faces numerous challenges, exacerbated by protracted conflicts that hinder effective healthcare delivery, (Lindstrand et al., 2021) Highlight that despite the adverse conditions, there are opportunities for strengthening health systems, which are crucial for enhancing HIV prevention services. The

introduction of targeted health interventions, such as the Health Pooled Fund's support for infectious disease control in Central and Western Equatoria, has made strides in improving health outcomes. However (Lg et al., 2018) point out the persistent underfunding and lack of comprehensive strategies that significantly limit the reach and efficacy of preventive measures, particularly in remote and conflict-ridden regions. The critical role of development aid in reinforcing health system resilience during conflicts, as explored by (Lindstrand et al., 2021), suggests that sustained international support is essential for the long-term success of HIV prevention initiatives in South Sudan.

Community-based approaches have been pivotal in addressing the HIV epidemic in South Sudan. (Dave et al., 2019) document the success of community-driven HIV test and start programs, which have significantly enhanced access to treatment and reduced community viral loads in rural settings. Concurrently, (Chun et al., 2022)discuss the strategic implementation of viral load monitoring tools that have improved treatment outcomes for people living with HIV, illustrating the potential of technology-enhanced healthcare solutions. These community-centric models not only improve health outcomes but also empower local populations by involving them in the fight against HIV, as demonstrated in the work by(O'Mara-Eves et al., 2015), who advocated for increased community engagement in health governance and decision-making processes. The integration of HIV preventive measures with broader health interventions, as seen in (Goldstein et al., 2023). assessment of community-based management of severe wasting highlights the interconnectedness of health challenges and the need for holistic health strategies.

The dire correlation between food security and HIV prevalence in South Sudan cannot be overstated. As highlighted in the 2022 Global Report on Food Crises, acute food insecurity exacerbates the vulnerability of populations to HIV, particularly in conflict-affected areas like South Sudan where malnutrition and disease coexist. This integration is critical as malnourished individuals have compromised immune systems that are less capable of fighting off infections such as HIV.

In the context of managing and designing strategic areas within healthcare facilities, the concept of buffer spaces becomes vital. According to (Gola et al., 2024), buffer spaces in healthcare settings can serve as critical zones for controlling the spread of infections, including HIV. These spaces are designed to minimize cross-contamination and manage patient flow, which is essential in areas with high HIV prevalence. The strategic use of buffer zones can significantly enhance the effectiveness of healthcare facilities in preventing and controlling the spread of HIV, particularly in resource-limited settings like South Sudan.

Evaluating health literacy, specifically in the context of European prisons, provides insights into the broader implications of health literacy on HIV prevention. Low health literacy is a significant barrier to understanding HIV prevention measures. This challenge is mirrored in South Sudan, where educational and communication barriers hinder the effective dissemination of HIV prevention knowledge. Enhancing health literacy is therefore crucial for empowering communities to engage in preventive behaviors and for facilitating better health outcomes in the fight against HIV. This study aimed to assess the effect of behavior change initiatives on HIV prevalence in Juba, Central Equatoria State.

Methodology.

Research Design.

The research design adopted for this study was a mixed-method approach, integrating both quantitative and qualitative research methodologies to provide a comprehensive analysis of the phenomena under study. This design facilitated an extensive assessment of both the measurable outcomes of HIV preventive initiatives and the qualitative experiences of individuals and communities affected by these programs. The quantitative aspect employed descriptive and inferential statistics to examine the relationships and impacts quantitatively. Conversely, the qualitative component utilized thematic analysis to delve into the contextual and experiential factors influencing these relationships, thus providing a deeper understanding of the underlying mechanisms and effects.

Research Approach.

The research approach was structured to be both exploratory and explanatory, aiming to uncover and clarify the dynamics between HIV preventive measures and their effectiveness in reducing prevalence rates. Initially, the exploratory facet helped in identifying significant patterns and trends within the collected data, guiding the subsequent explanatory investigation that sought to establish causal relationships and deduce the implications of the findings. This approach was instrumental in addressing the multifaceted nature of HIV prevention, which involves complex interactions between various stakeholders and elements within the healthcare system.

Study Population.

The study population comprised residents of Juba County, specifically targeting individuals directly affected by HIV, healthcare providers, and members of local non-governmental organizations involved in HIV preventive efforts. This population was chosen due to their firsthand experience and involvement in HIV prevention initiatives, making them crucial sources of both quantitative data and qualitative insights.

Sample Size Selection.

To ensure statistical significance and manageability, the sample size was calculated using the formula n=N1+N(e2) n=1+N(e2) N , where NN is the population size and the margin of error (presumed at 5%). Assuming an estimated population size of 1000 participants potentially available for the study, the sample size calculated was approximately

87 participants. This size was deemed sufficient to achieve a balance between statistical power and practical feasibility in data collection.

Sampling Techniques.

The sampling technique utilized was stratified random sampling, which involved dividing the entire population into different strata based on specific criteria such as age, gender, and role in HIV prevention. From each stratum, participants were randomly selected to ensure a representative sample that could adequately reflect the diverse perspectives and experiences within the community. This method not only enhanced the generalizability of the findings but also ensured that all sub-groups within the population were fairly represented in the study.

Sources of Data.

Data for the study was collected from both primary and secondary sources to enrich the research outcomes. Primary data was obtained directly from the field through surveys, interviews, and direct observations, providing real-time, firsthand information from participants. Secondary data was gathered from existing records, academic journals, and reports from reputable organizations such as the World Health Organization and local health ministries. This dual-source approach was instrumental in validating the data collected and offering a comprehensive view of the subject matter.

Data Collection Tools/Instruments.

Various tools were employed to collect data, including structured questionnaires for quantitative data and semi-structured interviews for qualitative insights. Additionally, focus group discussions were conducted to facilitate an interactive sharing of views and experiences among participants, enhancing the depth of information obtained.

Research Procedure.

The data collection procedure was rigorously structured, beginning with a pilot study to test the effectiveness and clarity of the data collection instruments. Following refinements from the pilot feedback, the main data collection phase was executed, adhering strictly to the ethical guidelines established for the study. Participants were informed of the study's purpose, their role in it, and their rights, with all participants providing informed consent before participating.

Measurement of Variables.

The measurement of variables was carefully planned to align with the study's objective. The independent variable was gauged based on the coverage rate, program effectiveness, and support services for PMTCT programs. Dependent variables included HIV prevalence rates, the incidence of new HIV infections, the rate of mother-to-child transmission, and community health outcomes. These measurements were quantified using scales and indexes developed through the study's preliminary research phase.

Validity and Reliability of Research Instruments.

The validity and reliability of the research instruments were thoroughly tested through a combination of pilot testing, peer review, and iterative feedback adjustments. The instruments were designed to ensure construct validity by accurately measuring the theoretical constructs they intended to measure. Reliability was ensured through test-retest methods, ensuring that the instruments were consistent and dependable over time.

Data Process and Analysis.

Data processing involved meticulous data entry, coding, and cleaning before analysis. Quantitative data analysis was performed using the statistical software IBM SPSS version 25, which facilitated the computation of descriptive and inferential statistics, including regression analysis and correlation coefficients. Qualitative data from interviews and focus groups was analyzed using NVIVO software, which supported thematic analysis to identify recurring patterns and themes within the data.

Results.

Demographic Data.

The study on HIV preventive initiatives and prevalence rates in Central Equatoria State, South Sudan, incorporated a demographic analysis to understand the background of the participants. This section provides insight into various personal attributes such as gender, age, religion, marital status, education level, occupation, and the duration of living with HIV or awareness of HIV status. The results from this analysis are critical for interpreting the impact of demographic factors on the effectiveness and reception of HIV preventive measures.

Gender.

Table 1: Gender Distribution of Participants.

Gender	Frequency	Percentage (%)
Male	111	78
Female	31	22
Total	**142**	**100**

Source: Survey data (2024)

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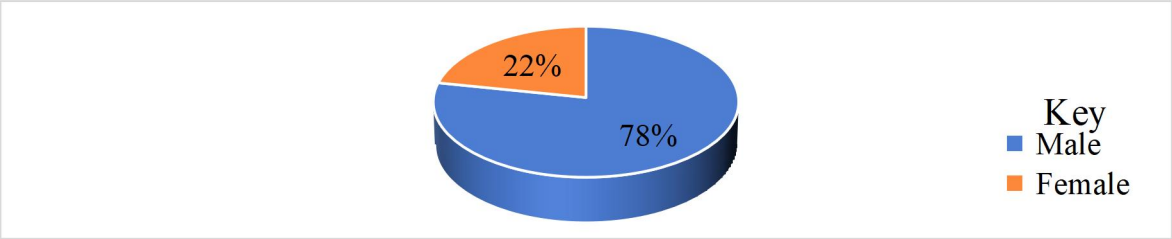
Figure 1: Gender Distribution of Respondents.



The gender disparity is evident, with a significantly higher number of male participants (78%) compared to female participants (22%). This finding indicates a possible gender bias in accessibility or willingness to participate in HIV-related studies and initiatives. The underrepresentation of females might impact the effectiveness of the preventive measures, as women often face unique challenges in health access and education, which are critical in the fight against HIV.

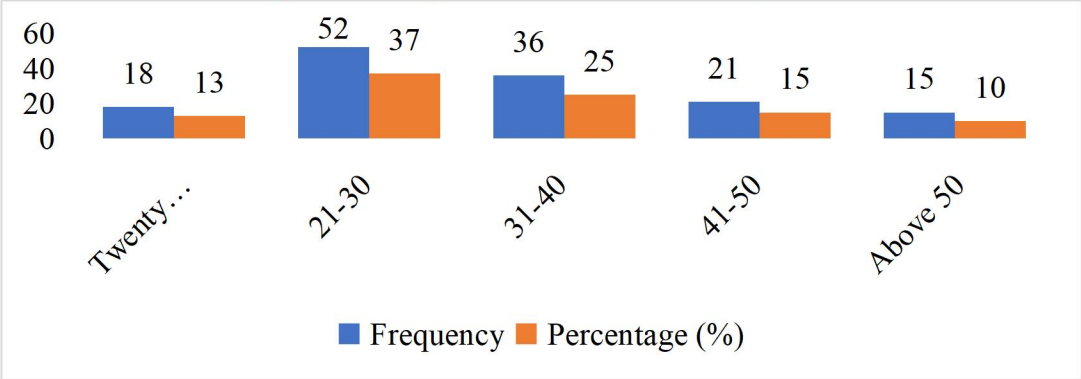
Age.

Table 2: Age Distribution of Participants.

Age Group	Frequency	Percentage (%)
Twenty and below	18	13
21-30	52	37
31-40	36	25
41-50	21	15
Above 50	15	10
Total	**142**	**100**

Source: Survey data (2024)

Figure 4. 2: Age Distribution of Participants.



The majority of participants fall within the 21-30 age group, making up 37% of the sample. This age group is notably significant in the context of HIV as it typically represents a highly active demographic in terms of mobility and sexual activity, potentially increasing risk exposure to HIV. The data shows lesser participation from the older age groups, especially those above 50, who account for only 10% of the sample.

Religion.

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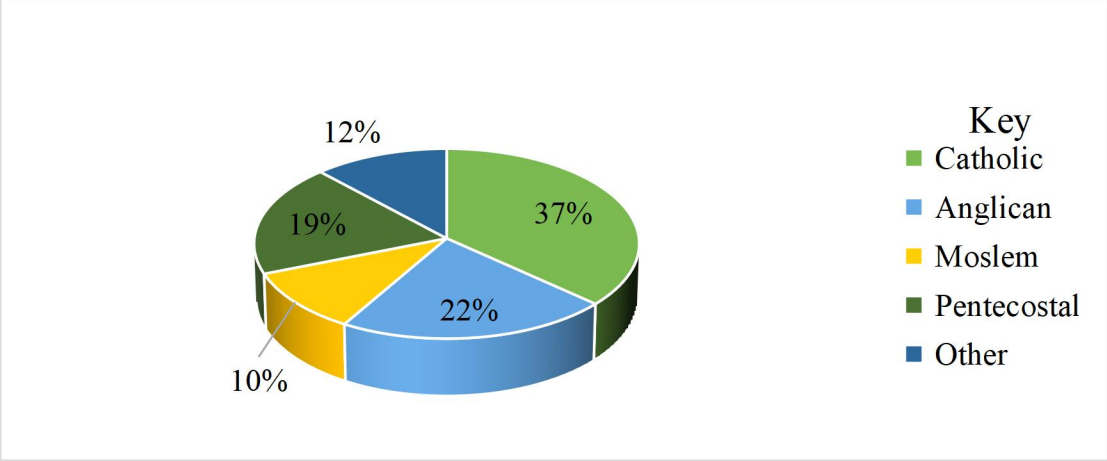
Table 3: Distribution of Participants by Religion.

Religion	Frequency	Percentage (%)
Catholic	52	37
Anglican	31	22
Moslem	15	11
Pentecostal	27	19
Other	17	12
Total	**142**	**100**

Source: Survey data (2024)

Figure 3: Distribution of Participants by Religion.



The majority of the participants identified as Catholic (37%), followed by Anglican (22%) and Pentecostal (19%). This reflects the religious landscape in Central Equatoria State, where these denominations hold significant influence. The participation of individuals from the Muslim community, though lower (11%), is crucial as it represents a different cultural and religious perspective within the area.

Marital Status.

Table 4: Distribution of Participants by Marital Status.

Marital Status	Frequency	Percentage (%)
Single	64	45
Married	54	38
Widow(er)	12	8
Divorced	8	6
Others	4	3
Total	**142**	**100**

Source: Survey data (2024)

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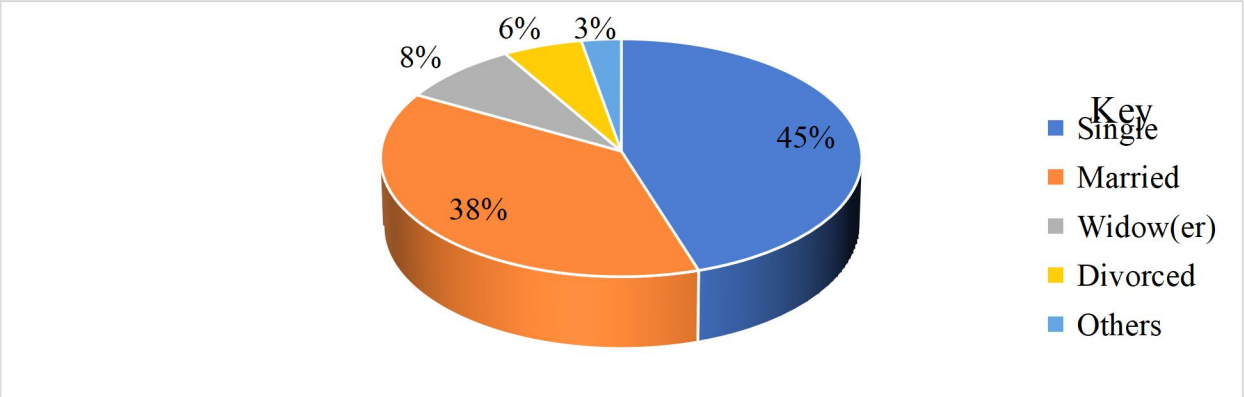
Figure 4: Distribution of Participants by Marital Status.



The results show a higher frequency of singles (45%) and married individuals (38%) within the study sample. Singles, often younger, may have different exposure levels and attitudes towards HIV compared to their married counterparts, who may have more stable sexual behaviors but also different prevention needs, such as couple counseling and testing. The presence of widowed and divorced individuals, though smaller, highlights groups that might be particularly vulnerable due to social and economic factors influencing their health-seeking behaviors.

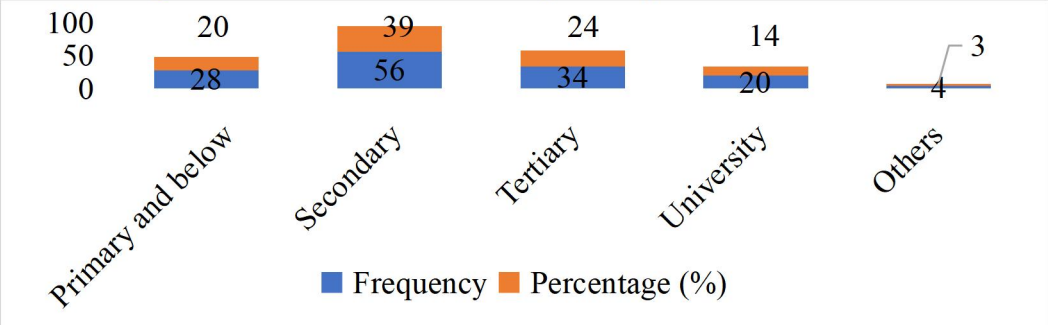
Level of Education.

Table 5: Distribution of Participants by Level of Education.

Level of Education	Frequency	Percentage (%)
Primary and below	28	20
Secondary	56	39
Tertiary	34	24
University	20	14
Others	4	3
Total	**142**	**100**

Source: Survey data (2024)

Figure 5: Distribution of Participants by Level of Education.



participants predominantly had secondary education (39%), followed by those with tertiary (24%) and primary or below (20%) levels of education. The presence of participants with university education (14%) and a small number categorized under 'Others' (3%) provides a broad spectrum of educational backgrounds, enriching the understanding of how educational attainment impacts health behaviors.

Occupation.

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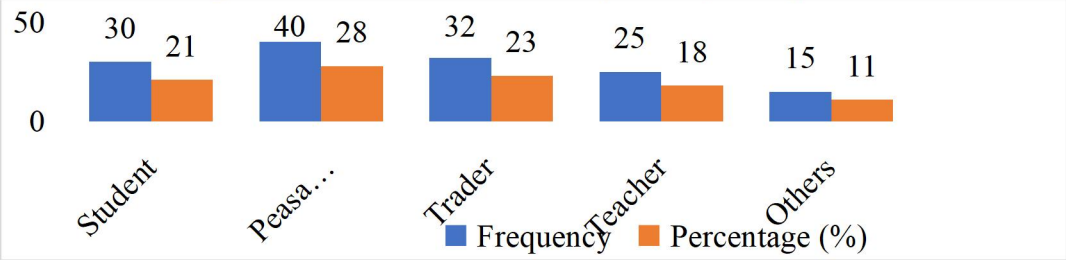
Table 6: Distribution of Participants by Occupation.

Occupation	Frequency	Percentage (%)
Student	30	21
Peasant Farmer	40	28
Trader	32	23
Teacher	25	18
Others	15	11
Total	**142**	**100**

Source: Survey data (2024)

Figure 6: Distribution of Participants by Occupation.



The occupational distribution indicates a significant representation of peasant farmers (28%) and traders (23%), followed by students (21%) and teachers (18%). The category 'Others' comprises 11% of the participants, reflecting a variety of less common professions within the community. This diverse occupational background suggests varying levels of exposure and access to HIV information and services.

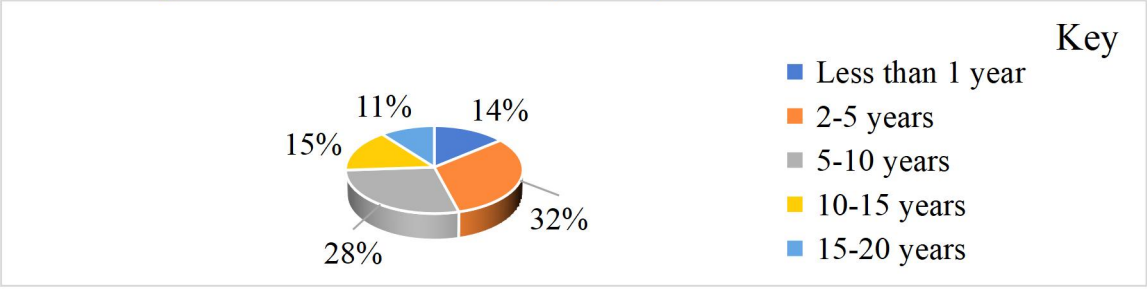
Number of Years Lived with HIV or Known HIV Status.

Table 7: Distribution of Participants by Years Known HIV Status.

Years Known HIV Status	Frequency	Percentage (%)
Less than 1 year	20	14
2-5 years	45	32
5-10 years	40	28
10-15 years	22	15
15-20 years	15	11
Total	**142**	**100**

Source: Survey data (2024).

Figure 7: Distribution of Participants by Years Known HIV Status.



This distribution highlights that a significant portion of the participants (32%) have known their HIV status for 2-5 years, followed closely by those who have been aware for 5-10 years (28%). These figures suggest ongoing engagement with healthcare services and possible stability in managing their health condition. Those who have known their status for less than a year represent a newer group,

possibly indicating recent diagnoses and the ongoing effectiveness of HIV testing campaigns.

The Descriptive Analysis of Respondents' Views on Behavior Change Initiatives and HIV/AIDS Prevalence.

Table 8: Respondents' views on Advocacy and HIV/AIDS Prevalence.

Advocacy (Behavior Change)	Mean	Std Dev (σ)	PERCENTAGE RESPONSES				
			SD (1)	D (2)	N (3)	A (4)	SA (5)
Sex education programs (eg ABCD strategies) are carried out by Govt and NGOs in our community.	**3.88**	**.618**	0% (0)	8.3% (11)	0.8% (1)	85.6% (113)	5.3% (7)
The media for disseminating sex education information and other information related to HIV/AIDS are suitable to us the audience.	**3.89**	**.596**	0% (0)	7.8% (10)	0.8% (1)	86.4% (114)	5.3% (7)
Sex education programs and other programs related to HIV/AIDS also target schools and tertiary institutions in our community.	**3.57**	**.918**	0% (0)	23.5% (31)	2.3% (3)	68.2% (90)	6.1% (8)
The majority of youths in our community participate in HIV/AIDS preventive initiatives.	**2.72**	**.975**	0% (0)	63.6% (84)	2.3% (3)	68.2% (90)	6.1% (8)
Abstinence from sex is a means for prevention of HIV/AIDS in our community.	**4.02**	**.390**	0% (0)	2.3% (3)	0% (0)	91.7% (121)	6.1% (8)
People in our community abstain from premarital sex so as to avoid contracting STDS.	**2.65**	**.925**	0% (0)	65.9% (87)	3.0% (4)	31.1% (41)	0% (0)
I prefer having more than one sexual partner	**2.04**	**.379**	2.3% (3)	94.7% (125)	0% (0)	3% (4)	0% (0)
It is easy for me to abstain from sex	**3.60**	**.818**	0% (0)	19.7% (26)	2.3% (3)	76.5% (101)	1.5% (2)
Being faithful to one sexual partner is a means of prevention of HIV/AIDS in our community.	**3.75**	**.714**	0% (0)	13.6% (18)	% ()	84.1% (111)	2.3% (3)
People in our community are faithful to one sexual partner or marital partners to avoid contracting HIV/AIDS.	**2.98**	**.996**	0% (0)	49.2% (65)	3.8% (5)	46.2% (61)	0.8% (1)
Extra marital affairs in our community have increased on HIV/AIDS prevalence.	**3.60**	**.890**	0% (0)	22% (29)	1.5% (2)	67.4% (94)	5.3% (7)
Trust of unknown sexual partners and intimacy has discouraged condom use in our community causing increase in HIV/AIDS prevalence.	**3.61**	**.836**	0% (0)	17.4% (23)	9.8% (13)	67.4% (89)	5.3% (7)
I use condoms to reduce on the risks of further infections.	**3.48**	**.895**	0% (0)	25.8% (34)	2.3% (3)	70.5% (93)	1.5% (2)
We use condoms to reduce on the risk of unwanted pregnancies.	**3.64**	**.774**	0% (0)	17.4% (23)	2.3% (3)	79.5% (105)	0.8% (1)
It`s embarrassing to buy a condom in community.	**2.77**	**.964**	2.3% (3)	52.3% (69)	13.6% (18)	30.3% (40)	1.5% (2)
I feel free to disclose my HIV/AIDS status to family members, relatives and friend.	**3.78**	**1.051**	0% (0)	22.7% (30)	0% (0)	53.8% (71)	23.5% (31)
Disclosure of our HIV status has reduced the spread of HIV/AIDS in our community.	**3.69**	**1.071**	2.3% (3)	20.5% (27)	2.3% (3)	56.1% (74)	18.9% (25)

The ABCD strategy is a good method for HIV/AIDS prevention in our community.	**3.85**	.961	6.8% (9)	4.5% (6)	0% (0)	74.2% (98)	14.4% (19)

Statistics revealed that out of 142 respondents, 90.9% agreed that sex education programs (for example ABCD strategies) are carried out by government and NGOs in Juba and only 8.3% of respondents disagreed with the practice leaving out 0.8% of the undecided respondents. Sex education programs are therefore carried out targeting communities in Juba. When respondents were further asked on the suitability of the media for disseminating such information, 91.6% of respondents approved that the media for disseminating information on HIV/AIDS are suitable to the audience whereas 7.6% of respondents disagreed on the above living out 0.8% of the undecided respondents. This means that the media used in disseminating information on HIV/AIDS is suitable for the audience (community members in Juba).

On Sex education programs (ABCD) and other programs related to HIV targeting schools and tertiary institutions in Juba, 68.2% of respondents agreed that sex education programs (ABCD) and other programs related to HIV target schools and tertiary institutions in Juba while 29.5% of respondents disagreed with the above leaving out 2.3% of respondents who were undecided. Respondents' opinion was further sought to find out whether the majority of youths in the community participate in HIV/AIDS preventive initiatives and findings revealed that 63.6% of respondents disagreed with the opinion that the majority of youths in the community participate in HIV/AIDS preventive initiatives. Only 34.1% of the respondents agreed with this whereas 2.3% of respondents neither agreed nor disagreed. This means that the majority of the youths in Juba don't participate in HIV/AIDS preventive initiatives yet this is so critical in the reduction of the HIV/AIDS prevalence rate especially among the youths. When asked about the importance of abstinence, 97.7% of respondents agreed that abstinence from sex is a means for the prevention of HIV/AIDS in their community while 2.3% disagreed with it. This therefore suggests that community members in Juba are aware that abstinence from sex is important for the prevention of HIV/AIDS in their community. On abstinence from premarital sex in Juba, 65.7% of respondents disagreed with the statement that the majority of people in their community abstain from pre-marital sex to avoid contracting STDS, while 31.1% of respondents agreed that the majority of people in their community abstain from pre-marital sex to avoid contracting STDS and only 3% of the respondents were undecided. This was confirmed when one of the respondents during the focus group discussions narrated the situation in their area by saying,

"The youths in our community according to the way I see them won't be useful people in the future as the majority of them have dropped out of school and resorted to drinking alcohol fornication, and worst of all raping. Can you believe that six boys from our community gang-raped a drunken woman two weeks ago?"

This implies that the majority of people in Juba don't abstain from premarital sex yet this is very risky as it exposes people to HIV. On preference to having more than one sexual partner for self-satisfaction, results showed that 97% of respondents preferred having more than one sexual partner for self-satisfaction whereas 3% of the respondents disagreed with this. This means that most people in Juba still have a preference for having more than one sexual partner for self-satisfaction. When respondents' views were sought on abstinence from sex, 78% of them agreed that it is easy for them to abstain from sex while 19.7% disagreed that it is not easy for them to abstain from sex and only 2.3% of respondents were undecided. This therefore suggests that abstinence can be very effective in the fight against HIV/AIDS in the district as it is easy for people of Juba to abstain from sex as a means for prevention of HIV/AIDS in the community. The analysis also noted that the people of Juba are aware that being faithful to one sexual partner works in the reduction of HIV/AIDS prevalence rate in that out of 142 respondents interviewed, 86.4% agreed that being faithful to one sexual partner is a means of prevention of HIV/AIDS in their community and only 13.6% of the respondents disagreed that being faithful to one sexual partner is not a means of prevention of HIV/AIDS in their community. Only knowing about faithfulness to one sexual partner as a means of prevention of HIV/AIDS may be of very little use if people are not practicing faithfulness to their sexual partners.

The researcher therefore asked the respondents whether they were faithful to their partners and the statistics generated after analysis indicated that most people in Juba are not faithful to one sexual partner or marital partner as 49.2% of respondents disagreed that most people in their community are not faithful to one sexual partner or marital partners whereas 47% of respondents agreed to the above and only 3.8% of respondents were undecided. Lack of faithfulness by the people in the district to their sexual partners was further confirmed when 76.5% of respondents agreed that extramarital affairs in their community have increased in HIV/AIDS prevalence and only 22% of respondents disagreed that extramarital affairs in their community have not increased on HIV/AIDS prevalence leaving out a few respondents (1.5%) who neither agreed nor disagreed to the statement that "Extramarital affairs in their community have increased on HIV/AIDS prevalence." Respondents were further asked whether trust in unknown sexual partners and intimacy has discouraged condom use in their community and findings revealed that the above was true as 72.7% of respondents agreed that trust of unknown sexual partners and intimacy has discouraged condom use in their community causing an

increase in HIV/AIDS prevalence leaving out only 17.5% of respondents who disagreed on the above and 9.8% of the respondents were undecided. On condoms being distributed to community members in Juba by government/NGOs free of charge, 95.4% of respondents agreed that condoms are distributed to their community members by government/NGOs free of charge and only 2.3% of the respondents disagreed while 2.3% of the respondents were undecided. This means that there was a high level of distribution of condoms in the community by government/NGOs free of charge. Condom use was also found to be effective in reducing the risks of contracting HIV as 93.2% of respondents agreed on its effectiveness and only 4.5% disagreed on its effectiveness leaving out 2.3% of the undecided respondents. This means that condom use is so critical in the reduction of the HIV/AIDS prevalence rate in Juba. This was further confirmed when the respondents' opinion was sought on the use of condoms to reduce the risks of infections where 72% of respondents agreed that they use condoms to reduce the risks of infections, and only 25.7% of respondents disagreed that they don't use condoms to reduce on the risks of infections, leaving out only 2.3% of the undecided respondents. The study however noted that 80.3% of respondents generally agreed that they use condoms to reduce the risks of unwanted pregnancies, 17.4% of respondents disagreed that this does not happen and only 2.3% of the respondents were undecided. This therefore suggests that there was a high level of condom use to reduce the risk of unwanted pregnancies. Concern was however raised by one of the people interviewed who said that,

"Most of the men in this community force their wives to have unprotected sex especially those who are drunkards. To them, condom use is a waste of time and interferes with enjoyment of sex".

Condom use cannot be effective in the reduction of HIV/AIDS prevalence and unwanted pregnancies once access to condoms is difficult or impossible so when information on condom access was sought by the researcher, findings revealed that, out of 142 respondents, 87.1% agreed that getting a condom in their community is easy and 11.4% of respondents disagreed that getting condoms were not easy for them. The remaining 1.5% of the respondents were however undecided. This means that accessing condoms in Juba is very easy; a critical factor in the fight against HIV/AIDS pandemic. Although access to condoms might be easy for community members, it might still be very difficult for some community members to gain the courage to ask for condoms as it's taken to be embarrassing so opinions of respondents were therefore sought on this and analysis indicated that, 31.8% approved that it is embarrassing to buy a condom in their community, and 54.6% disagreed to this statement whereas 13.6% of the respondents were undecided. This implies that the people of Juba are not embarrassed of buying condoms and this is so important in the reduction of HIV/AIDS prevalence if the condoms are accessed and used correctly.

On feeling free to disclose HIV/AIDS status to family members, relatives, and friends, 77.3% of respondents agreed that they feel free to disclose their HIV/AIDS status to family members, relatives, and friends, while 22.7% disagreed that they don't feel free on the above. A respondent expressed the importance of disclosure when she said that,

"Disclosure helps in that it makes my children and those I am caretaking remind me of appropriate time for taking my drugs and it also makes the children know that HIV/AIDS is real thus making them take good care of themselves".

This means that there was a high level of disclosure of HIV/AIDS status as the majority of people feel free to disclose their HIV/AIDS status to family members, relatives, and friends. Another question asked was whether disclosure of HIV status was effective in reducing the spread of HIV/AIDS in their community or not and findings revealed that 75% of respondents agreed with the opinion that disclosure of HIV status was effective in reducing the spread of HIV/AIDS in their community and 22.7% of respondents disagreed to this opinion leaving out only 2.3% of respondents who were undecided. This implies that disclosure of HIV status was effective in reducing the spread of HIV/AIDS in Juba. Analysis of results further showed that a total of 88.7% of respondents agreed that the ABCD strategy is a good method for HIV/AIDS prevention in Juba while only 11.3% of the respondents disagreed on the above. This means that the ABCD strategy is a good method for HIV/AIDS prevention in Juba district. When asked whether community members in Juba advise other community members to use the strategy, a total of 84.1% of the respondents agreed that they advise people in their community to use the ABCD strategy in fighting HIV/AIDS while 15.9% of respondents disagreed that they don't advice people in their community to use the ABCD strategy in fighting HIV/AIDS. The conclusion can therefore be drawn that the majority of community members in the district advise others to use the ABCD strategy and this could help in the reduction of the HIV/AIDS prevalence rate in Juba.

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Table 9: Correlation Results for Behavior Change Initiatives and HIV Prevalence in Juba.

		Advocacy	HIV Prevalence
HCT	Pearson Correlation Sig. (2-tailed)	1	.023** .0094
	N	142	142
Advocacy (BCI)	Pearson Correlation	.023**	1
	Sig. (2-tailed)	.0094	
	N	142	142

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

The findings in the table above show the correlation between behavior change initiatives on HIV Prevalence. The findings indicate the Pearson correlation (r=.023), the significance value (.0094), and the number of respondents (N), (142). The correlation coefficient indicates a positive strength of the association and statistically significant correlation between behavior change initiatives, and HIV/AIDS prevalence, taking into consideration all the interrelations among the study variables. This therefore indicates that when current behavior trends are overturned by adopting positive behavior change, then HIV/AIDS prevalence is likely to decrease and vice versa. This finding therefore does not support the predetermined hypothesis which stated that behavior change initiatives do not have a significant effect on HIV/AIDS prevalence in Juba.

Table 10: Model Summary: Behavior Change Initiatives and HIV/AIDS Prevalence.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.023[a]	.053	.050	.39164

a. Predictors: (Constant), Advocacy.

The Model Summary in Table 10, revealed that the correlation coefficient *(R),* using the predictor; Behavioral change, is .023 and the ***R2*** (.050). The adjusted R square of .050 implies that a 5% variance in HIV/AIDS prevalence is explained by Behavior Change Initiatives, putting into consideration all the study variables and the sample size of the study. The other 95% prevalence of HIV/AIDS is explained by other factors other than Behavior Change Initiatives. The researcher therefore continued to present the summary of coefficients that were obtained as indicated in the table below.

Table 11: Model Summary: Behavior Change Initiatives and HIV/AIDS Prevalence Coefficients.

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	3.647	.374		9.757	.000
	BCI	.029	.111	.023	262	.0094

Dependent Variable: HIV Prevalence.

The coefficients table clearly above shows unstandardized β, the *t* value, and the Sig**.** The coefficients above indicate that Behavior Change Initiatives insignificantly contribute to the equation for predicting *prevalence, (y=a +bx)* where *y is the dependent variable, a is the constant and b is* the Behavior Change Initiatives (Advocacy) *value.* The p-value (0.0094) reflects a statistically significant relationship. This relationship was reliable and could be used to make predictions hence (HIV Prevalence=3.647 + 0.029 Behavior Change Initiatives). The standardized coefficient of 0.023 means that, a unit improvement in behavioral change initiatives reduces the HIV/AIDS prevalence rate by 2.3%. In conclusion therefore the Null hypothesis was rejected and the alternative accepted. There

is a significant relationship between behavior change Initiatives and HIV/AIDS prevalence in Juba.

Discussion of results.

Behavior Change Strategies (ABCD) and HIV/AIDS Prevalence.

Behavior change strategies (ABCD) had the second last effect on the prevalence rate of HIV/AIDS in Juba taking all predictor variables used in this study into consideration the factors of behavior change strategies affecting the prevalence of the epidemic in Juba include; acceptance of ABCD strategy as a good method for HIV/AIDS prevention, provision of advice to people to use the ABCD strategy in fighting HIV/AIDS, free disclosure of HIV status, sex education programs, abstinence, distribution and proper use of condoms. This confirms findings that by promoting abstinence, being faithful, and condom use, safe(r) behaviors have been identified that apply to people in different circumstances (Okware, Kinsman, Onyango, Opio, & Kaggwa, 2005). (Rotheram-Borus et al., 2009) argues that given the lack of other biomedical HIV prevention methods that work, abstinence, being faithful and condoms remain the three pillars upon which the prevention of the sexual transmission of HIV stands. It further presents that Abstinence, being faithful and condom use are three mutually reinforcing strategies that individuals may adopt at different times in their lives and with different partners. It gives an example of Kenya, a country which has seen one of the most significant recent falls in HIV prevalence, from 13% in 2000 to 7.5% in 2004 and this was a result of using the three methods. ABC strategy has long been used as the foundation of comprehensive HIV prevention programs around the world and according to (Alonso & Irala, 2004), Thailand introduced a 100% condom use program nationally, which has contributed to the decline in HIV/AIDS prevalence in the country.

Achieving and sustaining health and HIV/AIDS targets among young people largely depends on their active involvement and individual commitment to access services and adopt positive behaviors while acknowledging their rights in addition to seriously taking on their roles and responsibilities. Okware et.al (2005) also hold the view that primary abstinence is protective against HIV/AIDS.

Conclusion.

Behavior change strategies (ABCD) had an effect on the prevalence rate of HIV/AIDS in Juba. This however does not mean that issues under behavior change strategies should be left out in the implementation of the projects aimed at the reduction of HIV/AIDS prevalence in the district as regression results showed the significance of its effect on HIV/AIDS prevalence.

It was noted from the analysis that when the current behavior trend is reversed, then the chances of reducing HIV/AIDS prevalence are most likely going to increase and vice versa. This situation occurred because the current behavior of the majority of people in the district is so negative in that they are increasing the prevalence rate of HIV/AIDS instead of reducing it and this situation is not desirable for the success of projects meant to fight the scourge.

The struggle to fight the HIV/AIDS scourge starts with a positive change in the behavior of individuals and to ensure the effectiveness of HIV/AIDS preventive initiatives in the reduction of HIV/AIDS prevalence in Juba district, there is a need to address the critical factors limiting behavior change strategies in the fight against HIV/AIDS pandemic.

Limitations of the Study.

The study acknowledged potential limitations such as sampling bias, response bias, and operational constraints that could impact the findings.

Recommendation.

The study confirms that the lack of participation of intended beneficiaries in decision-making has limited the impact of the activity's HIV/AIDS service providers, therefore these studies recommend a participatory approach to behavior change strategies for reduction in HIV/AIDS prevalence.

This study investigated the effectiveness of HIV/AIDS preventive initiatives on the prevalence rate of HIV/AIDS in Juba and yet preventive initiatives considered in this study alone do not guarantee the reduction in HIV/AIDS prevalence rate but should be capacitated by other factors like availability and access to health services, gender equality, ownership and access to land, access to clean water, having information and access to good markets for farm produce among others. There is therefore need to research other factors that affect HIV/AIDS prevalence other than the ones captured by this study.

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List of abbreviations.

PMTCT: Prevention of mother-to-child transmission of HIV.
MTCT: Mother to Child Transmission.
AIDs: Acquired Immune Deficiency Syndrome
ANOVA: Analysis of variance.
WHO: World Health Organization.
UNAIDS: Joint United Nations Programme on HIV/AIDS.
NGO: Non-Governmental Organization
ARV: Antiretroviral

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There is no conflict of interest.

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