International Journal of Healthcare Sciences ISSN 2348-5728 (Online)
Vol. 13, Issue 2, pp: (236-246), Month: October 2025 - March 2026, Available at: www.researchpublish.com

Knowledge, Attitudes and Practices of contraception among Women with Mental illness attending Ndera Neuro-Psychiatric Teaching Hospital in Rwanda

Alexis NDUWAMUNGU[1*], Dr Jean Damascene IYAMUREMYE[1], Damien NSEKEYIMANA[1], Fidele NIZEYIMANA[1], Ibrahim HABANABAKIZE[2], Emmanuel HABIYAREMYE[2]

[1]Mount Kenya University, Kigali City, Rwanda

[2]Ndera Neuro-Psychiatric Teaching Hospital

DOI: https://doi.org/10.5281/zenodo.17569334

Published Date: 10-November-2025

***Abstract: Background*: Reproductive health, particularly contraceptive use is an essential component of women's overall wellbeing, recognized as an effective method for reducing unintended pregnancies and sexually transmitted infections, mainly among vulnerable populations such as women with mental illness. However, despite global efforts to promote reproductive rights, studies evaluating the contraceptive usage among this demographic are scarce, particularly in countries with limited resource like Rwanda. *Aim:* This study aimed to determine the knowledge, attitudes, and practices of contraceptive use among women with mental illness. *Setting:* Ndera Neuro-Psychiatric Teaching Hospital, Rwanda. Methods*:* This study was a quantitative cross-sectional study, in which employed a convenience sampling technique. *Results:* Of the 380 respondents aged between 18-49 years, 98.4% had heard of at least one method of contraception, with pills 95%, injectable 90.8%, and implants 71.5% being the most commonly known methods and health care providers were the main source of information 78.6%. Of the respondent 55.53% (211) reported positive attitude while 44.47% (169) reported negative attitude toward contraceptive use. Despite this high awareness and positive attitude, only 33.9% were current contraceptive users, and 58.4% had ever used a method. Multivariate analysis showed that age, marital status, and psychiatric diagnosis were independent predictors of contraceptive use ($p < 0.05$). *Conclusion:* While knowledge of contraception is high among women with mental illness, actual utilization remains low, hindered by persistent misconceptions, age, relationship status and diagnosis type. Integrating tailored reproductive health services within psychiatric care and addressing misinformation are critical to improving contraceptive uptake in this vulnerable population.**

***Keywords*: Contraceptive, mental illness, knowledge, attitudes and practice (KAP), Reproductive health.**

1. INTRODUCTION

Mental health and sexual and reproductive health (SRH) are integral components of overall health and well-being[1]. Their interrelationship is multifaceted and influenced by a wide range of medical, social, and environmental factors[2]. At various stages of life, changes in sexual and reproductive behaviour can significantly influence mental health, and conversely, mental health status can affect reproductive choices and outcomes [1]. Evidence shows that common mental disorders such as depression and anxiety frequently emerge or intensify during the antenatal and postnatal periods, largely due to hormonal fluctuations[3].Globally, the prevalence of prenatal depressive symptoms is estimated at 20.7%, with disparities observed between high-income nations (9%) and low-income nations (19%)[4], [5]. A recent meta-analysis synthesizing data from five continents reported higher prevalence rates of prenatal and postpartum depression at 29% and 26%, respectively[6].

Conversely, untreated or poorly managed mental illness can lead to adverse obstetric outcomes, including perinatal death and congenital malformations, partly due to the effects of psychotropic medications[3], [7]. Discontinuation of treatment during pregnancy increases the risk of relapse[8], while continuation may be complicated by physiological changes that alter drug metabolism and efficacy[3]. Additionally, certain antipsychotic medications have been associated with amenorrhea, menstrual irregularities, and infertility due to increased prolactin levels and reduced oestrogen production[9], [10].

Beyond biological factors, women with mental illness (WMI) face significant social and cultural barriers. Stigmatizing beliefs often deny them the right to marry, bear children, or form families[11]. Their sexuality is frequently misconstrued as symptomatic of mental illness, leading to restricted access to SRH services [12]. Paradoxically, research indicates that WMI may engage in sexual activity with multiple partners, often without informed consent particularly during episodes of impaired judgment placing them at heightened risk of sexual violence, unintended pregnancies, and sexually transmitted infections (STIs)[13], [14].

This situation is further worsened by a long-held cultural misconception that sexual intercourse with a mentally ill woman brings wealth, a harmful belief that perpetuates exploitation and violates women's autonomy. Unintended pregnancies among WMI often exacerbate pre-existing psychiatric conditions, complicate treatment due to medication restrictions, and may prompt abrupt discontinuation of therapy out of fear of teratogenic effects, thereby worsening mental health outcomes [8], [15].

Given these intersecting vulnerabilities, it is crucial to integrate reproductive health counselling, family planning education, and medication management into mental health care. Despite increasing recognition of the need for integrated services, limited evidence exists regarding the knowledge, attitudes, and contraceptive practices among WMI, particularly in low-resource settings such as Rwanda.

Mental illness represents a significant global public health concern, contributing to disability, reduced quality of life, and substantial social burden[16]. Women are disproportionately affected by mental disorders. In Rwanda, the prevalence of mental illness among women is estimated at 23.2%, compared to 16.6% among men [17]. Women with mental illness face unique reproductive health challenges, including higher rates of unintended pregnancies compared to the general population[18], [19], [20].

Although many WMI are sexually active and at risk of unplanned pregnancies and STIs, stigma, discrimination, and social challenges often hinder their access to and use of contraception. According to the 2022–2023 annual report of Ndera Neuro-Psychiatric Teaching Hospital, approximately 200 women are admitted monthly, and an average of 3,716 women attend outpatient services for mental health and neurological conditions. Among these patients, a high rate of unintended pregnancies and STIs has been reported, frequently occurring during periods of impaired decision-making when women are vulnerable to unsafe sexual practices, rape, or coerced sex.

Despite these realities, there is limited research in Rwanda examining the knowledge, attitudes, and practices of WMI regarding contraception. Understanding these factors is essential to inform health policies and design interventions that ensure reproductive rights and health equity for this vulnerable group.

Therefore, this study aimed to determine contraceptive knowledge, attitudes, and practices, and their associated factors among women with mental illness attending Ndera Neuro-Psychiatric Teaching Hospital.

2. RESEARCH METHODS AND DESIGN

Study design: The study used a quantitative cross-sectional design to collect data at a single point in time, enabling assessment of knowledge, attitudes, and practices on contraception among women with mental illness. This approach provided a snapshot of the current situation and allowed analysis of associations between sociodemographic factors, type of mental illness, and contraceptive-related outcomes, offering insights for targeted interventions.

Study setting: The study was conducted at Ndera Neuropsychiatric Teaching Hospital (NNPTH), the only specialized facility for psychiatry and neurology in Rwanda, located 17.6 km east of Kigali City in Ndera Sector, Gasabo District.

Study population: The study targeted women aged 18–49 diagnosed with mental illness and receiving inpatient or outpatient care at Ndera Neuro-Psychiatric Teaching Hospital, which in 2022–2023 recorded 44,592 consultations and 2,403 admissions of women with mental illness.

Sample Size: A sample size of 380 was determined using Cochran's formula, based on a 44.7% contraceptive use prevalence reported in a recent South African study[21].

Sampling Technique: The study used a convenience sampling technique, a non-probability sampling technique which was adopted because the population was not defined prior to data collection. It is mostly adopted when the researcher seeks to develop an initial understanding of under researched population.

Data collection instruments: Data were collected using a structured interviewer-administered questionnaire to ensure consistency and accommodate participants' varying literacy levels. This approach minimized misunderstandings, improved response rates, and allowed clarification of sensitive topics. The tool covered sociodemographic details, clinical factors, reproductive history, contraceptive knowledge, attitudes, and practices.

Data analysis: After data collection, the responses were entered into an Excel sheet, cleaned, and then exported to SPSS version 25.0 for analysis. Descriptive statistics were used to summarize sociodemographic, clinical, and reproductive health characteristics. Bivariate analysis assessed associations between independent variables and contraceptive use, while multivariate analysis identified independent predictors. Statistical significance was set at $p < 0.05$ with a 95% confidence interval.

Ethical consideration: Ethical approval was obtained from Mount Kenya University (REF: MKU/ETHICS/04/38/2025) and from Ndera Neuro-Psychiatric Teaching Hospital Ethics Committee (Ref: NNPTH/EC/2025/09). Participants provided informed consent after receiving explanations about the study, their rights, and potential risks or benefits. Participation was voluntary and data were anonymized and kept confidential.

3. RESULTS

3.1 Demographic Characteristics of Respondents

A total of 380 participants were recruited between April 16 and May 13, 2025. The majority (61.8%) were under 36 years old (mean age 32 ± 8). Over half (52.6%) were single, and most were Catholic (42.1%) or Protestant (41.3%). Regarding education, 42.6% had secondary education, while only 12.6% attended tertiary level. Participants were nearly evenly split between rural (50.5%) and urban (49.5%) areas. Most were unemployed (46.6%), with 11.1% in paid employment. Diagnoses included schizophrenia spectrum and other psychotic disorders (55.5%) and bipolar disorder (32.9%). Nearly half (48.2%) had lived with mental illness for 3–8 years as illustrated in table 1.

Table 1: Socio-demographic characteristics

	Frequency(N)	Percentage (%)
Age group		
18-26	102	26.8
27-35	133	35.0
36-44	120	31.6
45 and above	25	6.6
Marital Status		
Single	200	52.6
Legally married	96	25.3
Divorced	9	2.4
Widowed	11	2.9
Separated	41	10.8
Cohabitating	23	6.1
Religion		
Catholic	160	42.1
Protestant	157	41.3
Muslim	25	6.6
Seventh day Adventist	38	10.0
Education Level		
No Schooling	35	9.2
Primary education	135	35.5

Secondary school	162	42.6
Tertiary education	48	12.6
Place of residence		
Rural	192	50.5
Urban	188	49.5
Occupation		
Unemployed	177	46.6
Paid employment	42	11.1
Self employed	44	11.6
Student	34	8.9
Housewife	83	21.8
Diagnosis		
Schizophrenia and Other Psychotic Disorders	211	55.5
Bipolar disorder	125	32.9
Depressive disorder	44	11.6
Diagnosis duration		
<2	108	28.4
3-8	183	48.2
9-14	55	14.5
15-20	26	6.8
>20	8	2.1

Source: Primary data

3.2. The Knowledge of Women with Mental Illness toward Contraception

This section presents the respondents' knowledge of contraception, as shown in Table 2 where most participants (98.4%) were aware of at least one contraceptive method. Knowledge of specific methods included female sterilization (90.5%), pills (80.8% aware they are not 100% effective), and condom–pill combination (69.5%). The most commonly known methods were pills (95%), injectable (90.8%), implants (71.5%), tubal ligation (50.1%), and condoms (48.5%), while withdrawal (7.7%) and breastfeeding (6.9%) were less recognized.

Sources of information were primarily healthcare providers (78.6%), friends (63%), mass media (58.3%), schools (45.1%), and family members (34.6%). Participants identified health centres (95.3%) as the main place to access contraception, followed by hospitals (51%), pharmacies (14.8%), and private clinics (12.1%). Commonly recognized side effects included abnormal menstruation (69.1%), weight gain (66.6%), hyperpigmentation (46.2%), cancer (34.3%), and headache (30.3%).

Table 2: Knowledge of Respondent about Contraception

		Frequency(N)	Percentage(%)
Do you know any methods of contraception?	Yes	374	98.4
	No	6	1.6
Can female sterilization prevent pregnancy?	Yes	344	90.5
	No	36	9.5
Contraceptive pills don't guarantee a protection of 100%	Yes	307	80.8
	No	73	19.2
Using both a condom and the pill is thought to be a highly effective contraceptive method	Yes	264	69.5
	No	116	30.5
What method do you know?	Pills (OCP)	360	95.0
	Condom	184	48.5
	Injectable	344	90.8
	Intra Uterine Device	100	26.4
	Implants	271	71.5
	Tubal ligation / vasectomy.	190	50.1
	Breastfeeding (Lactation amenorrhea)	26	6.9

	Withdrawal method	29	7.7
	Rhythm method (Calender)	39	10.3
	Diaphragm	40	10.6
	Emergency contraception	77	20.3
Where did you get information about Contraction	Family member	131	34.6
	Friend	242	63.9
	School	171	45.1
	Health care provider	298	78.6
	Mass media (radio, TV)	221	58.3
Where can you find contraceptive Method if needed	Health centre	361	95.3
	Hospitals	196	51.7
	Private clinics	98	25.9
	Pharmacy	120	31.7
	Boutique	37	9.8
Known side effects	Abnormal menstruation	244	69.1%
	Weight gain	235	66.6%
	Nausea	73	20.7%
	Headaches	107	30.3%
	Hepatorenal dysfunction	38	10.8%
	Hyperpigmentation	163	46.2%
	Blood clot formation	53	15.0%
	Causes cancer	121	34.3%

Source: Primary data

3.3 Attitudes of Women with Mental Illness Toward Contraceptive Use

As shown in Table 3, 80.5% of respondents stated that contraception should be used to prevent pregnancy, while 50.8% believed it is for married women only. Most respondents (95.3%) agreed that contraception provides a sense of safety, and 86.8% believed the decision should involve both partners. While 66.3% felt it was safe to use, misconceptions were common where 46.3% thought it could damage the womb, 60.5% believed it could cause permanent infertility, and 54.7% feared it might result in abnormal babies. Overall, 55.53% of respondents had a positive attitude toward contraception, while 44.47% had a negative attitude as illustrated in (Figure 1).

Table 3: Attitudes of respondents towards contraception

		Frequency	Percentage (%)
Contraceptives should be used by females who don't want to get pregnant	Yes	305	80.3
	No	75	19.7
Contraceptives are for married women only	Yes	193	50.8
	No	187	49.2
Contraceptives provide a sense of safety to the user	Yes	362	95.3
	No	18	4.7
I think contraceptive use decision should be made by both partners	Yes	330	86.8
	No	50	13.2
It is safe for me to use contraceptives	Yes	252	66.3
	No	128	33.7
Contraceptive can damage the womb	Yes	176	46.3
	No	204	53.7
Contraceptives can Cause permanent infertility	Yes	230	60.5
	No	150	39.5
If think contraceptive can give me abnormal babies	Yes	208	54.7
	No	172	45.3

Source: Primary data

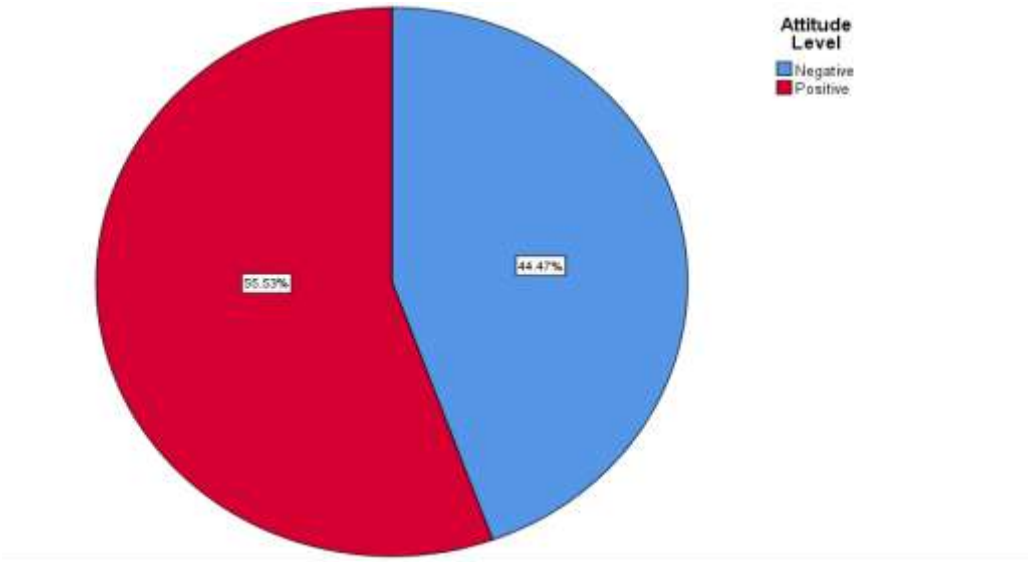

Figure 1: Attitude of respondents towards Contraceptive use

3.4 Practice of Contraception among Women with Mental illness

As shown in Table 4, 58.4% of respondents had ever used contraception and 33.9% were current users. Among current users, 57.4% used contraception consistently, 32.6% sometimes, and 10.1% rarely. Reasons for use included preventing pregnancy while unmarried (27.9%), child spacing (26.4%), completing desired family size (22.5%), and reducing mental illness exacerbation during pregnancy/postpartum (11.6%). Commonly used methods were injections (37.2%), implants (30.2%), pills (13.2%), condoms (12.4%), tubal ligation (3.1%), IUD (2.3%), and withdrawal (1.6%). Among those not planning future use, reasons included not having a sexual partner (45.8%), being unmarried (27%), lack of sexual activity (5.2%), perceived infertility (4.2%), amenorrhea since last birth (3.1%), and breastfeeding (2.1%).

Table 4: Practices of Contraception Among Respondents

		Frequency	Percentage(%)
Ever used contraceptive	Yes	222	58.4
	No	158	41.6
Currently using contraception	Yes	129	33.9
	No	251	66.1
How consistently	Always	74	57.4
	Sometimes	42	32.6
	Rarely	13	10.1
	Never	0	0.0
Reason for current use	Small family norm	5	3.9
	Completed family	29	22.5
	To prevent pregnancy as I am not married	36	27.9
	Economic reasons	5	3.9
	Child spacing	34	26.4
	Exacerbation of mental illness during pregnancy and postpartum	15	11.6
	For prevention of STIs	5	3.9
The currently used method	Condom	16	12.4
	Implant	39	30.2
	Injection	48	37.2
	IUD	3	2.3

	Pills	17	13.2
	Tubal ligation	4	3.1
	Withdraw	2	1.6
Reason for future use	Not married	12	12.5
	Fertility related reasons	26	27.1
	No sexual partner	44	45.8
	Not having sex	5	5.2
	Menopausal/hysterectomy	0	0.0
	Can't get pregnant	4	4.2
	Not menstruated since last birth	3	3.1
	Breastfeeding	2	2.1

Source: Primary data

3.5. Analysis of Predictors of contraceptive use

3.5.1 Bivariate analysis

Chi-square analysis Table 5, showed statistically significant associations between contraceptive use and age ($\chi^2 = 23.065$, $p < .001$), marital status ($\chi^2 = 41.148$, $p < .001$), occupation ($\chi^2 = 14.361$, $p = .006$), place of residence ($\chi^2 = 3.956$, $p = .047$), psychiatric diagnosis, ($\chi^2 = 6.928$, $p = .031$) and duration of diagnosis ($\chi^2 = 9.698$, $p = .046$). But it was not statistically significant with education level and religion of participants.

Table 5: Predictors of Contraceptive use

	Current contraceptive use			
	Yes	No		
	N(%)	N (%)	Chi-square	P.value
Age group			23.065	< .001*
18-26	15(11.6)	87(34.7)		
27-35	54(41.9)	79(31.5)		
36-44	50(38.8)	70(27.9)		
45 and above	10(7.8)	15(6.0)		
Marital Status of participants			41.148	< .001*
Single	44(34.1)	156(62.2)		
Legally married	56(43.4)	40(15.9)		
Divorced	2(1.6)	7(2.8)		
Widowed	4(3.1)	7(2.8)		
Separated	12(9.3)	29(11.6)		
Cohabitating	11(8.5)	12(4.8)		
Education Level of participant			2.709	.439
No Schooling	9(7.0)	26(10.4)		
Primary education	43(33.3)	92(36.7)		
Secondary education	57(44.2)	105(41.8)		
Tertiary education	20(15.5)	28(11.2)		
Occupation of participants			14.361	.006*
Unemployed	59(45.7)	118(47.0)		
Paid employment	22(17.1)	20(8.0)		
self employed	17(13.2)	27(10.8)		
student	4(3.1)	30(12.0)		
Housewife	27(20.9)	56(22.3)		
Religion of participants			.566	.904
Catholic	53(41.1)	107(42.6)		
Protestant	54(41.9)	103(41.0)		

Muslim	10(7.8)	15(6.0)		
Seventh day Adventist	12(9.3)	26(10.4)		
Residence of respondents				
Rural	56(43.4)	136(54.2)	3.956	.047*
Urban	73(56.6)	115(45.8)		
Diagnosis of participants				
Psychotic disorder	71(55.0)	140(55.8)	6.928	.031*
Bipolar disorder	50(38.8)	75(29.9)		
Depressive disorder	8(6.2)	36(14.3)		
Diagnosis duration			9.698	.046*
<2	24(18.6)	84(33.5)		
3-8	73(56.6)	110(43.8)		
9-14	20(15.5)	35(13.9)		
15-20	9(7.0)	17(6.8)		
>20	3(2.3)	5(2.0)		

Source: Primary data

3.5.2. Multivariate analysis

After a bivariate analysis, significant variables with P value < 0.05 were further explored in logistic regression to adjust for confounders and identify the variables that are independently associated with contraceptive use among women with mental illness. Multivariate analysis (Table 6) showed that age group, marital status, and diagnosis category were independent predictors of contraceptive use. Women aged 27–35 were less likely to use contraception than those 18–26 (AOR = 0.432, p = .033). Married (AOR = 0.207, p < .001) and cohabiting women (AOR = 0.208, p = .004) had lower odds of contraceptive use compared to single women. Women with bipolar disorder had 49.4% lower odds of using contraception (AOR = 0.506, p = .019), The findings for those with depressive disorder Suggests higher odds of contraceptive use compared to those with psychotic disorders but not significant at. 05(AOR=2.365; 95% CI=.961, 5.818, P =.061). Occupation, place of residence, and duration of diagnosis were not significant predictors.

Table 6: Multivariable analysis

			95% C.I.for AOR		
	df	AOR	Lower	Upper	P value
Age group	3				.185
18-26	Ref	1			
27-35	1	.432	.200	.933	.033
36-44	1	.457	.190	1.100	.081
45 and above	1	.559	.158	1.978	.367
Marital status of participants	5				.000
Single	Ref	1			
Legally married	1	.207	.105	.408	.000
Divorced	1	1.673	.281	9.979	.572
Widowed	1	.345	.080	1.494	.155
Separated	1	.564	.242	1.318	.186
Cohabitating	1	.208	.072	.599	.004
Occupation of participants	4				.297
Unemployed	Ref	1			
Paid employment	1	.730	.325	1.642	.447
self employed	1	1.450	.649	3.240	.366
Student	1	1.917	.538	6.835	.316
Housewife	1	1.696	.818	3.515	.156

Place Residence					
Rural	Ref	1			
Urban	1	.744	.445	1.243	.258
Diagnosis of participants	2				.004
Psychotic disorder	Ref	1			
Bipolar disorder	1	.506	.287	.893	.019
Depressive disorder	1	2.365	.961	5.818	.061
Diagnosis duration	4				.764
<2	Ref	1			
3-8	1	.695	.364	1.327	.270
9-14	1	.987	.409	2.386	.978
15-20	1	.842	.275	2.575	.763
>20	1	1.001	.172	5.810	.999

Source: *Primary data*

4. DISCUSSION

This study which involved 380 WMI; showed that awareness of contraception was high, with 98.4% of participants reporting knowledge of at least one method. This is almost similar to the knowledge of the general population about modern contraceptive methods which is 99%[22], but slight higher than the findings from an similar study conducted in India which revealed that 90% of women knew at least one form of contraception[23].in this study the most utilized contraceptive methods are Pills (95%) and injectable (90.8%) these findings were found in similar study conducted in in Ethiopia[24], but different from another study which found that emergency contraceptive pills were among the most used methods [25]. Healthcare providers were the main source of contraceptive information (78.6%), and health centres (95.3%) and hospitals (51%) were the preferred sources for obtaining methods. These findings showed and highlighted the importance of leveraging healthcare providers in interventions aimed at improving contraceptive uptake among WMI.

In this study the majority of participants (80.3%) recognized contraception as a method to prevent pregnancy which is positive in regard to contraceptive use, however 50.8% believed contraception should only be used by married women. This reflects cultural norms that may restrict access for unmarried WMI. Misconceptions were prevalent in 46.3% who believed that contraception could damage the womb, 60.5% feared permanent infertility, and 54.7% linked contraceptive use to be the cause of abnormal babies. Such beliefs likely contribute to low utilization and align with other studies which showed that fear of side effects is a major barrier to contraceptive use [24], [26].

Despite high knowledge, only 58.4% had ever used contraception, and 33.9% were current users, among which only 57.4% were consistent users. This gap between awareness and utilization mirrors findings from another study conducted in South Africa [21] which discovered that consistent contraceptive use was only 44.7% and sometimes use by 60%. Similarly, to another study conducted in Ethiopia which also revealed a big gap between contraceptive awareness and contraceptive use with 55.21% who ever used contraception and 38.6% of current utilization[27]. A slight difference was found in a study conducted in Kenya which found that 42.2% of participants utilized contraception[28]. The findings of this study also showed that contraceptive use was lower among women with mental compared to another also conducted in Rwanda, but targeting women with both neurological condition and mental illnesses which reported that only 38.6% were current users of family planning methods[29]. The findings from the current study and the previous study highlighted that in Rwanda women with mental health related conditions have lower rate of contraceptive use compared to the general population which is 64% of married women reported as current users of contraception[22].

5. CONCLUSION

Despite the high level of awareness about contraceptive methods among women with mental illness, this knowledge does not necessarily lead to consistent or adequate use. Factors such as marital status, type of psychiatric disorder, age, and prevailing misconceptions strongly influence their attitudes and behaviours toward contraception. This highlights a significant disparity between awareness and actual practice that calls for targeted, context-specific interventions. Integrating reproductive health education into mental health care is crucial, with counselling that is regular, supportive, and tailored to each patient's psychological and emotional capacity. Addressing this knowledge -practice gap will enhance women's autonomy, reduce unintended pregnancies, and contribute to better overall health outcomes for this vulnerable group.

REFERENCES

[1] A. Timilsina, "Intersecting Mental Health and Sexual and Reproductive Health," Health Prospect, vol. 17, p. 18, Jul. 2018, doi: 10.3126/hprospect.v17i1.20564.

[2] H. Hope, M. Pierce, E. D. Johnstone, J. Myers, and K. M. Abel, "The sexual and reproductive health of women with mental illness: a primary care registry study," Arch Womens Ment Health, vol. 25, no. 3, pp. 585–593, 2022, doi: 10.1007/s00737-022-01214-y.

[3] L. R. McCloskey, K. L. Wisner, M. K. Cattan, H. K. Betcher, C. S. Stika, and J. W. Kiley, "Contraception for Women With Psychiatric Disorders," AJP, vol. 178, no. 3, pp. 247–255, Mar. 2021, doi: 10.1176/appi.ajp.2020.20020154.

[4] C. A. Woody, A. J. Ferrari, D. J. Siskind, H. A. Whiteford, and M. G. Harris, "A systematic review and meta-regression of the prevalence and incidence of perinatal depression," Journal of Affective Disorders, vol. 219, pp. 86–92, Sep. 2017, doi: 10.1016/j.jad.2017.05.003.

[5] X. Yin et al., "Prevalence and associated factors of antenatal depression: Systematic reviews and meta-analyses," Clinical Psychology Review, vol. 83, p. 101932, Feb. 2021, doi: 10.1016/j.cpr.2020.101932.

[6] A. Caffieri, I. Gómez-Gómez, C. Barquero-Jimenez, P. De-Juan-Iglesias, G. Margherita, and E. Motrico, "Global prevalence of perinatal depression and anxiety during the COVID-19 pandemic: An umbrella review and meta-analytic synthesis," Acta Obstetricia et Gynecologica Scandinavica, vol. 103, no. 2, pp. 210–224, 2024, doi: 10.1111/aogs.14740.

[7] K. F. Huybrechts et al., "Association of In Utero Antipsychotic Medication Exposure With Risk of Congenital Malformations in Nordic Countries and the US," JAMA Psychiatry, vol. 80, no. 2, pp. 156–166, Feb. 2023, doi: 10.1001/jamapsychiatry.2022.4109.

[8] S. Suzuki and M. Kato, "Deterioration/relapse of depression during pregnancy in Japanese women associated with interruption of antidepressant medications," The Journal of Maternal-Fetal & Neonatal Medicine, vol. 30, no. 10, pp. 1129–1132, May 2017, doi: 10.1080/14767058.2016.1205026.

[9] A. N. Edinoff et al., "Hyperprolactinemia, Clinical Considerations, and Infertility in Women on Antipsychotic Medications," Psychopharmacol Bull, vol. 51, no. 2, pp. 131–148, Mar. 2021.

[10] M. Pierce et al., "Prevalence of parental mental illness and association with socioeconomic adversity among children in Sweden between 2006 and 2016: a population-based cohort study," The Lancet Public Health, vol. 5, no. 11, pp. e583–e591, Nov. 2020, doi: 10.1016/S2468-2667(20)30202-4.

[11] D. C. S. Fortes, M. R. S. D. Silva, K. S. G. Fonseca, A. S. B. D. Silva, and E. M. F. B. D. Carvalho, "Saúde sexual e reprodutiva das mulheres com transtorno mental: percepção dos profissionais de saúde," Interface (Botucatu), vol. 25, p. e200659, 2021, doi: 10.1590/interface.200659.

[12] J. K. Ganle, E. Otupiri, B. Obeng, A. K. Edusie, A. Ankomah, and R. Adanu, "Challenges Women with Disability Face in Accessing and Using Maternal Healthcare Services in Ghana: A Qualitative Study," PLoS ONE, vol. 11, no. 6, p. e0158361, Jun. 2016, doi: 10.1371/journal.pone.0158361.

[13] K. Abel and S. Rees, "Reproductive and sexual health of women service users: what's the fuss?: Commentary on… Addressing the Sexual and Reproductive Health Needs of Women Who Use Mental Health Services," Advances in Psychiatric Treatment, vol. 16, no. 4, pp. 279–280, Jul. 2010, doi: 10.1192/apt.bp.108.006635.

[14] N. K. Özcan, N. E. Boyacıoğlu, S. Enginkaya, H. Dinç, and H. Bilgin, "Reproductive health in women with serious mental illnesses," Journal of Clinical Nursing, vol. 23, no. 9–10, pp. 1283–1291, May 2014, doi: 10.1111/jocn.12332.

[15] E. Tozoglu, N. Aydin, S. Yalcin, and K. Kasali, "Unintended and Unwanted Pregnancies in Women with Major Psychiatric Disorders: A Cross-Sectional Comparative Study," Psychiatry and Clinical Psychopharmacology - PCP, vol. 30, no. 3, p. 1, 2020, doi: 10.5455/PCP.20200517084650.

[16] E. R. Walker, R. E. McGee, and B. G. Druss, "Mortality in Mental Disorders and Global Disease Burden Implications: A Systematic Review and Meta-analysis," JAMA Psychiatry, vol. 72, no. 4, pp. 334–341, Apr. 2015, doi: 10.1001/jamapsychiatry.2014.2502.

[17] Y. Kayiteshonga, V. Sezibera, L. Mugabo, and J. D. Iyamuremye, "Prevalence of mental disorders, associated co-morbidities, health care knowledge and service utilization in Rwanda – towards a blueprint for promoting mental health care services in low- and middle-income countries?," BMC Public Health, vol. 22, no. 1, p. 1858, Oct. 2022, doi: 10.1186/s12889-022-14165-x.

[18] L. C. Barker and S. N. Vigod, "Sexual health of women with schizophrenia: A review," Frontiers in Neuroendocrinology, vol. 57, p. 100840, Apr. 2020, doi: 10.1016/j.yfrne.2020.100840.

[19] N. N. Schonewille, N. Rijkers, A. Berenschot, J. G. Lijmer, O. A. van den Heuvel, and B. F. P. Broekman, "Psychiatric vulnerability and the risk for unintended pregnancies, a systematic review and meta-analysis," BMC Pregnancy and Childbirth, vol. 22, 2022, doi: 10.1186/s12884-022-04452-1.

[20] L. Simoila et al., "Schizophrenia and induced abortions: A national register-based follow-up study among Finnish women born between 1965-1980 with schizophrenia or schizoaffective disorder," Schizophr Res, vol. 192, pp. 142–147, Feb. 2018, doi: 10.1016/j.schres.2017.05.039.

[21] L. J. Galvin and Y. M. Nel, "Contraceptive use in women with mental illness in Soweto, South Africa," South African Journal of Psychiatry, vol. 30, no. 0, Art. no. 0, Jan. 2024, doi: 10.4102/sajpsychiatry.v30i0.2153.

[22] NISR, MOH Rwanda, ICF International, "Rwanda Demographic and Health Survey 2019-2020," Rockville, Maryland, USA, Sep. 2021.

[23] B. Sethuraman, A. Rachana, and S. Kurian, "Knowledge, Attitude, and Practice Regarding Contraception among Women with Schizophrenia: An Observational Study from South India," Indian Journal of Psychological Medicine, vol. 41, no. 4, pp. 323–330, Jul. 2019, doi: 10.4103/IJPSYM.IJPSYM_134_19.

[24] T. Zerihun, K. Sorsdahl, and C. Hanlon, "Family planning for women with severe mental illness in rural Ethiopia: a qualitative study," Reprod Health, vol. 18, p. 191, Sep. 2021, doi: 10.1186/s12978-021-01245-1.

[25] A. Seid, B. Wordofa, and J. Tesfaye, "Factors Affecting Utilization of Modern Family Planning Method among Women with Psychiatric Illness Attending Psychiatric Outpatient Services at Amanuel Mental Specialized Hospital Addis Ababa, Ethiopia, 2018. An Institution Based Cross-Sectional Study," Ethiopian Journal of Reproductive Health, vol. 13, no. 01, Art. no. 01, Feb. 2021, doi: 10.69614/ejrh.v13i01.387.

[26] J. K. Wulifan, S. Brenner, A. Jahn, and M. De Allegri, "A scoping review on determinants of unmet need for family planning among women of reproductive age in low and middle income countries," BMC Women's Health, vol. 16, no. 1, p. 2, Jan. 2016, doi: 10.1186/s12905-015-0281-3.

[27] T. Zerihun, D. Bekele, E. Birhanu, Y. Worku, N. Deyesa, and M. Tesfaye, "Family planning awareness, utilization and associated factors among women of reproductive age attending psychiatric outpatient care, a cross- sectional study, Addis Ababa, Ethiopia," PLoS One, vol. 15, no. 9, p. e0238766, Sep. 2020, doi: 10.1371/journal.pone.0238766.

[28] A. K. Gitari, "Knowledge and utilization of contraceptives by women with mental illness attending psychiatric outpatient services at Mathari National Teaching and Referral Hospital," Thesis, University of Nairobi, 2015. Accessed: Jul. 08, 2024. [Online]. Available: http://erepository.uonbi.ac.ke/handle/11295/97516

[29] C. Kanazayire et al., "Family planning knowledge, use, and associated factors among women with mental illness and epilepsy in Rwanda: A cross-sectional study," Front. Glob. Womens Health, vol. 5, Sep. 2024, doi: 10.3389/fgwh.2024.1373051.