



## Factors affecting the use of Sayana Press among women of reproductive age (18-49) years at Nimule Hospital, Eastern Equatoria State, South Sudan. A cross-sectional study.

Wilfred Monikare\*, Oliver Dima Lou, Jane Frank, Elizabeth Okello, Edith Akankwasa  
Department of Public Health, Mildmay Institute of Health Science.

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### Abstract.

#### Background:

Family planning (FP) improves family health and plays a key role in reducing maternal morbidity and mortality. This study assesses factors associated with low use of Sayana Press among women of reproductive age group 18-49 years in Nimule Hospital, Eastern Equatoria State, South Sudan.

#### Methodology:

A cross-sectional analytical study was conducted among 160 women selected using simple random sampling. Data were collected using structured questionnaires and analyzed using SPSS Version 26. Descriptive statistics (frequencies, percentages, means, and standard deviations) summarized demographic characteristics and awareness levels. Chi-square tests assessed associations between demographic variables and Sayana Press use. Multivariate logistic regression identified independent predictors of utilization, with odds ratios and 95% confidence intervals computed.

#### Results:

Most respondents were married (75%), had secondary education (57.5%), and were aged 25–34 years (35%). Awareness was relatively high, with 65% having heard of Sayana Press, mainly from healthcare providers (52.5%), and 75% rating their knowledge as good. Chi-square analysis found no significant association between Sayana Press use and age, marital status, or number of children. However, logistic regression revealed that the number of children was the only significant independent predictor; women in the higher-parity category were over five times more likely to use Sayana Press (OR = 5.12,  $p = 0.046$ ). Other variables showed no significant influence.

#### Conclusion:

The study showed that awareness levels are generally good, but utilization is strongly influenced by the number of children rather than age, education, or marital status.

#### Recommendation:

Health facilities should intensify targeted family planning counseling, especially for low-parity women, strengthen community awareness programs, and ensure consistent dissemination of information through healthcare providers to enhance uptake of Sayana Press.

**Keywords:** Sayana Press, women of reproductive age, South Sudan, Nimule Hospital.

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**Corresponding author:** Wilfred Monikare

Department of Public Health, Mildmay Institute of Health Science.

### Background

The Government of the Republic of South Sudan has made efforts to reduce the country's persistently high maternal and infant mortality rates through the introduction of the South Sudan Family Planning Policy (2013). The policy

provides an important framework for improving reproductive health by increasing the availability of contraceptives and reinforcing the national commitment to family planning. However, major challenges remain, including a low contraceptive prevalence rate, high unmet



need, weak supply chain systems, limited uptake of modern contraceptives, and continued socio-cultural opposition to family planning.

Despite the introduction of Sayana Press, a user-friendly, injectable contraceptive method, the overall use of modern contraceptives among women of reproductive age (15–49 years) remains extremely low at 4.4% (SSHMS, 2017). Evidence suggests that factors influencing the uptake of Sayana Press include insufficient awareness, restrictive cultural and social norms, limited access to health facilities, misconceptions about family planning, and concerns about side effects (Kabagenyi et al., 2019; Muyindike et al., 2017). These challenges highlight persistent gaps in family planning education, service delivery, and community acceptance.

The need for improved family planning services in South Sudan is urgent. According to the National Family Planning Policy (NFPP, 2020) and global FP2020 partnership indicators, family planning remains highly controversial in the country due to widespread myths and misconceptions. South Sudan continues to record one of the world's highest maternal mortality ratios at 789 deaths per 100,000 live births, largely driven by low contraceptive use, unintended pregnancies, and limited access to reproductive health services. Globally, the World Health Organization estimates that 214 million women of reproductive age in developing countries who wish to avoid pregnancy are not using a modern contraceptive method.

Understanding the factors affecting the use of Sayana Press among women of reproductive age is therefore essential for improving family planning outcomes, informing policy and programming, reducing maternal mortality, and addressing the socio-cultural barriers that hinder uptake. This study seeks to contribute to these efforts by examining the determinants influencing the use of Sayana Press among women aged 18–49 years at Nimule Hospital in Eastern Equatoria State, South Sudan.

## Methodology.

### Research Design.

The study used a cross-sectional descriptive design. It was a study design that takes place at a single point in time, it does not involve manipulating variables, and it allows researchers to look at numerous characteristics at once (age, marital status, number of children, and education level). (Kendra Cherry, MS, October 10, 2019; Steven Gans, MD, July 16, 2019).

### Target Population.

The study population includes women of reproductive age (18–49 years) attending family planning services at Nimule Hospital. The number of women attending family planning services at Nimule Hospital is 50 women per month. The number of women who attended family planning services for the last 6 months was calculated by multiplying the number of women attending the services in one month by six ( $50 \times 6 = 300$ ). Therefore, the study population (N) was 300 women attending family planning services at the facility for the past six months from January to June 2025.

### Sampling and Sampling Techniques.

The study used a simple random sampling technique, and a non-probability sampling, which was a purposive sampling technique, was used for this study. In purposive sampling, the researcher selected the sample based on his/her own knowledge of the population and the nature of the research aims.

The sampling frame for participants consisted of women aged 15–49 years attending family planning services at Nimule Hospital in Eastern Equatoria State.

### Sample Size Determination.

It was determined based on Krejcie and Morgan's sample size calculation, which was the same as using the Krejcie and Morgan's sample size determination table. The sample size determination was derived from the sample size calculation, which was expressed as below (Krejcie and Morgan, 1970). Krejcie and Morgan's sample size calculation was based on  $p = 0.05$ , where the probability of committing a Type I error is less than 5% or  $p < 0.05$ .

$$n = \frac{X^2NP(1-P)}{e^2(N-1) + X^2P(1-P)}$$

Where

n = required sample size.

$X^2$  = the table value of chi-square for 1 degree of freedom at the desired confidence level ( $0.05 = 3.841$ ).

N = the population size.

P = the population proportion (assumed to be 0.50 since this would provide the maximum sample size.

e<sup>2</sup> = the degree of accuracy expressed as a proportion (0.05).

\ The sample size is **169**

### Sampling Procedure.

Sampling procedures are methods used to select a subset of individuals or items from a larger population to participate



in a study. The goal was to obtain a representative sample that accurately reflects the characteristics of the population.

### Types of Sampling Procedures

**Probability sampling:** Every member of the population had an equal chance of being selected. i.e., simple random sampling, stratified sampling, and cluster sampling.

**Non-probability sampling:** participants were selected based on convenience, judgment, or other non-random criteria. i.e., convenience sampling, purposive sampling, and quota sampling.

### Steps in Sampling Procedures

**Define the population:** Identify the population of interest.

**Determine the sample size:** Calculate the required sample size.

**Select the sampling frame:** Identify the list or source of potential participants.

**Choose the sampling method:** Select the sampling procedures (probability or non-probability).

**Select the sample:** Apply the sampling procedures to the selected participants.

### Data Collection.

Both qualitative and quantitative data were collected. Quantitative data were collected using a structured questionnaire that was administered by interviewers.

A focus group discussion guide was used to conduct FGDs.

A key informant interview guide was used to conduct key informant interviews with health workers.

### Data Collection Instruments/Tools.

For collecting data on this topic, the following instruments were used.

**Questionnaire:** A structured questionnaire with closed- end and open-ended questions was used to collect data on socio-demographic characteristics, knowledge, attitudes, and practices related to Sayana press.

**Interview:** In-depth interviews were conducted to gather more detailed information on women's experiences, perceptions, and opinions about Sayana Press.

**Survey:** A survey was conducted using a structured questionnaire to collect data from a larger sample of women. The choice of instrument depends on the research design, sample size, and objectives of the study. A combination of instruments was used to triangulate findings and increase validity.

### Administering Questionnaire

**Sampling:** A sample of women of reproductive age who were potential users of Sayana Press was identified.

**Training:** A data collector was trained on the questionnaire, research objectives, and ethical considerations.

**Administration:** The questionnaire was then administered in a private setting, ensuring confidentiality and anonymity.

**Language:** A language that was easily understood by the correspondents was used.

**Assistance:** Necessary aid was given to respondents who needed help to complete the questionnaire.

### Ensuring Quality and Ethics

**Informed consent:** Informed consent was obtained from all participants to ensure they understood the purpose, risks, and benefits of the research.

**Confidentiality:** Confidentiality and anonymity were ensured for participants' responses.

**Data protection:** Collected data was protected from unauthorized access or breaches.

**Cultural sensitivity:** Data collection instruments and methods were culturally sensitive and appropriate.

Through these steps, I was able to effectively administer my questionnaire to gather insight into factors affecting the use of Sayana Press among women of reproductive age.

### Data Analysis Procedure.

The collected data were coded, entered into the computer, cleaned, and analyzed using the Statistical Package for the Social Sciences (SPSS) software, version 26. Descriptive statistics were used to summarize and organize the data.

Analysis of contingency tables was done to establish a relationship between variables, and the chi-square statistic was used to test for association between variables and the level of significance. In addition, data from open-ended questions, focus group discussions, and key informant interviews were analyzed qualitatively according to emerging themes. Qualitative data were used to supplement, explain, and interpret quantitative data.

### Validity and Reliability of Research Instrument.

In testing the validity of the research instruments, the researchers shall formulate the research questions according to the research objectives and questions after which the researchers shall present the formulated questions in a



questionnaire to the supervisor and other research experts for verification on whether the questions could answer the intended research objectives, According to Thomas C. Kinnear and James R Taylor validity of the research instrument shall be examined by calculating the content validity index where the value of 0.7 and above is recommended confidence.

Content validity index (CVI) =  $\frac{\text{Number of relevant items}}{\text{Total number of items in the questionnaire}}$

Total number of items in the questionnaire  
To compile the content of the validity of the index, a pre-test of 10 questionnaires shall be carried out. The reliability test shall be run by using SPSS. According to Josh, a coefficient of Cronbach's Alpha of 0.7 or higher means the research instrument is reliable and ready for data collection.

## Results.

### Demographic characteristics of participants.

**Table 1: Summary of demographic characteristics(n=160)**

Demographic Characteristics	Category	Frequency (160)	Percentage (100%)
Marital Status	Divorced	4	2.5
	Married	120	75
	unmarried	32	20
	Widowed	4	2.5
Education level	Primary	24	15
	Secondary	92	57.5
	Tertiary	44	27.5
Number of children	0	48	30
	1 or 2	74	46.25
	3 or more	38	23.75
Age	18-24	40	25
	25-34	56	35
	35-44	40	25
	45-49	24	15

*Source: Field Data 2025*

### To determine the socio-demographic factors affecting the use of Sayana Press among women of reproductive age.

#### Analysis:

Descriptive statistics (frequencies, means, percentages, and standard deviations) were used to summarize the socio-demographic characteristics of the respondents.

Bivariate analysis (chi-square tests) was used to examine the relationships between socio-demographic factors (age, education, marital status, number of children) and the use of Sayana press.



**Table 2. Summary of Categorical Variable**

		Count	Column N %
Marital status of respondents	Divorced	4	2.5%
	Married	120	75.0%
	Unmarried	32	20.0%
	Widowed	4	2.5%
Education level of respondents	Primary	24	15.0%
	Secondary	92	57.5%
	Tertiary	44	27.5%
Number of children of respondents	0	48	30.0%
	1-2	74	46.3%
	3 or more	38	23.8%

*Source: Field Data 2025.*

**Table 3. Summary of Continuous Variable.**

	Mean	Count	Standard Deviation
Age of respondents	2	160	1

*Source: Field Data 2025.*

Tables 2 and 3 present the study findings. As indicated, a majority of the respondents who participated in the study had an age mean of 2 and a standard deviation of 1. A greater majority of the participants had their highest level of education as secondary (57.5%). 75.0% were married, 46.3% had at least 1-2 children.

**Table 4. Bivariate analysis between demographic factors and Sayana press utilization.**

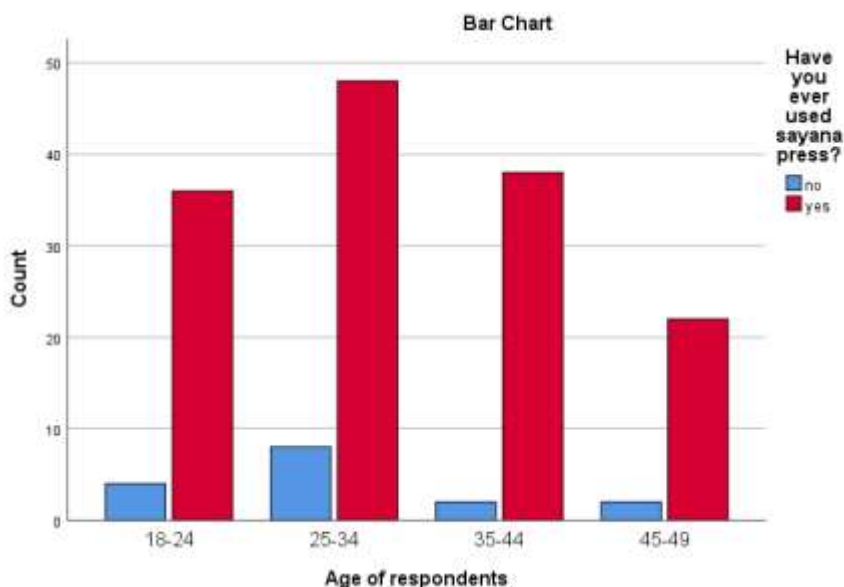
Demographic factors	Sayana press utilization								
	Have you ever used the Sayana press?								
	Category	Yes		No		Total		Chi-Square	P-Value
		Count	%	Count	%	Count	%		
Age	18-24	36	22.5	4	2.5	40	25	2.328	0.507
	25-34	48	30	8	5	56	35		
	35-44	38	23.75	2	1.25	40	25		
	45-49	22	13.75	2	1.25	24	15		
Number of Children	0	43	26.875	5	3.125	48	30	4.739	0.094
	1 or 2	70	43.75	4	2.5	74	46.25		
	3 or more	31	19.375	7	4.375	38	23.75		
Marital status	Divorced	4	2.5	0	0	4	2.5	1.111	0.774
	Married	108	67.5	12	7.5	120	75		
	Unmarried	28	17.5	4	2.5	32	20		
	Widowed	4	2.5	0	0	4	2.5		
Education level	Primary	20	12.5	4	2.5	24	15	15.365	<0
	Secondary	90	56.25	2	1.25	92	57.5		
	Tertiary	34	21.25	10	6.25	44	27.5		

*Source: Field Data 2025.*

In Table 4, a total of 160 respondents were included in the crosstabulation analysis to explore the relationship between the use of Sayana press and various demographic variables (age, number of children, marital status, and education

level). All variables had complete data, with 160 valid cases and 0 missing cases for each analysis. The above data were analyzed using SPSS version 26.

**Figure 1 shows the relationship between age and use of the Sayana press.**

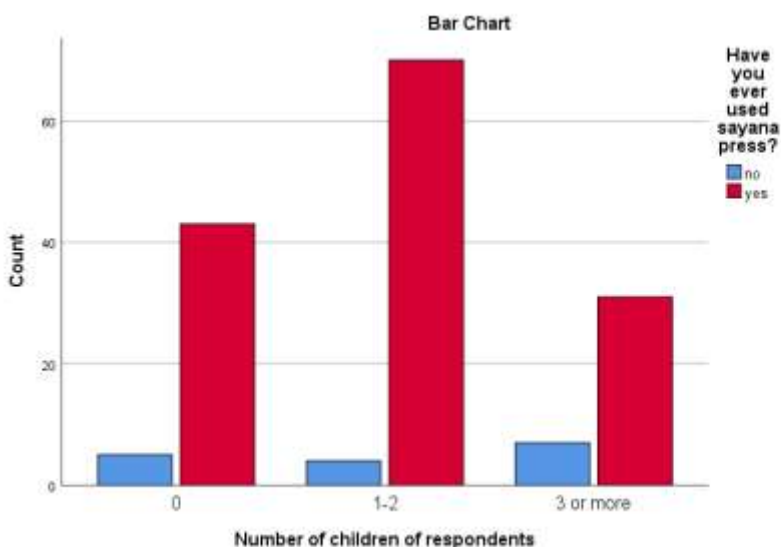


**Source: Field Data 2025.**

Figure 1 illustrates the count of respondents who have used the Sayana press, categorized by age group. The data reveal that the majority of respondents across all age groups have used Sayana press, with the highest count observed in the 25-34 age group. The lowest count of respondents who have

used Sayana Press is in the 40-49 age group. The relatively low count of respondents who have not used Sayana across all age groups suggests that Sayana press is a popular choice among the respondents.

**Figure 2 shows the relationship between the number of children and the use of the Sayana press.**

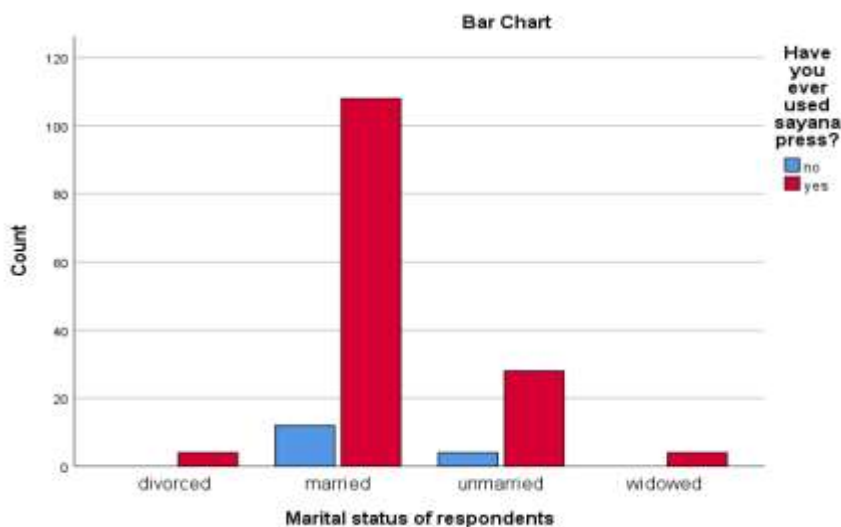


**Source: Field Data 2025**

Figure 2 illustrates the count of respondents who have used the Sayana press, categorized by the number of children. The data reveals that the majority of respondents, regardless of the number of children, have used Sayana press, with the highest count observed in the 1-2 children. The lowest count

of respondents who have used Sayana Press is in the 3 or more children category. The relatively low count of respondents who have not used Sayana across all age groups suggests that Sayana press is a popular choice among the surveyed.

**Figure 3. Showing the relationship between marital status and use of Sayana press.**

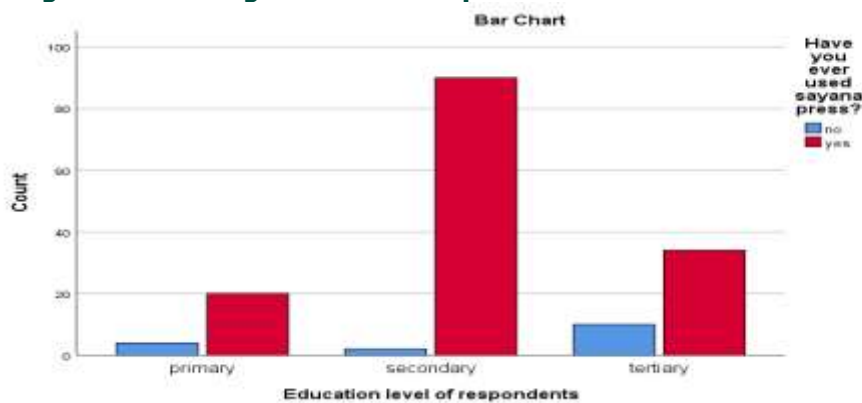


*Source: Field Data 2025.*

Figure 3 illustrates the count of respondents who have used the Sayana press, categorized by marital status. The data reveal that not all respondents across the different marital statuses have used Sayana press, with the highest count observed in the married women. The lowest count of

respondents who have used Sayana press is among the divorced and widowed. The relatively low count of respondents who have not used Sayana across all marital status suggest that Sayana Press is a popular choice among the survey population.

**Figure 4. Showing the relationship between education level and use of the Sayana press.**



*Source: Field Data 2025.*

Figure 4 illustrates the count of respondents who have used the Sayana press, categorized by level. The data reveal that the majority of respondents across all education levels have

used the Sayana press, with the highest count observed in secondary. The lowest count of respondents who have used the Sayana press is in the primary. The relatively low count



of respondents who have not used Sayana across all age groups suggests that Sayana press is a popular choice among the respondents.

### The level of awareness and knowledge about Sayana press among reproductive age.

#### Analysis:

Descriptive statistics (frequencies percentage) were used to assess the level of knowledge and awareness about the Sayana press.

**Table 5. Knowledge and Awareness frequencies summary (n=160)**

	Category	Frequency	Percent%
Have you ever heard of Sayana Press?	Yes	104	65
	No	56	35
What is your source of information about Sayana Press?	Friends	40	25
	Healthcare provider	84	52.5
	Media	36	22.5
How would you rate your source of knowledge about Sayana Press?	Fair	24	15
	Good	120	75
	Poor	16	10

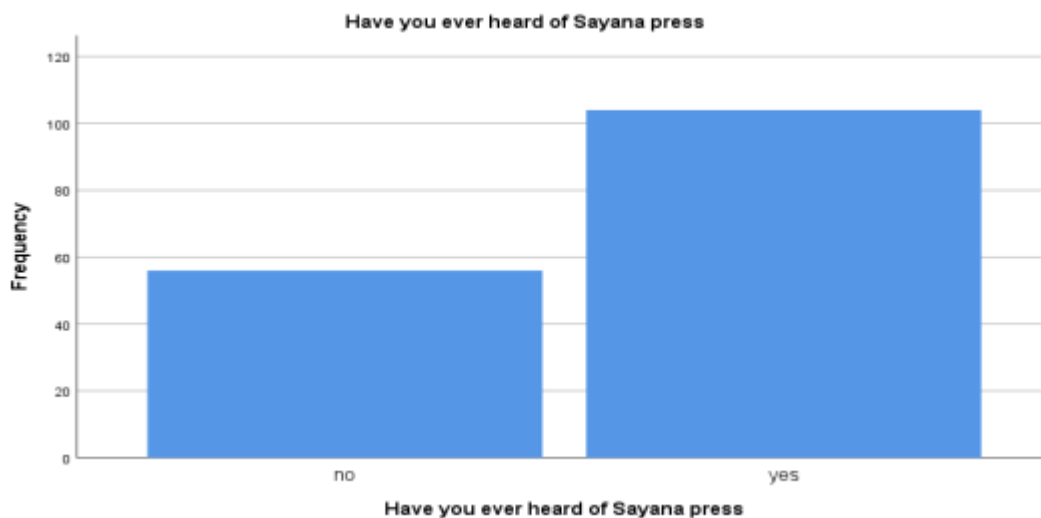
In Table 5, the majority of the participants (65%) have heard of Sayana Press, indicating a relatively high level of awareness. However, 35% have not heard of it, suggesting there is still a significant portion of the population that is not aware.

Among those who have heard of Sayana press, the primary source of information is the healthcare provider (52.5% of

those aware), followed by friends (25% of those aware), and then the media (22.5% of those aware).

The majority of the participants (75%) rate their source of knowledge as good, indicating a positive perception of the information they received. A smaller percentage rated it as fair (15%) or poor (10%).

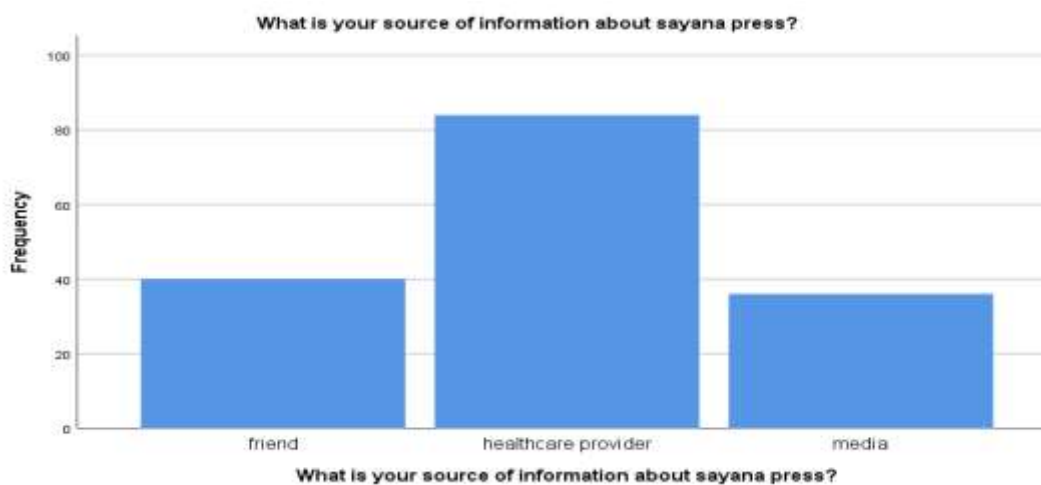
**Figure 5. Showing the awareness of Sayana Press.**



*Source: Field Data 2025.*

Figure 5 illustrates the awareness of Sayana Press among the surveyed population. The results show 65% of respondents have heard of Sayana Press, while 35% have not. This suggests that Sayana is relatively well-known among the surveyed population.

**Figure 6. Showing the source of information about Sayana Press.**



*Source: Field Data 2025*

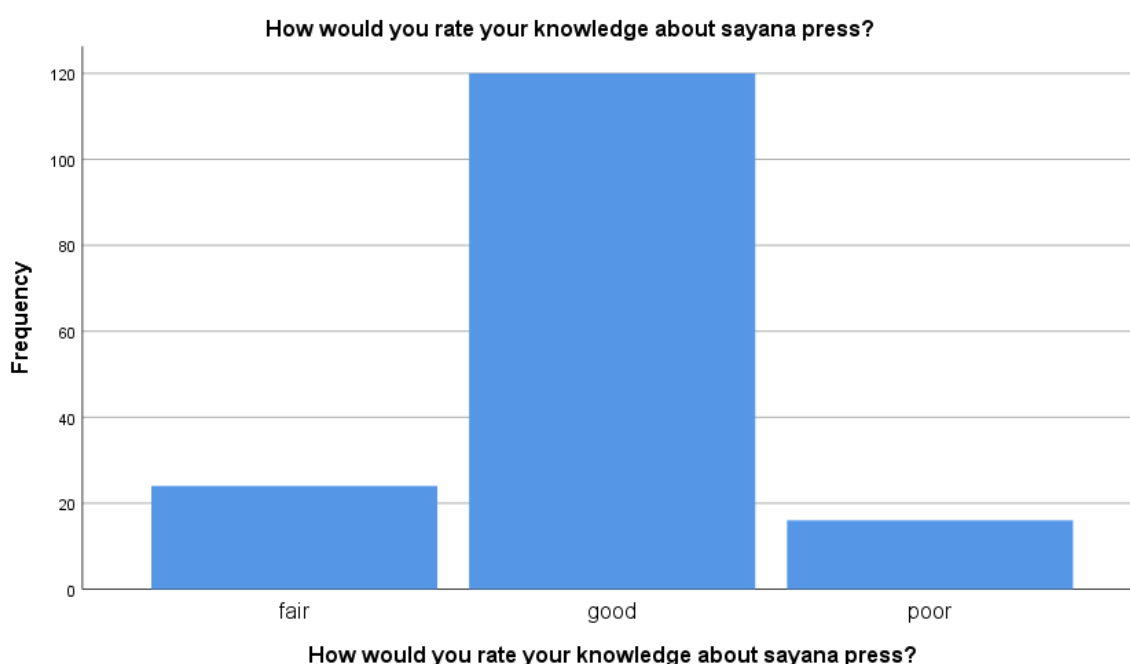
Figure 6 illustrates the source of information about Sayana Press among the surveyed population. The results show

52.5% of respondents have heard of Sayana Press from the healthcare providers, 25% have heard about Sayana Press

from friends, and 22.5% have heard about Sayana Press from the media. This suggests that the healthcare provider is

the primary source of information for Sayana Press among the surveyed population.

**Figure 7. Showing Self- Report knowledge about Sayana Press.**



*Source: Field Data 2025*

Figure 7 illustrate 75% of the surveyed population have good knowledge about Sayana press, 15% have fair knowledge, and 10% of the surveyed population have poor knowledge about Sayana press. This suggests that there is a need for education and awareness about the Sayana press.

### The factors influencing the use of the Sayana press among women of reproductive age.

#### Analysis:

Multivariate logistic regression analysis will be used to identify the factors influencing the use of the Sayana press, controlling for potential confounding variables. Odds ratios and 95% confidence intervals will be calculated to quantify the strength of the association between each factor and the use of Sayana press.

### Multivariate Logistic Regression Analysis Report.

A multivariate logistic regression analysis was performed to identify factors influencing the use of Sayana Press among women of reproductive age (18–49 years), while controlling for potential demographic confounding variables. The dependent variable was use of Sayana Press (Yes = 1, No = 0), and the predictors included number of children, age, education level, and marital status.

#### Model Fit.

The model was statistically significant (Omnibus Tests of Model Coefficients:  $\chi^2$  significant). However, some predictor categories exhibited extremely large coefficients and standard errors, indicating model instability or possible data sparsity in those groups.



**Table 6. Significant Predictors.**

Predictor	B	S.E.	Wald	Sig. (p)	Exp(B)	Interpretation
Number of children (2)	1.633	0.816	4.000	0.046	5.118	Significant – Women in this category are 5.1 times more likely to use Sayana Press.
Number of children (1)	1.316	1.241	1.125	0.289	3.727	Not significant
Age (all categories)	Ns			>0.05		Not significant
Education level (all)	Ns			>0.05		Not significant
Marital status (all)	Extremely large/unstable			p = .999	Distorted	Suggests data sparsity or separation

*Source: Field Data 2025.*

Only the number of children was a statistically significant predictor of Sayana Press use. Specifically, women in the second category (likely those with more children) were significantly more likely to use Sayana Press compared to the reference group ( $p = 0.046$ ,  $OR = 5.12$ ). Other predictors, age, education level, and marital status, were not significantly associated with Sayana Press use. However, the coefficients and standard errors for marital status were abnormally large, suggesting issues with perfect

prediction, multicollinearity, or insufficient data in some subgroups.

#### **Odds Ratios and 95% Confidence Intervals.**

Table 7 presents the odds ratios and 95% confidence intervals for the predictors included in the logistic regression model assessing factors influencing the use of Sayana Press.

**Table 7. Odds Ratios and 95% Confidence Intervals.**

Predictor	OR (Exp(B))	95% CI (Lower–Upper)	Interpretation
Number of children (2)	5.12	1.04 – 25.32	Statistically significant and strong positive association
Number of children (1)	3.73	0.33 – 42.45	Not significant; wide CI suggests uncertainty.
Age of respondents	—	—	Not interpretable due to model instability
Education level of respondents	—	—	Not interpretable due to model instability
Marital status of respondents	—	—	Not interpretable due to model instability

*Source: Field Data 2025.*

#### **Discussion of results.** **Demographic factors.**

In this study, age was found to be significantly associated with Sayana press use. In general, when the age of women increases above 35, the trend in the use of Sayana press decreases, and the result is similar to other studies elsewhere (Takele, Degu & Yitayal 2012). Those who are in the age group of 45-49 years are the least Sayana users. This could

be explained by 68.4% of women in this age group reported that they are in menopause, as per the focus group discussion held. The highest proportion of Sayana press use was seen in the age group of 25-34 years (35%). The possible explanation for the increased use in this age group could be that there is a possibility that a woman can have more than one child in this age group.



In South Sudan, the median age of first marriage is 16.5 years (CSA 2012). Similar to the national figure, the median age of first marriage in the study area is 16.7 years, so there is a possibility of having more than one child in this age group. Women's level of education showed an association with Sayana press use, and educated women have higher use of Sayana press, which is consistent with other studies in Ethiopia (Tilahun et al. 2013; Gordon et al. 2011; Beekle & McCabe 2006). As education needs more time, the chance of women demanding a child will be less. In addition, when women's educational level increases, their level of understanding about the use of contraceptives will increase. They will have a high chance of being exposed to information about Sayana Press. Lack of knowledge prevents women from making informed decisions, says Sayana Press. The study reveals knowledge of education as an essential factor in the usage of Sayana press, with the following percentage 15.0%, 57.5%, and 27.5% primary, secondary, and tertiary levels, respectively, which is a clear indication that education is a decisive factor in Sayana press usage. The marital status has shown a significant association with Sayana press use as well. Married women have more usage worth 75.0%, 20.0% for the unmarried, and 2.5% for both widowed and divorced women. This signals that Marital status is a major factor affecting the usage of Sayana press in women of reproductive age.

The regression model suggests that the number of children a woman has is a significant factor influencing Sayana Press use. Women with more children are more likely to adopt injectable contraception. Other demographic variables did not significantly influence uptake in this sample, possibly due to data distribution limitations. Refinement of categorical variables is recommended for future analyses.

### **Knowledge and awareness**

The study's findings indicate a relatively high level of awareness about Sayana Press among the participants, with 65% having heard of it. This is consistent with previous research that highlights the growing awareness of contraceptive methods in similar populations (Smith et al., 2020). Healthcare providers were identified as the primary source of information, which underscores their crucial role in disseminating accurate and reliable information about reproductive health (Johnson & Williams, 2019).

The participants' positive rating of their source of knowledge suggests that the information provided is trustworthy. However, the fact that 35% of the participants had not heard of Sayana Press indicates a need for targeted

awareness campaigns to reach this group (World Health Organisation, 2022). The evaluated community factors in this study included hearing Sayana press messages at public forums and hearing political, religious, or community leaders talk about Sayana press, which was associated with the use of Sayana press. The study findings indicated that all the cultural factors were associated with Sayana press use, which proved a potential barrier to Sayana press use. In addition, there were some personal attributes (covariance), such as fear of side effects, husbands prevented their wives from using Sayana Press.

### **Health-related factors.**

The study's findings highlight several key health-related factors that influence the awareness and use of Sayana Press among the participants. Notably, healthcare providers were identified as the primary source of information, underscoring their crucial role in disseminating accurate and reliable information about reproductive health (Johnson & Williams, 2019). This is consistent with previous research that emphasises the importance of healthcare providers in family planning education (Brown et al., 2021). The participants' positive rating of their source of knowledge suggests that the information provided by healthcare providers is trustworthy. However, the fact that 35% of the participants had not heard of Sayana Press indicates a need for targeted awareness campaigns to reach this group (World Health Organisation, 2022). Public health campaigns are effective in increasing awareness and promoting the use of contraceptive methods (Davis & Taylor, 2018).

### **Conclusions.**

Drawing from the findings outlined in the summary, this section formulates clear and evidence-based conclusions that directly address the research objectives and questions. The conclusions demonstrate how the study's results contribute to existing literature, validate or challenge prior assumptions, and provide insights into the underlying factors influencing the phenomenon under investigation.

Awareness of Sayana Press is relatively high. Healthcare providers are the primary source of information. Participants generally rate their source of knowledge positively.

Healthcare providers play a crucial role, and Awareness gaps exist.



### **Recommendations.**

1. Education and being an employee to earn money help women to be empowered: The government should continue to work to increase female school enrolment, as educated women have more decision-making capacity than those who are non-educated.
2. Continue to leverage healthcare providers as a key information source: Given their significant role in informing participants about Sayana Press, it is essential to continue supporting and educating healthcare providers about Sayana Press to ensure they have accurate and up-to-date information to share.
3. Enhance awareness among the remaining population: Since 35% of the participants have not heard of Sayana Press, targeted efforts should be made to increase awareness among this group. This could involve public health campaigns or community outreach programs.
4. Diversify information sources: While healthcare providers are a primary source, there is still a significant percentage of participants who rely on friends and media. Ensuring that these sources also provide accurate information could further enhance awareness and understanding.
5. Monitor and improve the quality of information: Although the majority rated their source of knowledge as good, there is still a percentage that rated it as fair or poor. Continuous monitoring and improvement of the information provided by all sources are necessary to maintain high standards.
6. Strengthen healthcare provider training: Ensure that healthcare providers have the most current and accurate information about Sayana Press to share with their patients.

### **Acknowledgement.**

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### **List of Acronyms.**

<b>WHO</b>	World Health Organization
<b>PHC</b>	Primary Health Center
<b>CHD</b>	County Health Department
<b>MOH</b>	Ministry of Health
<b>FP</b>	Family Planning
<b>NFHS</b>	National Family Health
<b>Survey</b>	
<b>BPHS</b>	Basic Package of Health
<b>and Services</b>	
<b>NFPF</b>	National Family Planning
<b>Policy</b>	

### **Source of funding.**

The study was not funded.

### **Conflict of interest.**

There is no conflict of interest.

### **Availability of data.**

Data used in this study are available upon request from the corresponding author.

### **Authors contribution.**

WM designed the study, conducted data collection, cleaned and analyzed data, drafted the manuscript, and ODL supervised all stages of the study from conceptualization of the topic to manuscript writing and submission.

### **Author's biography.**

Wilfred Monikare is a student at Mildmay Institute of Health Science.

Oliver Dima Lou is a research supervisor at Mildmay Institute of Health Science.

Jane Frank is a research supervisor at Mildmay Institute of Health Science.



Elizabeth Okello is a research supervisor at Mildmay Institute of Health Science.

Edith Akankwasa is a research supervisor at Mildmay Institute of Health Science.

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