Esc Anna Nery 2014;18(3):441-447



# Contraception: knowledge and practice among women with *Diabetes Mellitus*

## *Conhecimento e prática anticoncepcional de mulheres portadoras de Diabetes Mellitus*

## *Conocimiento y práctica de anticoncepción en mujeres portadoras de Diabetes Mellitus*

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## Abstract

**Objective:** The objective was to identify diabetic women's knowledge about contraceptive methods, indicating the presence of this pathology, and to verify the suitability of contraceptive practice in the group researched. **Methods:** Cross-sectional, exploratory research, in which 106 sexually-active diabetic women of reproductive age participated. Data were collected from March to July 2009 in a specialized center for diabetes care, through interviews. The Medical Eligibility Criteria for Contraceptive Use were adopted as the theoretical framework. **Results:** Of the participants, 75 (70.8% CI 95% 61.1 to 79.2%) had missing knowledge about contraceptive methods appropriate to diabetes; of the 104 (98.1%) who used a method, 58 (55.8%) did so in line with the eligibility criteria, but 12 (11.6%) women used methods risking their health. **Conclusion:** It was concluded that the group studied has significant gaps in contraception knowledge and practice, making them vulnerable to high-risk pregnancies.

**Keywords:** Contraception; *Diabetes Mellitus*; Knowledge; Women.

## Resumo

**Objetivo:** Objetivou-se identificar o conhecimento de mulheres portadoras de diabetes sobre métodos anticoncepcionais com indicação na presença dessa patologia e verificar a adequabilidade da prática anticoncepcional do grupo pesquisado. **Métodos:** Pesquisa transversal, exploratória, na qual participaram 106 mulheres portadoras de diabetes, sexualmente ativas, em idade reprodutiva. Os dados foram coletados de março a julho de 2009, em centro especializado para atendimento em diabetes, por meio de entrevista. Os Critérios Médicos de Elegibilidade para uso de Métodos Anticoncepcionais foram adotados como referencial teórico. **Resultados:** Das participantes, 75 (70,8% IC95% 61,1-79,2) apresentaram conhecimento ausente sobre os métodos anticoncepcionais apropriados ao diabetes; das 104 (98,1%) que utilizavam método, 58 (55,8%) faziam, conforme os critérios de elegibilidade, porém 12 (11,6%) mulheres usavam métodos sob riscos à saúde. **Conclusão:** Concluiu-se haver lacunas significativas no conhecimento e na prática anticoncepcional do grupo pesquisado, o que as torna vulneráveis a gestações de risco.

**Palavras-chave:** Anticoncepção; *Diabetes Mellitus*; Conhecimento; Mulheres.

## Resumen

**Objetivo:** Identificar el conocimiento de las mujeres con diabetes sobre los métodos anticonceptivos y comprobar la adecuación de la práctica anticonceptiva del grupo de investigación. **Métodos:** Transversal, exploratorio, al que asistieron 106 mujeres con diabetes. Los datos fueron recolectados entre marzo y julio de 2009 en un centro especializado para el cuidado de la diabetes, por medio de entrevistas. Los criterios médicos de elegibilidad para el uso de anticonceptivos fueron adoptados como marco teórico. **Resultados:** De los participantes, 75 (70,8% IC95% 61,1-79,2) no tenían conocimientos sobre los métodos anticonceptivos adecuados; de las 104 (98,1%) que utilizaron el método, 58 (55,8%) utilizaban los criterios de elegibilidad; pero 12 (11,6%) practicaban métodos de riesgos para la salud. **Conclusión:** Existen importantes lagunas en el conocimiento y la práctica del grupo de investigación de anticonceptivos, lo que los hace vulnerables a los embarazos de alto riesgo.

**Palabras-clave:** Anticoncepción; *Diabetes Mellitus*; Conocimiento; Mujeres.

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Submitted on 02/25/2013.
Resubmitted on 12/09/2013.
Accepted on 03/17/2014.

DOI: 10.5935/1414-8145.20140063

## INTRODUCTION

Contraceptive care presupposes the offering of Methods of Contraception (MOC) and knowledge about its indications, contraindications and implications of use on the part of the service providers, ensuring the service users the necessary elements for a free and informed choice of MOC which is best suited to the needs of the individuals and/or of the couple[1].

When it is women with *Diabetes Mellitus* (DM) who need contraception, the service providers must be prepared to deal with this group's specific characteristics, as DM is a reproductive risk factor. Hence, women with this pathology are recommended to use MOC which are highly efficacious and suited to their clinical condition, as certain MOC may be contraindicated for this illness and/or the drug treatment for DM[2].

The most efficacious MOC are vasectomy, tubal ligation, Lactational Amenorrhea Method (LAM), hormonal methods (oral and injectable) and the Intrauterine Device (IUD), their failure rates varying from 0.1 to 0.6 pregnancies for every 1000 women using them appropriately and consistently over the first year (six months for LAM)[3].

Vasectomy and tubal ligation are difficult to reverse, LAM can only be used in the postpartum period, and there is a low access to IUDs in different regions of Brazil, including areas of the Brazilian Northeast, such as in the city of Fortaleza, Ceará. The hormonal systems, although reversible and more accessible, raise the risk of drug interaction with the antidiabetic drugs, and may reduce the efficacy of these or have their own efficacy reduced, depending on the drug used in the treatment for the DM[4].

The hormonal systems, in particular the oral system, can reduce the effect of the oral hypoglycemic agents, antihypoglycemic agents, or insulin, or have their efficacy reduced by some sulfonylureas. The oral hypoglycemic agents (metformin, sulfonylureas, meglitinides and thiazolidinediones (TZDs), when used in association with the oral hormones may have their therapeutic effects reduced, and, as a consequence, cause situations of hyperglycemia. The class of the antihypoglicemic agents is a new generation of antidiabetic drugs; their main agents are ascarbose, miglitol and glucagon. Of these, only glucagon does not have its effect reduced by the oral contraceptives; insulin can cause hyperglycemia in those with DM and the sulfonylureas reduce the effect of the hormones, exposing the woman to an unplanned pregnancy[4].

Contraindications for the hormonal MOCs may be associated with the duration of the pathology (>20 years), being aged over 35 years old, smoking (>15 cigarettes/day), hypertension, obesity and complications in target organs (eyes, kidneys or nerves). When the woman presents one or more of these cardiovascular risk factors, the use of combined hormonal contraceptives (oral or injectable) and progestogen-only injectable hormonal contraception (three-monthly) potentializes them[2].

In terms of these repercussions which DM can entail for pregnancy, and the limitations regarding the MOC which can be used, the number of cases of the disease is increasing worldwide, being expected to reach more than 26.4 million in 2030[5], demonstrating the growing prevalence of this health problem, which corresponds to a number of women who need contraceptive care. In Brazil, the prevalence among individuals aged over 30 years old is 7.6%, varying from 5.2 to 9.7% in the different regions of the country[6]. In the Ceará, between January 2002 and August 2007, 4865 diabetic women of fertile age - 15 to 49 years old - were registered in the Unified Health System (SUS)[7].

In the light of the above, unplanned pregnancy among diabetic women is identified as a problem for investigation, regarding which it may be asked: What is diabetic women's knowledge and practice regarding contraception? In this context, the following were defined as objectives: to identify the knowledge of diabetic women regarding MOC indicated for patients with this pathology, and to ascertain the appropriacy of the contraceptive practice of the group studied.

The research's relevancy lies in offering support for health professionals and health managers for assisting this clientele well in this area of care, assessing the suitability of the MOC for diabetic women, with the aim of reducing their exposure to unplanned pregnancies.

## METHODOLOGICAL THEORETICAL FRAMEWORK

The "Medical Eligibility Criteria for Contraceptive Use" is a document produced by the World Health Organization (WHO) offering technical advice for the indication and contraindication of the use of the methods.

The document presents a list of conditions of the service users which establish the appropriacy or restriction of the use of different MOC, through clinical reasoning, summarized in four categories: conditions for which there are no restrictions regarding the use of MOC (category 1); conditions in which the advantages of using the method generally outweigh the theoretical or proven risks (category 2); conditions in which the theoretical or proven risks generally outweigh the advantages of using the method (category three); and conditions which represent an unacceptable health risk, should the method be used (category four). For tubal ligation there is a different classification, in which the categories are care (C) and special (S). In the "care" category, the method is normally provided in a health center with the preparations and general precautions; in the special category, the procedure must be undertaken in a service with experienced surgeons and assistants, and the equipment necessary for administering general anesthesia and other means of medical support[2].

Table 1 presents the MOC by the conditions to be assessed in the service users, according to the Eligibility Criteria regarding women with diabetes, with the respective categories which guide the indication or not of the MOC.

## METHODS

This is cross-sectional, exploratory research undertaken in the Integrated Center for Hypertension and Diabetes (CIHD), belonging to the Health System of Fortaleza (CE), Brazil. The

**Table 1.** Distribution of contraceptive methods by Medical Eligibility Criteria for the use of diabetic women and respective Categories

| Contraceptive Methods | Conditions to be evaluated in women with *Diabetes Mellitus* | | | |
|---|---|---|---|---|
| | Duration of the DM ≤ 20 years | | Duration of the DM > 20 years | |
| | No risk factors | Presence of one or more risk factors | Absence of complications in target organs | Presence of complications in target organs |
| | Eligibility categories of the contraceptive methods | | | |
| Combined Oral Contraception (COC) | 2 | 3 and 4 | 3 and 4 | 3 and 4 |
| Combined Injectable Contraception (CIC) | 2 | 3 and 4 | 3 and 4 | 3 and 4 |
| Progestogen-only Pill (POP) | 2 | 2 | 2 | 2 |
| Progestogen-only Injectable Contraception (POIC) | 2 | 3 | 3 | 3 |
| Copper Intrauterine Device (Cu-IUD) | 1 | 1 | 1 | 1 |
| Levonorgestrel Intrauterine Device (Lng-IUD) | 2 | 2 | 2 | 2 |
| Male condom | 1 | 1 | 1 | 1 |
| Female condom | 1 | 1 | 1 | 1 |
| Spermicide (S) | 1 | 1 | 1 | 1 |
| Diaphragm (D) | 1 | 1 | 1 | 1 |
| Cervical mucus | 1 | 1 | 1 | 1 |
| Calendar-based table | 1 | 1 | 1 | 1 |
| Coitus Interruptus (CI) | 1 | 1 | 1 | 1 |
| Basal body temperature | 1 | 1 | 1 | 1 |
| Contraceptive patch | 1 | 1 | 1 | 1 |
| Lactational amenorrhea (LAM) | 1 | 1 | 1 | 1 |
| Tubal ligation (TL) | C | S | S | S |

C: Care; S: Special. Source: World Health Organization (2009).

population was made up of women with type 1 or type 2 DM, of reproductive age (18 to 49 years old), and who were sexually active. The minimum age of 18 years old was adopted as this represents the age of majority; the maximum age of 49 years old was selected as this represents the extreme of reproductive age for women. For the purposes of this study, women were considered sexually active if they confirmed that they had sexual relations at least once a month, an essential condition for becoming pregnant.

The sample (n = 106) was defined based on the population of 4865 women of fertile age, with diabetes, registered on the Fortaleza Primary Care Information System, in 2008. The confidence coefficient was set at 95%, the sampling error at 5%, and the prevalence of the phenomenon (P) at 7.6%, taken based on the phenomenon's prevalence in the general Brazilian population[6]. Women were excluded if they had undergone tubal ligation, hysterectomy or ooforectomy, or if their partners had had vasectomies, as in these cases the occurrence of pregnancy is practically non-existent.

The data were collected between March and July 2009 using semi-structured interviews, the data being recorded by the researcher in a form designed for this study, during the interview. The form contained questions relating to the DM (classification of the DM, the treatment being used, and glycemic and blood pressure levels, Body Mass Index (BMI), the duration of the DM, and the presence of risk factors and of complications in target organs); socio-educational aspects of the participants (age, education, marital status) and conditions related to contraceptive practice (method being used, conditions to be assessed for safe indication of MOC, appropriacy of the MOC being used, and the source of support for choice/indication of the MOC).

The capillary glycemia (fasting or random) was checked, in line with the recommendations of the Brazilian Diabetes Society[8]. The glucometer and the test strips were from the Prestige IQ® brand, with the test strips being code 21, lot IBR887A2 and valid until 30/09/2009. The results obtained were analyzed according to the Ministry of Health's classification[8]. Blood pressure was checked with a calibrated aneroid sphygmomanometer, of the *Premium*® brand, and a binaural stethoscope, with diaphragm and bell for listening to the sounds, of the BIC® brand. The classification of the pressure levels followed the recommendations of the V Brazilian Guidelines for Arterial Hypertension[6]. The participants' weight and height were verified using an anthropometric scale of the Welmy®

brand, with a maximum load of 200 kg and with a certificate from the National Institute of Metrology, Standardization and Industrial Quality (INMETRO®). The same scale was used for all the interviewees. The weight and height were used in calculating the Body Mass Index (BMI), dividing the weight in kilos by the height squared in meters, and this was analyzed in line with classifications, that is, Underweight (BMI < 18.5); Normal (BMI between 18.5-4.9); Overweight (BMI between 25-29.9); Obese class I (BMI between 30-34.9); Obese class II (BMI between 35-39.9); and Obese class III (BMI ≥ 40), recommended by the Ministry of Health[9].

In order to evaluate the women's knowledge regarding the MOC recommended in the presence of DM, the authors prepared a Likert-type scale, whose parameters (no knowledge, and limited, moderate, substantial and extensive knowledge) were based in the Nursing Outcomes Classification (NOC)[10].

The evaluation criteria of the scale were: the participant to know all the MOC which may be used freely (Lactational Amernorrhea (LAM), Intrauterine Devices (IUD), tubal ligation (TL), male and female condoms); to recognize all the MOC with restrictions due to their low efficacy (cervical mucus, calendar-based table, basal temperature, coitus interruptus and contraceptive patch); to recognize all the methods limited by the risk of potentializing cardiovascular complications for the DM (combined oral contraceptive (COC), the progestogen-only pill (POP), the combined injectable contraceptive (CIC) and progestogen-only injectable contraception (POIC); to recognize all the methods limited by the risk of potentializing cardiovascular complications for DM associated with other risk factors (TL, diaphragm, spermicides, COC, POP, CIC and POIC).

In the event of the participant not being able to mention any of the criteria whatsoever, the level of knowledge was defined as none (level 1 of the scale); when she was correct regarding one of the criteria, knowledge was defined as limited (level 2); when she was correct regarding two, knowledge was defined as moderate (level 3); when she got three of the four requirements right, knowledge was defined as substantial (level 4); and when she was correct regarding all of the criteria, the participant had extensive knowledge (level 5).

The participants were selected through a review of the hospital records separated by the Medical and Statistical Archive Service (SAME) for daily assistance. Before the hospital records were sent to the clinics, one of the authors selected those whose patients were aged between 18 and 49 years old, and were diagnosed with type 1 or type 2 DM. The names of the patients and the respective professionals who would attend them were noted by the researcher, so as to allow the patient to be located later in the waiting rooms for the undertaking of the interview.

The data were processed using the Statistical Package for the Social Sciences (SPSS) version 18.0. Descriptive statistical analysis was undertaken, using absolute frequency, relative frequency, means ($\chi$) and standard deviation ($S$). The Confidence Intervals of 95% were estimated for the categorized data.

The project was approved by the Research Ethics Committee of the Federal University of Ceará, under protocol Nº 27/09. The recommendations of Resolution Nº 196/96 of the National Health Council were followed, which relate to research involving human beings[11]. The Terms of Free and Informed Consent (TFIC) were presented to the participants, containing information about the rationale for the study, its objectives, and the procedures which would be used in the research, using language the respondents would understand. Having accepted to freely participate in the research, these signed the TFIC.

With the aim of overcoming the utilitarian character of the study, when the interview finished, an explanatory pamphlet, elaborated by the researchers, containing information about contraceptive care for diabetic women, was handed to each participant and read through with her.

## RESULTS

### Participants' DM conditions and characterization

Of the 106 (100%) participants, 90 (84.9%) had type 1 DM, and 16 (15.1%) type 2 DM; 88 (83%) used insulin, 11 (10.4%) used oral hypoglycemic agents and 7 (6.6%) used both therapies. Glycemia was shown to be abnormal (>100 mg/dL) among 22 (55%) of the 40 (37.7%) participants who checked their fasting blood sugar and among 39 (59%) of the 66 (62.2%) who checked their random blood sugar (>140mg/dL).

The mean age was 25.6 ± 7.1 years old. Regarding marital status, 82 (77.4%) were in a stable relationship and 24 (22.6%) had casual partners. The educational level varied from junior high (not completed) to higher education (completed), with 31 (29.2%) having studied to junior high level, 66 (62.3%) senior high and 9 (8.5%) higher education. The highest percentage was that of women who had finished senior high school, that is, 52 (49.1%) of the group.

### Diabetic women's knowledge of the MOC indicated in the presence of the pathology

The profile of the diabetic women's knowledge of the MOC which may or may not be used, and the reasons for the indication or not of the MOC, are presented in Table 2.

Of the 106 (100%) women interviewed, 75 (70.8%) were classified as having no knowledge regarding the use of MOC in their condition as persons with DM; 28 (26.4%) had limited knowledge and three (2.8%) had moderate knowledge. With 95% confidence, the proportion of diabetic women who have limited knowledge is between 18.3% and 35.9%.

### Diabetic women's contraceptive practice

Table 3 shows the distribution of diabetic women regarding contraceptive practice. Of the 106 (100%) interviewees, 104 (98.1%) mentioned the use of some form of MOC, with the oral hormonal method and the male condom presenting the highest frequency of use. The majority use a method on their own, without receiving appropriate trained technical support.

### The eligibility criteria of the MOC for diabetic women

Table 4 presents the clinical eligibility criteria for the use of MOC presented by the participants in this study. These were:

**Table 2.** Distribution of the number of diabetic women by level of knowledge regarding contraceptive methods suited to the disease. Fortaleza, Ceará, March-July 2009

| Criteria for evaluation of the scale of knowledge (n = 106) | Nº | % | CI 95% |
|---|---|---|---|
| Recognizes all the MOC which may be used freely (LAM, IUD, LT, male and female condoms); | 4 | 3.8 | 1-9.4 |
| Recognizes all the MOC with restrictions due to their low efficacy (cervical mucus, calendar-based tables, basal temperature, CI and contraceptive patch); | 2 | 1.9 | 0.2-6.6 |
| Recognizes all the MOC limited by the risk of potentializing cardiovascular complications for the DM (COC, POP, CIC and POIC); | 28 | 26.4 | 18.3-35.9 |
| Recognizes all the MOC limited by the risk of potentializing cardiovascular complications for DM associated with other risk factors (TL, diaphragm, spermicides, COC, POP, CIC and POIC). | 0.0 | 0.0 | 0.0 |
| Participants' level of knowledge | | | |
| No knowledge | 75 | 70.8 | 61.1-79.2 |
| Limited knowledge | 28 | 26.4 | 18.3-35.9 |
| Moderate knowledge | 3 | 2.8 | 0.6-8.0 |
| Substantial knowledge | 0.0 | 0.0 | 0.0 |
| Extensive knowledge | 0.0 | 0.0 | 0.0 |

**Table 3.** Distribution of the number of diabetic women by contraceptive practice. Fortaleza, Ceará, March-July, 2009

| Variables | Nº | % |
|---|---|---|
| Current use of Method of Contraception (MOC) (n = 106) | | |
| Yes | 104 | 98.1 |
| No | 2 | 1.9 |
| Contraceptive method in use (n = 104)* | | |
| Male condom | 46 | 44.2 |
| Combined Oral Contraception (COC) | 36 | 34.6 |
| Combined Injectable Contraception (CIC) | 13 | 12.5 |
| Calendar-based table | 7 | 6.7 |
| Copper Intrauterine Device (Cu-IUD) | 5 | 4.8 |
| Coitus Interruptus (CI) | 5 | 4.8 |
| Emergency contraception (EC) | 3 | 2.9 |
| Conditions of Use of MOC (n = 104) | | |
| Use without professional input | 55 | 53 |
| Use with support from FP Service | 33 | 31.8 |
| Use with support from DM service | 9 | 8.6 |
| Both | 3 | 2.8 |
| Others | 4 | 3.8 |

* The sum of the frequencies was greater than the number of participants, as some participants used more than one MOC.

age, how long the person has had DM, BMI, the presence of hypertension and compromising of organs. Among the 16 (15%) women who mentioned compromising, the following stood out: in the eyes (9), in the kidneys (7), vasculopathy (3), paresthesias (1), neuropathies (1) and problems in the gall bladder (1). The sum of the frequencies was higher because the same woman can have more than one complication.

The appropriacy of the participants' contraceptive practice, in line with the categories of the framework adopted, gave rise to Table 5.

In accordance with the criteria used as a methodological framework in this research, of the 104 (100%) who use MOC, and, therefore, had the suitability of their method verified, 58 (55.8%) of the participants were indicated to continue using their MOC.

**Table 4.** Distribution of the number of diabetic women by eligibility criteria for contraceptive methods. Fortaleza, Ceará, March-July, 2009

| Eligibility criteria for MOC (n = 106) | Nº | % |
|---|---|---|
| Age (years) (25.6 ± 7.1) | | |
| 18 to 34 | 93 | 87.7 |
| 35 to 49 | 13 | 12.3 |
| Time since diagnosis with DM (in years) (11.3 ± 6.5) | | |
| 1 to 20 | 99 | 93.5 |
| Over 20 | 7 | 6.5 |
| Smoker (>15 cigarettes/day) | 2 | 1.9 |
| BMI at the time of the interview (verified by the interviewer) | | |
| Underweight (<18.5) | 5 | 4.8 |
| Normal (18.5-24.9) | 62 | 58.5 |
| Overweight (25-29.9) | 32 | 30.2 |
| Obese class I (30-34.9) | 6 | 5.6 |
| Obese class II (35-39.9) | 1 | 0.9 |
| Participants who mentioned having hypertension | 8 | 7.5 |
| Pressure levels at the time of the interview (verified by the interviewer) | | |
| Good (<120; <80) | 52 | 49.1 |
| Normal (<130; <85) | 44 | 41.5 |
| Borderline (130-139; 85-89) | 9 | 8.5 |
| Stage I Hypertension (140-159; 90-99) | 1 | 0.9 |
| Participants who mentioned compromising of target organs | 16 | 15.0 |

**Table 5.** Distribution of the number of diabetic women by the suitability of their contraceptive practice in the categories of the World Health Organization. Fortaleza, Ceará, March-July, 2009

| Categories of eligibility of MOC (n = 104) | Nº | % | CI 95% |
|---|---|---|---|
| 1. No restriction regarding use of MOC | 58 | 55.8 | 45.7-65.5 |
| 2. The advantages of using the MOC generally outweigh the theoretical or proven risks. | 34 | 32.7 | 23.8-42.6 |
| 3. The theoretical or proven risks generally outweigh the advantages of using the method. | 9 | 8.7 | 4-15.8 |
| 4. Unacceptable risk to health should the MOC be used. | 3 | 2.9 | 0.6-8.2 |

## DISCUSSION

Type I diabetes was prevalent among 90 (84.1%) participants. This result was high, compared to the percentage of type I Diabetes found in the general population, which is approximately 10% of the total of cases. However, the research included women aged between 18 and 49 years old, encompassing, therefore, the age range of adolescents and young people, in which type I Diabetes is more prevalent[12]. Another reason is the place of the study being a center of excellence for DM, thus bringing together more cases of type I DM.

This high percentage of participants with type I Diabetes explains the fact of 95 (89.9%) using insulin. A further 19 (17.8%) made use of oral hypoglycemic agents. The efficacy of the use of both insulin and oral hypoglycemic agents can be negatively affected by the use of hormonal contraceptives. In this regard, the glycemia of 61 (57.5%) participants was shown to be high. However, the absence of statistical tests among these variables constituted a limitation of the study.

Of the participants, 24 (22.6%) had casual relationships, a type of relationship in which the unpredictability of sexual relations is more common, a condition which, in general, increases vulnerability to unplanned pregnancy. Diabetic women must plan their pregnancies, so as to conceive under compensated metabolic and clinical maternal conditions[13].

The educational level of 32 (29.9%) participants, who had studied up to Junior High School level, requires specific attention on the part of the service providers, as it is expected that

understanding of the information on MOC and of the specific characteristics related to reproductive risks is facilitated by a higher educational level.

The participants' knowledge regarding the MOC indicated in the presence of DM was "none" for 75 (70.8%) (CI 95% 61.1-79.2%) participants. Only 3 (2.8%) (CI 95% 0.6-8.0%) had moderate knowledge and none presented substantial or extensive knowledge. This result confirms what authors reported as far back as 1995, when they observed that educational programs in diabetes spent little time addressing either the issue of selecting MOC which are more suited to diabetic women or the complications which make pregnancy in the presence of decompensated DM unadvisable[14]. Contraceptive care, therefore, must involve educational activities directed at clients with DM, with the objective of offering the information necessary for making an appropriate choice of MOC[1].

The use of MOC which are appropriate for diabetic women, without restrictions on their use (WHO category 1) corresponded to 58 (58.8%) participants, with CI 95% of 45.75 -65.5%, as relevant data, given that more than half of the women are not potentializing the risks to their health. Only 12 (11.6%) used MOC which could risk their health, requiring appropriate professional care and assistance to evaluate possible alterations, these being women who were using MOC at the risk of their health (WHO category 3 or 4).

The ideal would be for 100% of diabetic women to be in category 1. This gap may be caused by the use of MOC by the women without professional advice, as stated by 55 (52.9%) participants. Of the 45 (43.2%) participants who stated that they used MOC with professional guidance, 33 (31.7%) mentioned the source as the primary care family planning service, 9 (8.6%) mentioned the DM service, and 3 (2.8%) both the services. Therefore, the family planning service was the main promoter of this care for the groups studied, which is in accordance with the premise of the Pact for Life which defines this action as a primary care priority[15]. Family planning must be a basic action in primary care, offering information and clinical assistance sufficient for the choice and effective use of those forms of contraception which best suit the woman's current health conditions[16,17].

The study's limitations also relate to the lack of analysis between glycemic abnormality and the use of hormonal forms of contraception, and the fact that the participants' blood pressure was checked only on one occasion.

## CONCLUSION

The diabetic women's knowledge regarding MOC appropriate in the presence of this pathology presented significant shortcomings, an aspect which needs to be corrected by the family planning services through comprehensive educational strategies, adapted to this public's individual needs. As there were women using MOC which were not appropriate for their clinical condition (WHO categories 3 and 4), despite being monitored by service providers, emphasis is placed on the importance of training for these providers, related to the specific characteristics of contraception for diabetic women.

The use of MOC by diabetic women must be monitored by doctors and/or nurses. The percentage of participants using MOC without professional advice needs to be reduced, in particular because one is dealing here with a public with specific characteristics in contraceptive practice which, if not controlled, can result in high-risk pregnancies, as well as compromising of the woman's metabolic control and health.

It is suggested that a study be undertaken with regard to the knowledge of Family Health Strategy doctors and nurses in relation to contraceptive care for women with DM.

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