

# Determinants of contraceptive use in Abidjan (Côte d'Ivoire)

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## Abstract

In Côte d'Ivoire, contraceptive prevalence is low (21%). The search for determinants of contraceptive use could make it possible to redirect existing strategies. The objective is to identify the determinants of the use of contraception among women in Abidjan. A cross-sectional survey was conducted from May to June 2018 in the Dallas neighborhood of Adjamé municipal (Abidjan). Women of reproductive age (15 to 49 years old) were selected there. Sociodemographic, gynecological characteristics, educational level, attitudes and practices of women on contraception were collected. Univariate and multivariate analyses were performed. A total of 301 women aged 29.34±8.98 years were selected. The proportion of women using modern contraception was 27.24%. In univariate analysis, the factors associated with use were: level of education ( $p=0.005$ ), unwanted pregnancies ( $p=0.017$ ), abortions ( $p<0.001$ ), consultation of the gynecologist ( $p=0.003$ ) or a family planning service ( $p=0.001$ ). Hearing about contraception ( $p=0.043$ ), knowing ( $p<0.001$ ) and talking about it with their partner ( $p=0.027$ ) was significantly associated with its use. In the multivariate analyses, the women who consulted a gynecologist and those who knew the contraceptive methods used them respectively 2 times more (OR= 2.16 [1.14-4.15],  $p=0.019$ ) and 22 times more (OR= 22.38 [8.42-78.56],  $p<0.001$ ). Women with primary school education used them significantly less (OR= 0.15 [0.05-0.41],  $p<0.001$ ). Awareness, the gynecologist's consultation, and the level of education were the main determinants of contraceptive use. Also, it is necessary to adapt awareness messages to the characteristics of women.

## Introduction

Family planning enables populations to have the desired number of children and determine births spacing. It consists in using contraceptive methods in order to avoid unwanted pregnancies and closely spaced births.<sup>1</sup> It is one of the essential components of primary health care and reproductive health, which makes it possible to improve the health of the mother, newborn baby and child, by reducing maternal, neonatal and infant morbidity and mortality.<sup>2</sup>

In Africa, South of the Sahara, the use of contraception remains low.<sup>3</sup> In order to explain this low contraceptive use, the majority of the studies carried out have described the factors associated with the use of modern contraception in urban areas.<sup>4-6</sup>

Côte d'Ivoire is not left out, with still low national contraceptive prevalence, estimated at 20% in 2012 and 21% in 2017.<sup>7,8</sup> The maternal mortality ratio was very high, estimated at 614 deaths per 100,000 live births in 2011. The Dallas neighborhood belongs to the health district of Adjamé-Attécoubé-Plateau, where there is very little data on contraceptive uses like the national level. The objective of this study was to identify the determinants of contraceptive use in Dallas neighborhood of the Adjamé municipal.

## Materials and methods

### Study design and setting

This was a descriptive and analytical cross-sectional survey that took place from May 5 to June 4, 2018, in the Dallas neighborhood of the municipality of Adjamé. In 2014, the population residing in this municipal was estimated at 372,978 inhabitants.<sup>9</sup>

The Dallas neighborhood, one of the 19 neighborhoods of the municipality of Adjamé is located in the center of the city of Abidjan. This neighborhood constitutes the experimental field of the National Institute of Public Health (INSP) of Abidjan.

### Participants and sampling

The study population consisted of women of reproductive age, aged 15 to 49, residing for more than six months in the neighborhood and having agreed to participate in the study. Adolescent girls whose legal guardians agreed to participate were also included in the study. Pregnant women were not involved.

The sample size was determined by the Schwartz formula. The national contraceptive prevalence was estimated at 21%.<sup>7</sup> The

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Key words: Determinants; use; contraception; women of reproductive age; Côte d'Ivoire.

Acknowledgments: The authors' sincere thanks go to those in charge as well as to the entire population of the Dallas neighborhood of Adjamé municipal for their availability.

Contributions: MC designed, supervised the study and wrote the first version of the manuscript; JK analyzed the data from the study; FK, MDKM, and AH collected the data; JSK and OAT validated the final version of the manuscript.

Conflict of interest: The authors declare no conflict of interest.

Availability of data and materials: All data generated or analyzed during this study are included in this published article.

Ethics approval and consent to participate: The research protocol was validated by the scientific committee of the Faculty of Medical Sciences of Abidjan. The authorization of the community leader (the head of the neighborhood) was obtained as well as the oral and informed consent of the women. The data collected respected confidentiality.

Informed consent: The manuscript does not contain any individual person's data in any form.

Received for publication: 13 April 2022.

Accepted for publication: 3 July 2022.

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Journal of Public Health in Africa 2022; 13:2204  
doi:10.4081/jphia.2022.2204

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number of women to be included in the study after calculation was 255. Taking into account a non-response rate of 10%, the number of women to be included was 281.

We rounded it up to 301. Participants were selected using a two-stage sampling. The first stage concerned households. The second stage concerned the choice of women of reproductive age. The Dallas neighborhood is divided into 36 blocks. In each block, we randomly selected 8 households, except in 13 blocks where we chose 9 households in order to reach the calculated sample size. Only households with the presence of at least one woman of reproductive age were retained. If in a household there was more than one woman of eligible reproductive age, a random draw was made to retain only one.

### Collection of data

It was carried out using a pre-tested questionnaire completed by three interviewers. The survey was carried out using the door-to-door strategy.

The data collected focused on: i) Socio-demographic characteristics: age, marital status, occupation and level of education; ii) Gyneco-obstetrical characteristics: gestation, parity, number of unwanted pregnancies, number of abortions, number of deceased children, gynecologist consultations, and consultation at a family planning service; iii) Awareness of contraceptive methods. It was evaluated in two stages. The first consisted in letting the interviewees spontaneously cite the methods they knew. Then for the second stage, the interviewers described to the respondents the contraceptive methods not mentioned in the first stage to ensure that they are aware of them or not. Women should recognize the methods they have heard of or used. The elements sought were: hearing about contraceptive methods and knowledge of a contraceptive method. Thus, we had defined that a woman who is aware of a contraceptive method was the one who could cite it spontaneously or recognize it after description by the interviewer.

*Attitude:* it referred to the fact of talking about contraceptive methods with one's partner;

*The contraception practice:* it was about the use of contraception, as well as the type of contraceptive methods used.

### Data analysis

Data were entered using EpiData 3.1 software and analyzed using Rstudio 1.1.447 software. Each variable was subjected to a descriptive analysis. The search for factors associated with the use of contraceptive methods was done in two stages. First, the associations between the use of contraceptive methods and the variables studied were explored using the  $\chi^2$  test (or, where applicable, Fisher's exact test) in uni-

variate analyses. A value of  $p < 0.05$  was considered indicative of a statistically significant association. Then, for the multivariate analyses, we included in the model all the variables that had a p-value lower than 20% in univariate. The top-down step-by-step selection procedure was used to eliminate the variables that provided the least information to the model until obtaining the final model consisting only of significant variables ( $p$ -values  $< 5\%$ ).

### Ethical considerations

The research protocol was validated by the scientific committee of the Faculty of Medical Sciences of Abidjan. The authorization of the community leader (the head of the neighborhood) was obtained as well as the oral and informed consent of the women. The data collected respected confidentiality.

## Results

### Sociodemographic and gynecological-obstetrical characteristics

The sample was composed of 301 women whose average age was  $29.34 \pm 8.98$  years. About one in two women lived with a partner. More than a third of them had a general secondary school education level. More than 80% of them had not had an unwanted pregnancy and an abortion. About six out of ten women consulted a gynecologist or a family planning service (Table 1).

### Awareness, attitudes and practice of contraceptive methods

At least one in two women had heard of contraceptive methods, knew about them and had discussed them with their partner. Contraceptive prevalence was 27.24%. The pill was the most used contraceptive method followed by the condom (Table 2).

### Factors associated with contraceptive use

In univariate analysis, the socio-demographic characteristics significantly associated with the use of contraceptive methods were: occupation ( $p=0.030$ ) and level of education of women ( $p=0.005$ ). Among the gynecological-obstetrical characteristics those significantly associated with contraception were: the number of unwanted pregnancies ( $p=0.012$ ), the number of abortions ( $p < 0.001$ ), consultation with the gynecologist ( $p=0.02$ ) and that of the family planning service ( $p=0.001$ ). Hearing about contraceptive methods ( $p=0.039$ ), knowing about them ( $p < 0.001$ ) and talking about

them with spouse ( $p=0.020$ ) were significantly associated with their use (Table 1).

After adjusting for the covariates, compared to those at the higher level, women having a primary school education level used significantly fewer contraceptives ( $OR= 0.15 [0.05-0.41]$ ,  $p < 0.001$ ). Women who had undergone at least one abortion used three times more contraceptive methods ( $OR= 3.73 [1.72-8.40]$ ,  $p=0.001$ ). Those who had no deceased children used them five times more ( $OR= 5.03 [1.79-16.98]$ ,  $p=0.004$ ). The women who consulted the gynecologist and those who knew the contraceptive methods used them respectively five times more ( $OR= 2.16 [1.14-4.15]$ ,  $p=0.019$ ) and twenty-two times more ( $OR= 22.38 [8.42-78.56]$ ,  $p < 0.001$ ).

The results of the multivariate analyses are described in Table 3.

## Discussion

Contraception appears to be a preferred option, given the high rates of maternal mortality. However, contraceptive methods are very little used (15.1%).<sup>3</sup> The study carried out in the Dallas neighborhood has highlighted the explanatory factors for the low use of contraceptive methods in urban areas.

Contraceptive prevalence was low in our study (27.24%). This rate is similar to that obtained by Sepou in the Central African Republic (30.4%) but lower than that of Leye in Senegal (19%).<sup>10,11</sup>

Women mainly used pills (65.85%). These results are explained by the fact that the pill is the most disclosed method in Côte d'Ivoire. Leye in Mauritania also noticed that pills were the most used (52.5%). However, in Senegal and the Central African Republic, injectable methods were most commonly used.<sup>6,10,12</sup>

Age had no significant influence on the use of contraceptive methods. This is different from the results obtained by Atanasso where older women used more contraceptive methods than those under the age of 25.<sup>13</sup> Occupation and level of education of the woman were significantly associated with the use of contraceptive methods. Many authors have shown that women with a higher education level or decision-making power or having an income-generating activity were more likely to use contraceptive methods.<sup>14-17</sup>

The number of unwanted pregnancies, the number of abortions, gynecological consultations and visiting family planning service were significantly associated with the use of contraception. This is because these behaviors bring women closer to health

Table 1. Description of the sample and univariate analysis of the factors associated with the use of contraception.

|   | N   | n (%)     | OR (95% CI, p)              |
|---|-----|-----------|-----------------------------|
| <b>Sociodemographic characteristics</b>                         |     |           |                             |
| Age (Yrs)   |     |           |                             |
| 15-19   | 65  | 12 (18.5) | 0.56 (0.22-1.37, p=0.202)   |
| 20-24   | 28  | 9 (32.1)  | 1.17 (0.41-3.23, p=0.768)   |
| 25-29   | 64  | 23 (35.9) | 1.38 (0.61-3.20, p=0.442)   |
| 30-34   | 46  | 15 (32.6) | 1.19 (0.49-2.94, p=0.701)   |
| 35-39   | 53  | 10 (18.9) | 0.57 (0.22-1.46, p=0.246)   |
| 40+   | 45  | 13 (28.9) | Réf                         |
| Marital status  |     |           |                             |
| Couple  | 139 | 39 (28.1) | Réf                         |
| ingle   | 162 | 43 (26.5) | 0.93 (0.56-1.54, p=0.769)   |
| Occupation  |     |           |                             |
| Trading-hairdressing-sewing                                     | 181 | 43 (23.8) | 0.28 (0.10-0.74, p=0.009)   |
| Pupil-student   | 79  | 25 (31.6) | 0.42 (0.15-1.16, p=0.091)   |
| Civil Servant   | 19  | 10 (52.6) | Réf                         |
| Housewife   | 22  | 4 (18.2)  | 0.20 (0.04-0.77, p=0.025)   |
| Educational level   |     |           |                             |
| Not educated  | 51  | 13 (25.5) | 0.42 (0.18-0.98, p=0.048)   |
| Primary school  | 68  | 10 (14.7) | 0.21 (0.09-0.51, p=0.001)   |
| Secondary school  | 135 | 38 (28.1) | 0.49 (0.24-0.97, p=0.039)   |
| Higher education  | 47  | 21 (44.7) | Réf                         |
| <b>Gyneco-obstetric characteristics</b>                         |     |           |                             |
| Gesture   |     |           |                             |
| Multigest   | 64  | 20 (31.2) | Réf                         |
| Nulligest   | 85  | 18 (21.2) | 0.59 (0.28-1.24, p=0.165)   |
| Paucigest   | 101 | 33 (32.7) | 1.07 (0.55-2.11, p=0.849)   |
| Primigest   | 51  | 11 (21.6) | 0.61 (0.25-1.40, p=0.247)   |
| Parity  |     |           |                             |
| Multiparous   | 36  | 11 (30.6) | Réf                         |
| Nulliparous   | 105 | 27 (25.7) | 0.79 (0.35-1.86, p=0.573)   |
| Pauciparous   | 99  | 27 (27.3) | 0.85 (0.37-2.02, p=0.708)   |
| Primiparous   | 61  | 17 (27.9) | 0.88 (0.36-2.21, p=0.778)   |
| Number of unwanted pregnancies                                  |     |           |                             |
| At least one  | 41  | 18 (43.9) | Réf                         |
| None  | 260 | 64 (24.6) | 0.42 (0.21-0.83, p=0.012)   |
| Number of abortions   |     |           |                             |
| At least one  | 53  | 26 (49.1) | 3.30 (1.78-6.13, p<0.001)   |
| None  | 248 | 56 (22.6) | Réf                         |
| Number of deceased children                                     |     |           |                             |
| At least one  | 36  | 5 (13.9)  | Réf                         |
| None  | 265 | 77 (29.1) | 2.54 (1.03-7.65, p=0.063)   |
| Gynecologist consultation                                       |     |           |                             |
| No  | 183 | 38 (20.8) | Réf                         |
| Yes   | 118 | 44 (37.3) | 2.27 (1.36-3.82, p=0.002)   |
| Consultation at a family planning service                       |     |           |                             |
| No  | 198 | 41 (20.7) | Réf                         |
| Yes   | 103 | 41 (39.8) | 2.53 (1.50-4.29, p=0.001)   |
| <b>Knowledge and attitudes concerning contraceptive methods</b> |     |           |                             |
| Hear about contraception  |     |           |                             |
| No  | 25  | 2 (8.0)   | Réf                         |
| Yes   | 276 | 80 (29.0) | 4.69 (1.35-29.68, p=0.039)  |
| Knowledge of contraceptive methods                              |     |           |                             |
| No  | 111 | 4 (3.6)   | Réf                         |
| Yes   | 190 | 78 (41.1) | 18.63 (7.42-62.61, p<0.001) |
| Talking about contraception with the partner                    |     |           |                             |
| No  | 132 | 27 (20.5) | Réf                         |
| Yes   | 169 | 55 (32.5) | 1.88 (1.11-3.23, p=0.020)   |

**Table 2. Contraceptive practices.**

|                                    | N.  | %     |
|------------------------------------|-----|-------|
| Use of contraceptive methods       |     |       |
| No                                 | 219 | 72.76 |
| Yes                                | 82  | 27.24 |
| Contraceptive methods used* (N=82) |     |       |
| Pills                              | 54  | 65.85 |
| Condoms                            | 13  | 15.85 |
| Injectable contraceptives          | 9   | 10.98 |
| Natural methods                    | 6   | 7.32  |
| Implants                           | 3   | 3.66  |
| Traditional methods                | 3   | 3.66  |

\*Some women used more than one contraceptive method.

**Table 3. Multivariate analyzes of factors associated with the use of contraceptive methods.**

|   | n (%)     | OR Gross (IC95%, p)         | OR adjusted (IC 95%, p)     |
|---|-----------|-----------------------------|-----------------------------|
| <b>Sociodemographic characteristics</b> |           |                             |                             |
| Level of education                      |           |                             |                             |
| Not educated                            | 13 (25.5) | 0.42 (0.18-0.98, p=0.048)   | 0.53 (0.18-1.54, p=0.249)   |
| Primary school                          | 10 (14.7) | 0.21 (0.09-0.51, p=0.001)   | 0.15 (0.05-0.41, p<0.001)   |
| Secondary school                        | 38 (28.1) | 0.49 (0.24-0.97, p=0.039)   | 0.54 (0.23-1.26, p=0.160)   |
| Higher education                        | 21 (44.7) | Réf                         | Réf                         |
| <b>Gyneco-obstetric characteristics</b> |           |                             |                             |
| Number of abortion                      |           |                             |                             |
| At least one                            | 26 (49.1) | 3.30 (1.78-6.13, p<0.001)   | 3.73 (1.72-8.40, p=0.001)   |
| None                                    | 56 (22.6) | Réf                         | Réf                         |
| Number of deceased children             |           |                             |                             |
| At least one                            | 5 (13.9)  | Réf                         | Réf                         |
| None                                    | 77 (29.1) | 2.54 (1.03-7.65, p=0.063)   | 5.03 (1.79-16.98, p=0.004)  |
| Gynecologist consultation               |           |                             |                             |
| No                                      | 38 (20.8) | Réf                         | Réf                         |
| Yes                                     | 44 (37.3) | 2.27 (1.36-3.82, p=0.002)   | 2.16 (1.14-4.15, p=0.019)   |
| Knowledge of contraceptive methods      |           |                             |                             |
| No                                      | 4 (3.6)   | Réf                         | Réf                         |
| Yes                                     | 78 (41.1) | 18.63 (7.42-62.61, p<0.001) | 22.38 (8.42-78.56, p<0.001) |

services that allow them to become familiar with contraceptive products.

Hearing about and knowing about contraceptive methods are significantly associated with their use. Indeed, these women were more inclined to use them. Sépou and Leye obtained similar results.<sup>6,10</sup>

Women who discussed contraception with their partner used it more. Many authors have shown that women who discussed family planning with their husbands were more likely to adhere to contraception, because most of the decisions in the couple belong to the husbands.<sup>15,18-21</sup>

After the logistic regression, the level of education emerged as a determinant of the use of contraception. This could be justified by the fact that the level of education could allow a better understanding of the awareness messages on contraception. Ndiaye indicated this in his study where education was a factor of constant information for all

modern methods.<sup>15,22</sup>

In Kenya, for example, the use of contraception increased with the level of education (23% for those with no schooling, 35% for those who had been to primary school and 57% for university students.<sup>23</sup>

Women who had had at least one abortion used contraceptive methods three times more and those who had no deceased children used them five times more. This could be explained by having an abortion experience. Women who consulted a gynecologist and those who knew about contraceptive methods used them more. This means that attendance at gynecology services and above all knowledge of contraceptive methods are determining factors for their use.

### Limits

This is a study that has limitations since it was restricted to a single neighborhood.

This is explained by the fact that this neighborhood is the experimental field of the National Institute of Public Health which is located just by the opposite. Therefore, these results cannot be generalized to the general population.

### Conclusions

Level of education, a gynecologist consultation and knowledge of contraceptive methods were the main determinants of the use of contraception. These results should reorient strategies in education and especially family planning. The aim was to promote the education of girls and increase awareness on the use of contraception while involving men and communities. This will increase contraceptive prevalence in the Dallas neighborhood of Adjamé.



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