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Socio-Demographic and Economic Characteristics Associated with Current Use of a Modern Contraceptive Method by Women in Kita, Mali

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Abstract

The objective of this study is to analyse the socio-demographic and economic characteristics associated with the current use of a modern contraceptive method by women in Kita, Mali. This research is of interest because it will determine the nature of individual and economic determinants associated with current use of modern contraception. The methodology was based on a literature search and a quantitative survey and analytical study (bivariate analysis). The questionnaire was administered to a random sample of 281 women aged 15 - 49 years who had had at least one child. The bivariate logistic regression analysis revealed socio-demographic and economic characteristics associated with current use of a modern contraceptive method. The study found that 19.6% of women of reproductive age [WRA] were using a contraceptive method at the time of the survey. The characteristics associated with this practice are: age, number of living children, level of knowledge of modern contraceptives, the woman's attitude towards contraception, the identity of the person who decides on all care in the household, and the level of education. In contrast, marital status and access to family planning information are not statistically significantly associated with current contraceptive use by [WRA]. Consideration of these relevant characteristics will improve the effectiveness of ongoing family planning programmes in this city.

Keywords

Contraceptives, Characteristics, Women, Family Planning, Mali

1. Introduction

At the July 2012 London conference on family planning, partners decided to establish the global initiative for [FP], known as [FP2020], to reduce maternal mortality. As a result of these conferences, Mali developed a Plan of Action for Repositioning Family Planning, 2014-2018.

According to the United Nations Population Fund (UNFPA, 2017: pp. 18-22), Mali has ratified numerous international conventions and charters related to reproductive rights and health, including: the International Convention on the Rights of the Child [ICRC] in 1990, the African Charter on Human and Peoples' Rights in 1981… At the national level, the Government has enacted and adopted several laws or texts contributing to the implementation of international conventions. While some of these texts represent a legislative and legal advance towards greater equality between men and women and recognition of health and reproductive rights, Malian legislation remains poorly harmonised with international human rights texts. The law on reproductive health (02-04, 24 June 2002) states that "men and women have equal rights and dignity in matters of reproductive health". It implies the right for women and men to be informed, to use the planning method of their choice, "to access reproductive health services and to benefit from the best possible quality of care". Nevertheless, Mali faces problems in the application of this law: insufficient dissemination of the law, the lack of structures for the provision of appropriate Reproductive Health Care [RHC] services, and persistent prejudices that limit these services to married couples. The law also does not provide for free contraceptives for minors, which may limit access to these services. In addition, the reference to "respect for public order and family morality" in Article 12, which authorises "information and education concerning contraception", may be interpreted in such a way as to discourage access to information for young people.

And for Vimard (2007: pp. 350-353), unmarried young people often have difficult access to reproductive health services, which explains their low use of contraception, especially modern methods, and their frequent recourse to voluntary termination of pregnancy.

Modern contraception is relatively recent in Mali. Its history is closely linked to that of the Association Malienne pour la Protection et al. Promotion de la Famille (AMPPF), a national non-profit NGO created on 3 March 1972.

The level of contraceptive prevalence in sub-Saharan Africa varies from country to country, but rarely reaches 40%: Institut National de la Statistique (INSTAT) du Mali (2014: pp. 77-120; 2019: p. 6); Agence Nationale de la Statistique et de la Démographie (ANSD) du Sénégal (2020: pp. 137-195); Institut National de la Statistique Ministère du Plan et du Développement Economique Conakry, Guinea (2019: pp. 163-170); Institut National de la Statistique (INS) du Tchad (2015: pp. 1-11); Institut National de la Statistique (INS) du Niger (2013: pp. 8-40). According to the extensive literature from the Demographic and Health Surveys (cited above), the characteristics associated with contraceptive use are: age, ma-

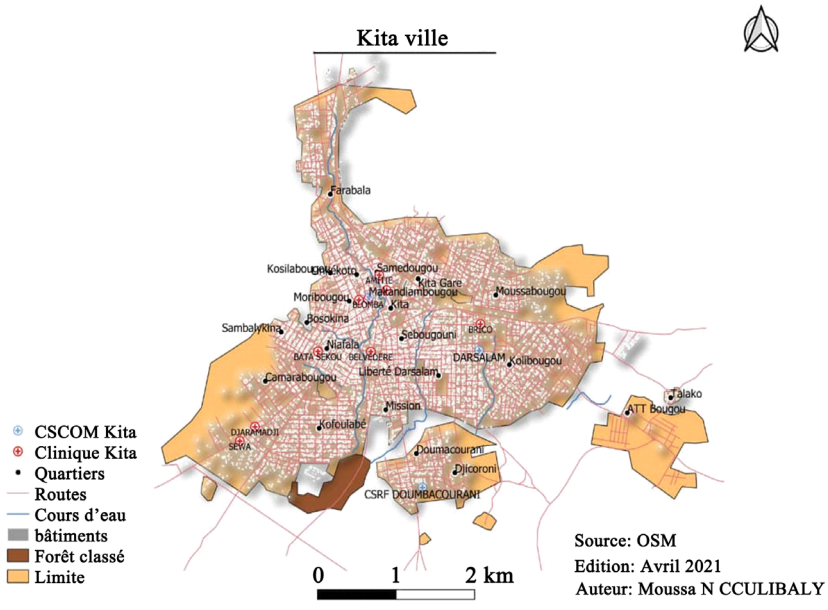
rital status, level of education, place of residence and number of living children. For other characteristics such as marital status, ideal number of children, there are variations. Almost all of the above results have been broken down to the level of the regional capitals. Very few studies have been carried out on the other cities. The results of this research in a medium-sized town in Mali will make it possible to fill this gap in part.

This observation led us to conduct a study on the socio-demographic and economic characteristics associated with current use of a modern contraceptive method by [WRA] in Kita. The aim is to determine the most relevant characteristics associated with this type of contraception among [WRA]. To achieve this objective, our argument is based on the general hypothesis that socio-demographic and economic characteristics are variously associated in a statistically significant way with current use of modern contraception by [WRA] in Kita.

2. Methodology

2.1. Scope of the Study

The town of Kita, capital of the Kita circle, in the Kayes region, is the field of this study (Map 1). Its geographical coordinates are: 13˚03'00" North, 9˚29'00" West. The city has an area of 11.514 km^2 and a population of 65,908 inhabitants in 2020, of which 32,295 are men and 33,613 are women (Ministry of Land Use and Population, Population Projections, 2020: pp. 14-20). In terms of health, the town has 2 Community Health Centres [CSCOM], 1 Reference Health Centre [CSREF] and 8 private clinics. The 112 health workers are distributed as follows: doctors (13.4%), midwives (8.9%), obstetric nurses (31.3%), nurses (19.6%), nurses' aides (3.6%), matrons (13.4%) and laboratory assistants (9.8%). There are no midwives in private clinics.



Map 1. Location of neighbourhoods and health centres in the town of Kita.

2.2. Quantitative Study or Questionnaire Survey

2.2.1. Sample Frame for the Questionnaire Survey: Drawing the "Household" Sample

We carried out quantitative surveys among households in the target neighbourhoods of the survey. A 3-stage survey was adopted as a principle, defined as follows:

- Primary units: neighbourhoods;
- Secondary units: concessions; and
- Tertiary units: households in the concessions.

In the first stage, we selected the 13 neighbourhoods of Kita.

In the second stage, 20 concessions were drawn at random from each neighbourhood according to a sampling step and from a random starting point per neighbourhood retained in the first stage.

In the third stage, one household per concession selected in the second stage was drawn at random. The head of the household (male or female) was asked to complete the "Household" module of the questionnaire. The size of the "Household" sample was 260 ($13 \times 20 \times 1$).

The women in the household aged 15 to 49 were subjected to an individual questionnaire with a view to collecting their characteristics in terms of socio-demographic and economic variables, their level of knowledge and current practice of modern contraception.

2.2.2. Drawing of the "Women" Sample

In the tertiary units, a three-stage process was used. In the first stage, all 260 heads of household were interviewed about the members of the unit for which they are responsible. If 1/10th of the heads of household (male or female) did not take part in the questionnaires for various reasons (refusal, absence), the actual sample size was at least 234 heads of household.

The calculation of the reference population is based on the fact that the 2009 census showed an average of 6 persons per household. If this structure has not changed between 2009 and 2020, then the reference population is $260 \times 6 = 1560$ persons.

In the second stage, the study proposed to interview women aged 15 - 49 from this sample of 1560 people. Women in this age group are estimated at 13,190 out of a total population of 65,908, or 20% of the population of the town of Kita. Thus, the sample size for women is $1560 \times 0.20 = 312$ women aged 15 - 49. Of these, 281 who have had at least one child were asked to complete the contraceptive component of the questionnaire. The overall sampling fraction $F = 1560/65\,908 = 1/42$.

2.3. Analytical Study

2.3.1. Independent Variable and Explanatory Variables: Current Use of a Contraceptive Method

The dependent variable selected in this research is the current use or not of a modern contraceptive method by the [WRA]. It was dichotomised according to

the requirements of logistic regression. The number zero (0) corresponded to "Yes" and the number one (1) to "No". Modern contraceptive methods included: implants, the pill, injectables (depo provera/Sayana Press), intrauterine device (IUD).

The independent variables or socio-demographic and economic characteristics are summarised in Table 1.

2.3.2. Bivariate Analysis

This consisted of the search for associations between this level of the dependent variable and the predictor characteristics (independent variables) by comparing proportions using the Chi-square test. CSPRO software was used to encode the data and SPSS to perform the bivariate analyses. For this purpose, the PEARSON Chi-square test, at the 5% risk level, was used.

3. Analysis of the Results

3.1. Socio-Demographic and Economic Characteristics of [WRA]

Table 2 presents the socio-demographic characteristics of [WRA].

Analysis of this table shows that 73.0% of women of childbearing age are under 35 years of age. Most of them (89.7%) are in union. Seventy-one percent (71.9%) have fewer than three children. Eighty percent (80.1%) have a high level of knowledge of contraceptives: four methods or more. A large number of them (82.9%) are in favour of family planning.

Data on the economic characteristics of women are recorded in Table 3.

52.7% of [WRA] are illiterate and most of them (88.3%) report having easy access to family planning information.

Table 1. List of explanatory variables.

Explanatory variables	Definition and measures	Expected influence
Socio-demographic and economic characteristics of women:		
a) Age	Under 35 (Yes = 0; No = 1)	±
b) Marital status	Woman in union (Yes = 0; No = 1)	±
c) Number of living children	Less than 3 children (Yes = 0; No = 11)	±
d) Knowledge of 4 and more modern contraceptive methods	Knowledge of 4 and more modern contraceptive methods (Yes = 0; No = 1)	±
e) Attitude towards [FP]	Approval (Yes = 0; No = 1)	±
f) Identity of the one who decides on care in the household	Head of household (Yes = 0; No = 1)	±
g) Level of education	Woman knowing how to read (Yes = 0; No = 1)	±
h) Access to information on [FP]	Access to information (Yes = 0; No = 11)	±

Source: Konaté Mariam, F., 2020.

Table 2. Socio-demographic characteristics of [WRA].

Characteristics	Workforce	Percentage
a) Age		
Under 35 years	205	73.0
35 years and over	76	27.0
Total	281	100.0
b) Marital status		
Woman in union	247	87.9
Woman living alone	34	12.1
Total	281	100.0
c) Number of children alive		
Less than 3 children	202	71.9
3 children and more	79	28.1
Total	281	100.0
d) Knowledge of 4 and more modern contraceptive methods		
High	225	80.1
Low	56	19.9
Total	281	100.0
e) Attitude towards [FP]		
Approval	233	82.9
Disapproval	48	17.1
Total	281	100.0
f) Identity of the person who decides on care:		
Head of household	181	64.4
Woman herself	100	36.6
Total	281	100.0

Source: Konaté Mariam, F., 2020.

Table 3. Economic characteristics of the [WRA].

Economic characteristics		
	Workforce	Percentage
g) Level of education		
Woman knowing how to read	133	47.3
Woman not knowing how to read	148	52.7
Total	281	100.0
Ease of access to information on [FP]		
Yes	248	88.3
No	33	11.7
Total	281	100.0

Source: Konaté Mariam, F., 2020.

3.2. Current Use of a Modern Contraceptive Method by [WRA]

Current contraceptive prevalence was 19.6% in the city of Kita (Figure 1).

This result is slightly higher than the national average of 16% according to the Institut National de la Statistique (INSTAT) du Mali (2019: p. 6). The methods most frequently used by [WRA] are the pill (49.1%), the implant (34.5%), the intrauterine device (10.9%) and injections (5.5%).

In Senegal, according to the Agence Nationale de la Statistique et de la Démographie (2020: pp. 137-195), 19 percent of women aged 15 - 49 are currently using a contraceptive method, the majority of which are modern (18 percent).

3.3. Characteristics Associated with Current Contraceptive Use by [WRA]

The socio-demographic characteristics associated with current use of a modern contraceptive method by [WRA] are recorded in Figure 2 below.

The proportion of women currently using a modern contraceptive method decreases with age: from 23.9% for those under 35% to 7.9% for those 35 and older. In other words, younger women are more likely to be current users of a contraceptive method than older women (Figure 2(a)). The percentage of current users of a modern contraceptive method varies by marital status. The percentage of women currently using a modern contraceptive method varies according to marital status, from 23.9% for women living alone to 7.9% for those in union (Figure 2(b)). Also, the rate of current users of a modern contraceptive method falls from 26.2% for women with fewer than three children to 2.5% for those with three or more children (Figure 2(c)). Also, the percentage of current users of a contraceptive method increases with the level of knowledge of contraceptives. It increases from 12.6% for those with a low level of knowledge to 30.4% for those with a high level of knowledge (Figure 2(d)). Thus, contraceptive knowledge is an important factor in current use of modern contraception. More current users of a modern contraceptive method (77.1%) approve of [FP] than disapprove (40.5%: Figure 2(e)). Figure 2(f) shows that more current users

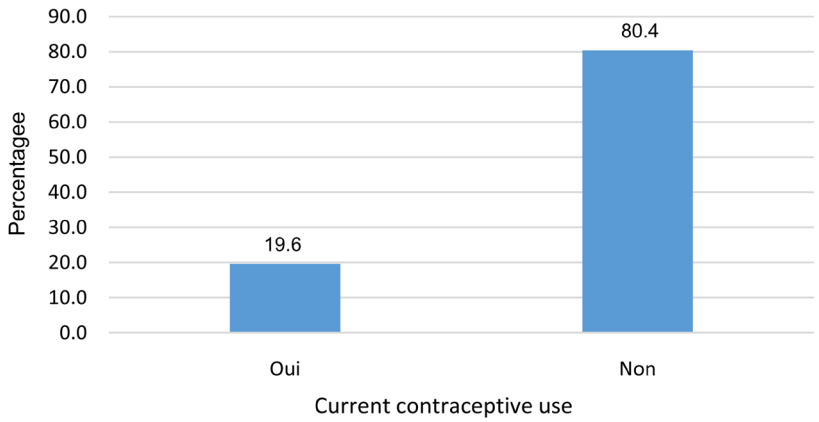


Figure 1. Current use of a contraceptive method to avoid pregnancy. Source: Konaté Mariam, F., 2020.

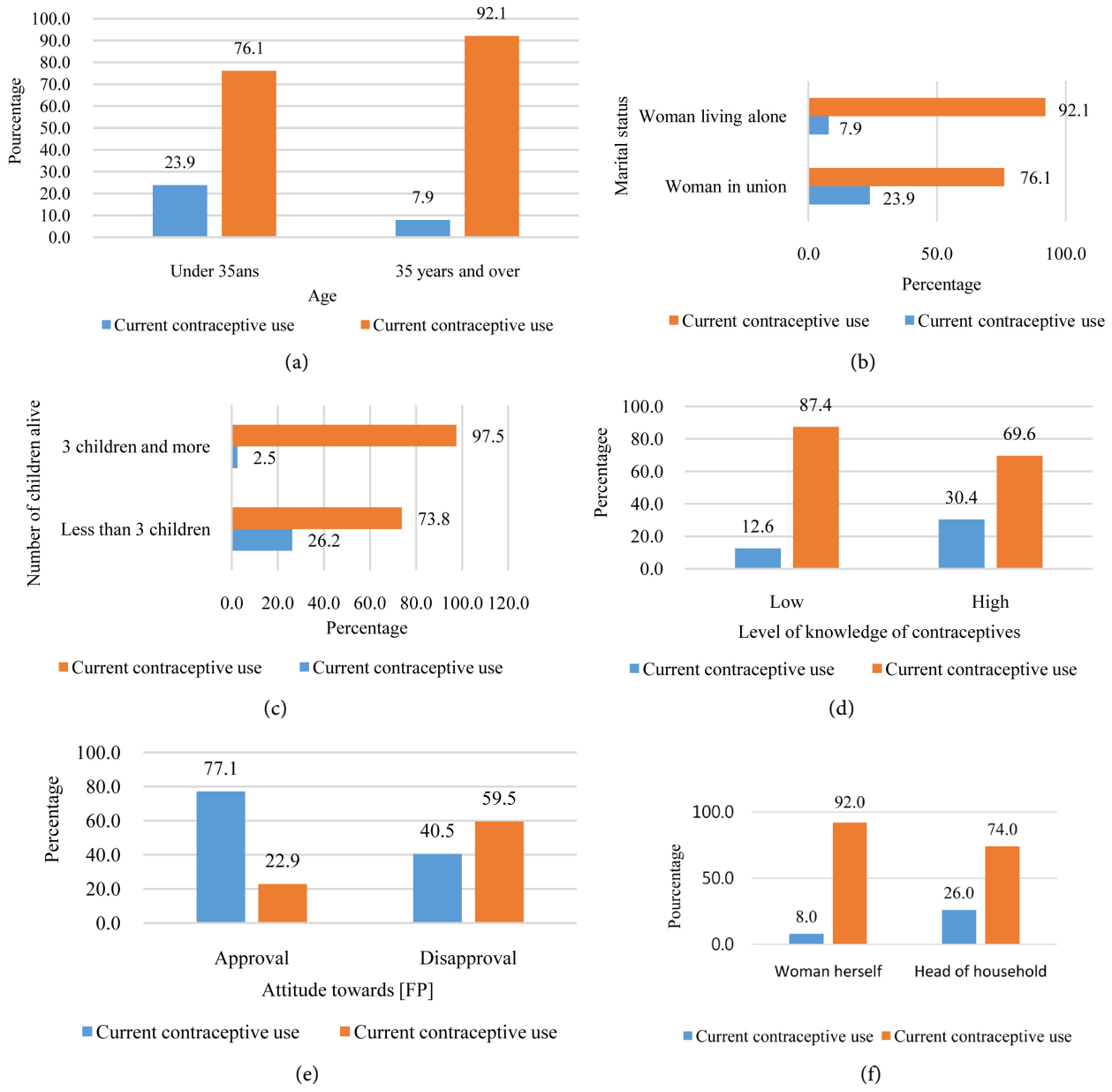


Figure 2. Current use of a modern contraceptive method by socio-demographic characteristics of [WRA]. (a) Age; (b) Marital status; (c) Number of children alive; (d) Level of knowledge of contraceptives; (e) Attitude towards [FP]; (f) Identity of the person who decides on care. Source: Konaté Mariam, F., 2020.

of a modern contraceptive method (26.0%) are under the guardianship of the head of household than if they provide all care themselves (8.0%).

Data on current use of a modern contraceptive method by economic characteristics of the [WRA] are shown in **Figure 3**.

For example, the proportion of current users of a modern contraceptive method varies by level of education. It ranges from 24.8% for women who can read and write to 14.9% for those who cannot read or write (**Figure 3(a)**). Similarly, the percentage of current users of a modern contraceptive method varies according to the level of access to information on [FP]. It ranges from 21.0% for those

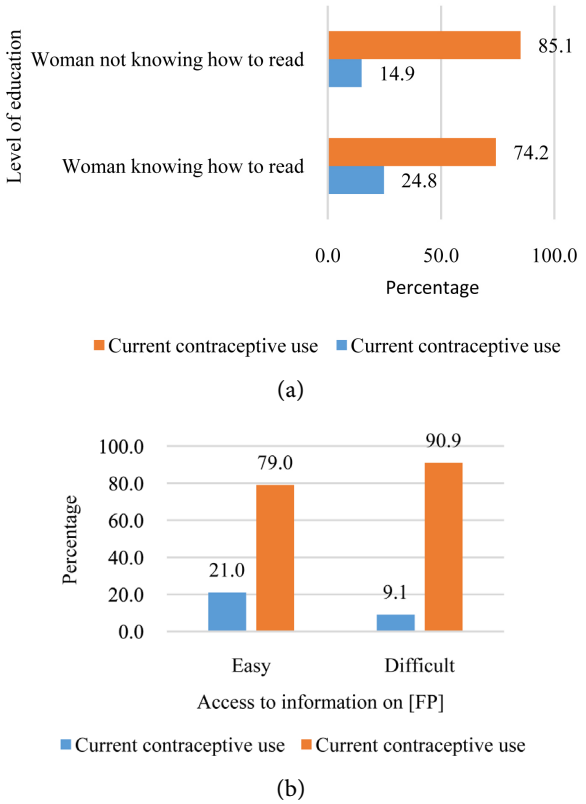


Figure 3. Current use of a modern contraceptive method by economic characteristics of [WRA]. Source: M. F. KONATE, 2020. (a) Level of education; (b) Access to information on [FP].

with easy access to 9.1% for those with difficult access (**Figure 3(b)**). In summary, it is tempting to say that all the characteristics under study have an influence on current contraceptive use by [WRA].

3.4. Bivariate Analysis: Socio-Demographic and Economic Characteristics and Current Use of a Modern Contraceptive Method by [WRA]

As a reminder, the Chi-square test is used to compare two proportions. It is significant when its probability (p) is less than 0.05. The results of the Pearson Chi-square tests are shown in **Table 4**.

Thus, except for marital status and access to information on [FP], other characteristics such as age, number of living children, level of knowledge of contraceptives, attitude towards [FP], identity of the person who decides on care in the household and level of education are statically significantly related to the current use of a modern contraceptive method by [WRA]. Indeed, for each of the characteristics mentioned, the Pearson Chi-square test, at the 5% error level, showed that all the values calculated, 4.403 (for the level of education) to 20.090 (for the number of living children), are higher than their theoretical values, which vary between 3.84 (for n ddl = 1) and 5.99 (for n ddl = 2). Also, the calculated probabilities are all lower than 0.05:

Table 4. Chi-square test results: Current use of a modern contraceptive method and socio-demographic and economic characteristics of [WRA].

Characteristics	Calculated Pearson chi-square value	Pearson's theoretical chi-square value	Number of degrees of freedom	Probability (p) at the error threshold: 5%
Socio-demographic characteristics				
a) Age	9.025	3.84	1	$p = 0.000$**
b) Marital status	1.498	3.84	1	$p = 0.221$ ns
c) Number of children alive	20.090	3.84	1	$p = 0.000$**
d) Level of knowledge of contraceptives	16.203	3.84	1	$p = 0.000$**
e) Attitude towards [FP]	12.290	5.99	2	$p = 0.002$**
f) Identité de celui qui décide des soins	13.209	3.84	1	$p = 0.000$**
Economic characteristics				
g) Level of education	4.403	3.84	1	$p = 0.036$**
h) Access to information on [FP]	2.610	3.84	1	$p = 0.106$ ns

**: significant; ns: no significant; Source: Konaté Mariam, F., 2020.

- $p = 0.000$ for characteristics such as age, number of living children, level of knowledge of modern contraceptives and identity of the person who decides on all care in the household;
- $p = 0.036$ for education level;
- $p = 0.002$ for attitude towards [FP].

Given the conditions for the Chi-square values and the calculated probabilities, the hypothesis of independence between these predictor characteristics and current contraceptive use must be rejected. Therefore, these characteristics are statistically significantly related to this dependent variable.

In summary, the socio-demographic and economic characteristics of [WRA] not associated with current use of modern contraception are: marital status ($p = 0.221 > 0.05$) and access to information on [FP] ($p = 0.106 > 0.05$).

On the other hand, variables as age ($p = 0.000 < 0.05$), marital status ($p = 0.221 < 0.05$), number of living children ($p = 0.000 < 0.05$) are associated with the current use of contraception, and that in a statistically significant way. A similar result was found for the following variables: level of knowledge of contraceptives, ($p = 0.000 < 0.05$), attitude towards [FP] ($p = 0.002 < 0.05$), identity of the care giver ($p = 0.000 < 0.05$) and level of education ($p = 0.036 < 0.05$).

4. Discussion of the Results

Firstly, our study did not find statistically significant associations between a woman's likelihood of being a user and characteristics such as marital status and [WRA] access to information on [FP]. Speaking of the relationship between marital sta-

tus and contraceptive use, the Institut National de la Statistique du Niger (2013: pp. 8-40), revealed that the contraceptive prevalence of women in union is practically no different from that of all women. In contrast, in Senegal, according to the Agence Nationale de la Statistique et de la Démographie (2020), women who are not in union and who are sexually active have a higher percentage of use of a contraceptive method (45%) than those in union (27%). According to Fassassi (2007: pp. 35-40), the relationship between marital status and contraceptive practice is close in Africa. Paradoxically, the management of the risk of conception is more pronounced among single women or women who have broken up than among women in union. Divorced, widowed or separated women have a stricter control of the risk of conception, probably more for social reasons but perhaps also because of the greater difficulty of raising a child alone.

According to Mbakoptchoua (2010: pp. 40-50), it was found that women in need who have access to information on [FP] would be more likely to use contraception than others who do not. This contradicts our results in this sense.

Secondly, our study found statistically significant associations between a woman's likelihood of being a current user of a contraceptive method and socio-demographic characteristics such as age, number of living children, level of knowledge about contraceptives, attitude toward [FP], and the identity of the person responsible for all care in the household.

Our finding with respect to age was confirmed by Demographic and Health Surveys in several African countries south of the Sahara. Thus the Institut National de la Statistique (INS) de la Côte d'Ivoire (2013: pp. 9-17), found that the prevalence of modern contraception varies according to the age group of the woman. The highest proportion of users (ranging from 12% to 15%) is at ages 20 - 44, the peak fertility period. Among women under 20 and those aged 45 and over, the rates are relatively lower: 7% in the 15 - 19 age group, and 6% at 45 - 49. According to the Institut National de la Statistique (INS) du Niger (2013: pp. 14-20), the trend in current contraceptive use by age of women in union is not very different from those of women overall. Modern prevalence is highest in the 25 - 29 age group (16% in both cases). In Chad, the Institut National de la Statistique (2015), found that contraceptive prevalence among women in union increases steadily from age group 15 - 19 (3%) to age group 30 - 34 (8%). Beyond that, the proportions decrease steadily to 3% at ages 45 - 49. Finally, the Agence Nationale de la Statistique et de la Démographie (ANSD) du Sénégal (2020), showed that modern contraceptive use among women aged 15 - 49 increases with the age of the woman, reaching its highest level in the 35 - 39 age group (29%). From the age of 40 onwards, there is a decline in contraceptive use for modern methods to 25% among women aged 40 - 44 and 24% among those aged 45 - 49.

Our study found statistically significant associations between current use of a modern contraceptive method and the number of live children of [WRA]. This result has been confirmed by numerous studies. For example, according to the Institut National de la Statistique (INSTAT) du Mali (2014), modern contracep-

tive use is lower among women who have had no live births (5%) than among women who have three or more children (11%). Also, according to the Institut National de la Statistique, Ministère du Plan et du Développement Economique Conakry, Guinea (2019), modern contraceptive prevalence increases with the number of live children, from 8% among women in unions with no children to 12% among those with five or more children. In Côte d'Ivoire, the Institut National de la Statistique (INS) de la Côte d'Ivoire (2013), finds that a woman's number of living children appears to be a key determinant of modern contraceptive use. Women without children, who are generally younger, are the least frequent users of modern contraception (3%). In Chad, the Institut National de la Statistique (2015), finds that contraceptive prevalence increases with the number of living children, from 1% among those with no living children to 7% among those with five.

Our research has shown that [WRA] knowledge of contraceptives is an important factor in current contraceptive use. In this regard, Matungulu et al (2015), found that women with a high level of contraceptive knowledge had ($p < 0.001$) a 1, 87 times higher probability of being users of modern contraceptive methods than those with a low level of contraceptive knowledge. This is because women with a high level of knowledge know where they can get them, understand their side effects and know how to use them.

Our study shows that the attitude of [PAF] towards [FP] is a major indicator of current contraceptive use. In this regard, according to Matungulu et al. (2015), women with a favourable attitude towards contraceptive methods were ten times more likely to use modern methods of contraception than those with an unfavourable attitude. Alemayehu et al. (2012), went on to note that women who discussed contraception with their partners were 2.2 times more likely to use family planning. Contraception was about 2.6 times more likely among married women whose partners supported family planning use. Makhtar mbacke leye et al. (2015: pp. 108-117) found that women of reproductive age who were satisfied with the quality of contraceptive services were more likely to use modern contraceptive methods.

Our research also indicated that the identity of the caregiver is a key factor in current contraceptive use by [WRA]. This result is largely confirmed by Matungulu et al. (2015), who specified that spousal support ($p < 0.001$) was significantly associated with the use of modern contraceptive methods. Our result is, however, contradicted by Makhtar mbacke leye et al. (2015), who found that women of reproductive age with decision-making power were 2.2 times more likely to use modern contraceptive methods than those who were under guardianship.

Finally, our research revealed statistically significant associations between a woman's likelihood of being a current user of a contraceptive method and her level of education. In this regard, results from the Institut National de la Statistique (INSTAT) du Mali (2014), indicated that the level of education appears to be the most important determinant of contraceptive use, with prevalence ranging from 8% among women with no education to 13% among those with prima-

ry education and 27% among those with secondary education or higher. This result was confirmed by data from the Institut National de la Statistique, Ministère du Plan et du Développement Economique Conakry, Guinea (2019), where the level of modern contraceptive use increases significantly with the level of education, from 9% among women in union and with no education, to 12% among those with primary education and 19% among those with secondary education or higher. Our result was contradicted by that of the Institut National de la Statistique (INS) du Tchad (2015), which indicates that modern contraceptive prevalence is much higher among women with no education (21%) than those with higher education (8%) than those with primary education (3%). In Senegal, the Agence Nationale de la Statistique et de la Démographie (2020), found that women with primary education use modern contraception much more (34% versus 21% among those with no education and 29% among those with intermediate/secondary education or higher). An identical result was obtained by the Institut National de la Statistique (INS) du Niger (2013: pp. 8-40), which states that the level of education appears to be the most determining factor in the use of a contraceptive method. Thus, the proportions of users are 10%, 18% and 30% respectively for women with no education, women with primary education and women with secondary education. In Côte d'Ivoire, the level of education of women is another important differential factor. Contraceptive prevalence is strongly associated with education level: among women with secondary or higher education, 22% currently use a modern method, compared to 17% among women with primary education and 9% among those with no education (Institut National de la Statistique, 2013).

5. Conclusion

The study was limited by the growing insecurity in the circle of Kita. Thus, the study took place only in town. In addition, the data collected was largely based on the declarations of the women surveyed, a situation that could lead to observation bias despite the efforts of the investigators to minimise this source of error.

The methodological approach was based on a literature search, a questionnaire survey on a sample of 281 [WRA] and a bivariate analysis.

The study revealed that contraceptive prevalence in the city of Kita is relatively higher (19.6%) than the national average (16%). Socio-demographic characteristics such as age, number of living children, level of knowledge about contraceptives, attitude towards [FP] and identity of the person in charge of all care in the household are associated with current contraceptive use by [WRA]. Similarly, education level is statistically significantly related to current contraceptive use by [WRA]. In contrast, marital status and access to information about [FP] are not associated with current contraceptive use by [WRA].

These results confirm our working hypothesis: "Socio-demographic and economic characteristics are variously and significantly associated with current use

of modern contraception by [WRA] in Kita. These associated characteristics are one of the key indicators of the degree of success of any family planning program. Their determination is an essential step for the implementation of [FP] programs in the city of Kita. In perspective, this research on the determinants of current modern contraceptive use must be supported by a qualitative study.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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