# Sociodemographic characteristics and pain assessment through the McGill questionnaire in women with primary dysmenorrhoea submitted to auriculotherapy

# Características sociodemográficas e avaliação da dor através do questionário de McGill em mulheres com dismenorreia primária submetidas à auriculoterapia

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**ABSTRACT | OBJECTIVE:** Dysmenorrhea is characterized as severe pain during menstruation or a few hours before, located in the lower abdomen or lower abdomen, it is pathology of primary or secondary origin, in which 40 to 45% of pain cases chronic pelvic, manifests as dysmenorrhea. **OBJECTIVE:** To investigate the sociodemographic characteristics of women who have primary dysmenorrhea, and to evaluate the influence of auriculotherapy for menstruation, measured before and after the McGill questionnaire method. **METHODS:** This is a clinical, randomized, controlled and double-blind study, with a longitudinal design, with a qualitative and quantitative approach, carried out with a population of 118 students. The sample size was calculated using a single average formula, where the sample size is required; marginal error of 5% (d = 0.05); z is the degree of precision required at 95% of the confidence level. Initially, as volunteers, they were submitted to a sociodemographic questionnaire, and then to McGill's questionnaire, which evaluated various aspects of pain, and applied it for 2 months and 3 weeks, twice a week, for 20 minutes. **RESULTS:** The average age of the participants in this research is 19.8 years, with a predominance of mixed race and with regular menstrual cycle, and 55% present pain two days before menstruation. After auriculotherapy applications and data from McGill's questionnaires, after the intervention of significant statistical values in the domain of sensitive, affective, assessed domains and diverse aspects. **CONCLUSION:** The present study used or the design in the sociodemographic aspects of the population that has primary desmenorrhea. And in relation to the influences of auriculotherapy on the characteristics of pain, the method presented is statistically significant.

**KEYWORDS:** Dysmenorrhea. Primary Dysmenorrhea. Acupuncture. Auriculotherapy.

**RESUMO | OBJETIVO:** A dismenorreia caracteriza-se como uma dor intensa durante a menstruação ou algumas horas antes, localizada na região de baixo ventre ou região inferior do abdômen, é uma patologia de origem primária ou secundária, em que 40 a 45% dos casos de dor pélvica crônica, se manifestam como dismenorreia. **OBJETIVO:** Investigar as características sociodemográficas de mulheres que possuem dismenorreia primaria, e avaliar as influências da auriculoterapia para a dor menstrual, mensurada antes e após o método por meio do questionário de McGill. **MÉTODOS:** Trata-se de estudo clínico, randomizado, controlado e duplo cego, de delineamento longitudinal, com abordagem quali-quantitativa, realizado por meio de uma população de 118 estudantes. O tamanho da amostra foi calculado usando uma única fórmula média onde n é o tamanho da amostra necessário; d é erro marginal de 5% ( d = 0,05); z é o grau de precisão requerido a 95% de nível de confiança. Inicialmente, as voluntárias foram submetidas a responderem o questionário sociodemografico, e após, ao questionário de McGill, que avalia vários aspectos da dor, e receberam aplicações durante 2 meses e 3 semanas, 2 vezes por semanas, por 20 minutos. **RESULTADOS:** A média de idade das participantes desta pesquisa é de 19,8 anos, com predominância na etnia parda e com ciclo menstrual regular, e 55% apresenta dor dois dias antes da menstruação. Depois das aplicações de auriculoterapia os dados dos questionários de McGill após intervenção apresentaram valores estatísticos significantes nos domínio de aspectos sensitivos, afetivos, domínios avaliativos e aspectos miscelâneos. **CONCLUSÃO:** O presente estudo obteve o delineamento nos aspectos sociodemograficos da população que possui dismenorreia primária. E em relação às influências da auriculoterapia sobre as características da dor, o método apresentou se estatisticamente significativo.

**PALAVRAS-CHAVE:** Dismenorreia. Dismenorreia primária. Acupuntura. Auriculoterapia.

## Introduction

Dysmenorrhea is characterized as severe pain during menstruation or a few hours before, located in the down front or in the lower abdomen, and it is a pathology of primary or secondary origin, in which 40% to 45% of cases of pelvic pain chronic (CPP) manifest as dysmenorrhea. Primary dysmenorrhea (PD) is defined as menstrual pain with the absence of organic lesions and its etiology is not fully defined, in the scientific community it is described that during menstrual flow there is a greater release of prostaglandins, which causes greater uterine contraction and pain. About 80% of nulliparous women have PD[1,2,5].

These are aggravating factors for PD: early menarche, low or high body mass, prolonged or aberrant menstrual flow, family history of dysmenorrhea, smoking, nutritional factors such as excessive caffeine intake. This gynecological condition is more prevalent in women reproductive age women[3,4], beginning in adolescence after the establishment of ovulatory cycles. The general prevalence among adolescents with PD is 60% to 90%, and decreases with increasing age[5,6,7].

Secondary dysmenorrhea (SD) is due to organic processes, which causes pelvic congestion or uterine spasm. Among these ones are endometriosis, leiomyoma, pelvic prolapse, genital malformation, cervical canal stenosis and other conditions. In SD, prostaglandins are also present, but the triggering factors for pain are anatomical, and the release of prostaglandins is linked to the basic symptoms[1,9,10].

The frequent symptoms that accompany dysmenorrhea are: low back pain, nausea, vomiting and diarrhea, which negatively result in quality of life and leads in the short term absence from school or work according to the level of severity7,8. Nowasdays, there are several treatments for dysmenorrhea, both by pharmacological means through the use of non-steroidal anti-inflammatory drugs (NSAIDs), and non-pharmacological ones[11].

The symptomatic treatment aims to remove or relieve pain. In the prophylaxis phase, surgical measures, alternative therapies, changes in lifestyle, such as do to physical activity practices and diet[1,11,12] may be adopted. Among non-pharmacological treatments, traditional Chinese medicine is a form of alternative method for various health-related problems, and within it, acupuncture has been shown to have positive therapeutic effects in several studies in PD[13].

Within acupuncture there is auriculotherapy that uses needles, seeds or crystals, and in which applications are made in specific points of the ear. The stimulation of these points transmits signals to the brain and specific organs modulating and harmonizing their physiological functions. The auricular pavilion has reflex zones, and it is called as a microsystem with the representation of all the organs and structures of the human body[14]. The objective of this study is to investigate the sociodemographic characteristics of women who have primary dysmenorrhea, and to evaluate the influences of auriculotherapy for menstrual pain, measured before and after the method using the McGill questionnaire.

## Methods

This study is a randomized, double-blind clinical trial, with a quantitative and qualitative approach, approved by the research ethics committee (CAAE: 80289517.0.0000.5602) through the Plataforma Brasil with the Approval: 2.423.373. This research was carried out in a higher education institution, from March to June 2018. Using a population of 168 female students from a higher education course, there was a simple random subtraction of 118 students (studied population).

The sample size was calculated using a single average formula, in which n is the required sample size; d is a marginal error of 5% (d = 0.05); z is the degree of precision required at a 95% confidence level. After the sample calculation, the population of origin was selected through the frequency list from the 2nd to the 8th period.

Through the frequency list, 168 attendants were counted. Right after the sample calculation was applied, in which the sampling with significance was 118 students. These were selected through simple random form, in which their numbers corresponding to the call list were placed in draws numbers in a black urn.

Then the selected participants signed the Free and Informed Consent Term (ICF), and answered the sociodemographic questionnaire (QS) that was designed by the authors of the research according to the characteristics of PD, according to the DP Guideline. The questionnaire was composed of 20 questions that addressed the following aspects: course; period; profession; ethnicity; how is the menstrual cycle (regular lasting from 27 to 32 days to start a new cycle or irregular with duration less than or greater than 27 to 32 days to start a new cycle); how many days did menstruation last; whether pain will appear two days before menstruation; after three days of menstruation, the pain disappears, diminished or continued; during menstruation these pains spread to other regions of the body; and if so, which ones.

The questionnaire also asks what symptoms she had during menstruation; if she had a family history of colic pain; she was using some form of contraception; when she was menstruating she missed work or college; exercised regularly; what exercises she was currently practicing; she used some drug treatment; she had a history of abdominal or pelvic surgery; she was doing some therapy; she had a medical history of pathologies such as endometriosis, fibroma or other pelvic pathology; she had a history of childbirth or abortion; besides menstruation she had some other disease that caused her pain; she was a smoker; she had a phobia of needles.

After the application of the sociodemographic questionnaire (QS), from 118 the researched women, remained those who had the following inclusion criteria: age between 18 to 25 years old with probable diagnosis of primary dysmenorrhea and regular menstrual cycle between 27 to 32 days, sedentary, non-smokers, non-practitioners of drug treatment or physiotherapeutic methods, who is studying between the 2nd and 8th periods of the higher education course chosen for the research.

Exclusion criteria were attributed to students with characteristics of secondary dysmenorrhea, physical illnesses that cause pain, pregnancy or birth history, using any psychotropic drug and hormonal contraception in the last six months, history of heart disease, participants with phobias of needles, and who did not complete the ICF and the sociodemographic questionnaire in full.

The study population consisted of 118 women with PD, with 97 participants, as they were not suitable for the eligibility criteria, such as: history of pregnancy and / or associated underlying diseases (n = 37), use of psychotropic drugs or contraception hormonal (n = 35) and participants with no time available to perform the interventions, practitioners of physical activity or other physiotherapeutic treatments or/and who missed the initial screening phase of the study (n = 25).

After the evaluation by the inclusion and exclusion criteria, 21 volunteers were included, who were divided in a simple random way into the controlled and experimental groups A, and controlled and experimental B, totaling four groups. After simple randomization, controlled groups A, B and experimental B had five participants each, and controlled B with six ones.

McGill's questionnaire was used to assess pain aspects before and after the intervention with the help of words chosen by the participants, as a way to express the pain which is felt, and these descriptors were divided into four groups of questions: sensory-discriminatory (subgroup 1 to 10), affective-motivational (subgroup 11 to 15), evaluative-cognitive (subgroup 16), and miscellaneous (subgroup 17 to 20).

Two different protocols were set up. The first is composed of the auricular points. Sympathetic: Kidney: ShenMen "door of the soul": Ovary: Uterus: Endocrine. The second intervention protocol is formed by the same points above mentioned except the Sympathetic point that was replaced by the liver point. The protocols were also randomly separated for the groups into two black urns, one with the pairs of groups, experimental and control A and experimental and control B, in the other urn the protocols were deposited.

The first protocol which contains the sympathetic point and the other points was assigned to the controlled group A and experimental group A , and the second protocol containing the liver point was assigned for the controlled group B and experimental group B. The 21 volunteers were submitted to randomization using the software free online (www.random.org), which were organized into four distinct groups: control group A - (sympathetic) (n = 5) (GC-A), experimental group A - (sympathetic) (n = 5) ( GE- A), control group B - (liver) (n = 6) (GC-B) and experimental group B - (liver) (n = 5) (GE-B).

The applications were carried out in the period of 2 months and 3 weeks, distributed twice a week for 20 minutes, totalizing 22 interventions, which comprised 3 menstrual cycles. The volunteers were seated in order to perform the ear inspection, then aseptic procedures were performed in the ear, using cotton with 70% alcohol, then sterile stainless steel needles were inserted, with standard size (0.25x 0.15 mm), unilaterally in the right ear with a guide tube at the indication points according to the protocol of each experimental group. The right ear was chosen for both protocols, as only the liver point is found in it.
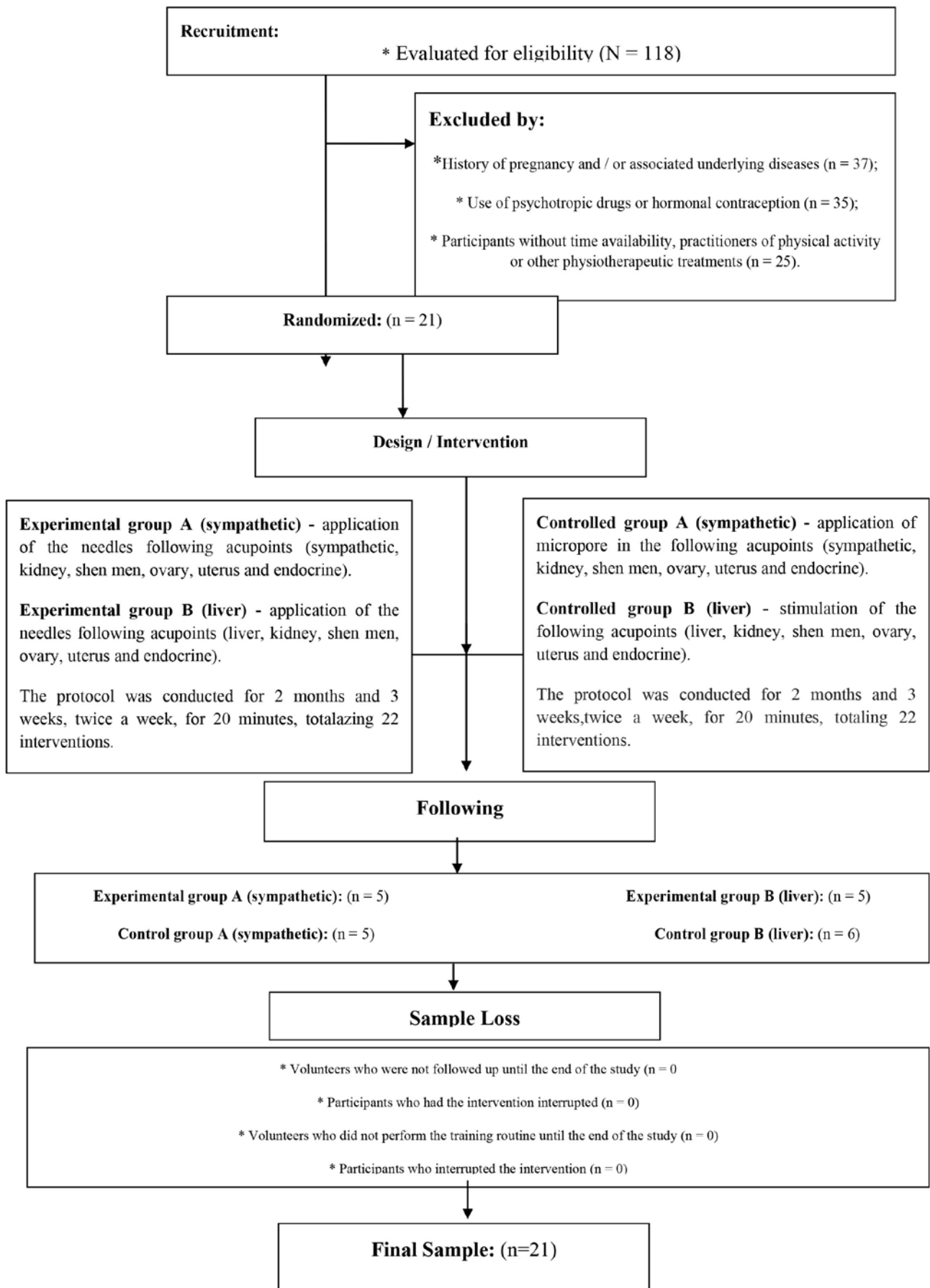
In the control groups, micropore was placed at each specific point corresponding to their protocol, simulating the application of auriculotherapy. Two researchers carried out the interventions, each one was responsible for two groups from the beginning to the end of this study, always following the same order of allocation of the participants and schedules, as well as the placement of the needles in the auricular points.

The data were analyzed with the aid of the GraphpadPrism v. 5. The Shapiro-Wilk normality test was applied to analyze the distribution of sample data, followed by the Wilcoxon nonparametric test for intra-group comparison (before and after treatment). In the intergroup evaluation, the Kruskal-Wallis test was performed with Dunn's post-test. For all tests, a significance level of 5% ($p < 0.05$) was considered.

## Results

Sample selection of the study after the inclusion and exclusion criteria. The final sample of this research was composed of 21 participants.

**Figure 1.** Flowchart of sample selection for the study

**Recruitment:**

\* Evaluated for eligibility (N = 118)

**Excluded by:**

\*History of pregnancy and / or associated underlying diseases (n = 37);

\* Use of psychotropic drugs or hormonal contraception (n = 35);

\* Participants without time availability, practitioners of physical activity or other physiotherapeutic treatments (n = 25).

**Randomized:** (n = 21)

**Design / Intervention**

**Experimental group A (sympathetic)** - application of the needles following acupoints (sympathetic, kidney, shen men, ovary, uterus and endocrine).

**Experimental group B (liver)** - application of the needles following acupoints (liver, kidney, shen men, ovary, uterus and endocrine).

The protocol was conducted for 2 months and 3 weeks, twice a week, for 20 minutes, totalazing 22 interventions.

**Controlled group A (sympathetic)** - application of micropore in the following acupoints (sympathetic, kidney, shen men, ovary, uterus and endocrine).

**Controlled group B (liver)** - stimulation of the following acupoints (liver, kidney, shen men, ovary, uterus and endocrine).

The protocol was conducted for 2 months and 3 weeks, twice a week, for 20 minutes, totaling 22 interventions.

**Following**

**Experimental group A (sympathetic):** (n = 5)

**Control group A (sympathetic):** (n = 5)

**Experimental group B (liver):** (n = 5)

**Control group B (liver):** (n = 6)

**Sample Loss**

\* Volunteers who were not followed up until the end of the study (n = 0

\* Participants who had the intervention interrupted (n = 0)

\* Volunteers who did not perform the training routine until the end of the study (n = 0)

\* Participants who interrupted the intervention (n = 0)

**Final Sample:** (n=21)

The dominant sample characterization established according to the sociodemographic questionnaire: In table 1 the average age of the participants in this research is 19.8 years, with predominance in the mixed race and with regular menstrual cycle. And 57% had pain two days before menstruation, the lower back is the place most affected by painful symptoms in the menstrual period, affecting 43% of the participants.

During the menstrual period, headache and nervous irritation affect 23% of the participants and 27% do not manifest any apparent symptoms. Sweating associated with menstrual pain is the most prevalent symptom affecting 45%, most are unaware of family history of dysmenorrhea, 50% has maternal history and 64% has fraternal history. The only contraceptive method used by the participants selected in this research was condom with 10%. In the menstrual period 32% sometimes were absented from classes and / or work.

**Table 1.** Sociodemographic sample characterization of participants with primary dysmenorrhea. Teresina, 2018 (to be continued)

| Variables | | n | % |
|---|---|---|---|
| **Age** | 19 | 5 | 24% |
| | 20 | 4 | 19% |
| | 21 | 7 | 33% |
| | 22 | 3 | 14% |
| | 23 | 1 | 5% |
| | 24 | 1 | 5% |
| **Ethnicity** | White | 2 | 9.5% |
| | Parda | 16 | 76. 2% |
| | Black | 3 | 14.3% |
| | Yellow | 0 | 0% |
| | Indigenous | 0 | 0% |
| **Type of Cycles** | | | |
| | Regular | 21 | 100% |
| | Irregular | 0 | 0% |
| **Pain two days before menstruation** | | | |
| | Yes | 12 | 57% |
| | No | 9 | 43% |
| **Pain three days before menstruation** | | | |
| | Desapper | 18 | 85.7% |
| | Decrease | 3 | 14.3% |
| | Continue | 0 | 0% |
| **Pains spread to other regions of the body** | | | |
| | No | 8 | 36% |
| | Lumbar Region | 10 | 45% |
| | Sacrum | 5 | 23% |
| | Anus | 1 | 5% |
| | Inner Thighs | 2 | 9% |

**Table 1.** Sociodemographic sample characterization of participants with primary dysmenorrhea. Teresina, 2018 (conclusion)

| Variables | n | % |
|---|---|---|
| **Presents in menstrual period** | | |
| Nausea | 2 | 9% |
| Vomiting | 3 | 14% |
| Diarrhea | 3 | 14% |
| Headache | 5 | 23% |
| Nervous irritation | 5 | 23% |
| Prison of vente | 3 | 14% |
| None of the symptoms | 6 | 27% |
| Other symptoms | 2 | 9% |
| **Presents when feels pain** | | |
| Pallor | 6 | 27% |
| Sweating | 10 | 45% |
| None of the symptoms | 9 | 41% |
| **Painful menstruation of the mother** | | |
| Yes | 8 | 38.1% |
| No | 11 | 52.4% |
| Not declared | 2 | 9.5% |
| **Painful menstruation of the sister** | | |
| Yes | 6 | 28.6% |
| No | 14 | 66.7% |
| Not declared | 1 | 4.7% |
| **Use of contraceptive methods** | | |
| Yes ( condom) | 2 | 10% |
| No | 29 | 90% |
| **Scholl or work absenteeism during menstrual period** | | |
| Always | 0 | 0% |
| Sometimes | 7 | 33.3% |
| Never missing | 14 | 66.7% |

- Percentage of participants with PD according to sociodemographic characteristics (n = 21).

Figure 2 presents the intragroup and intergroup analysis of the domains of the McGill questionnaire. In the intragroup data, referring to the domain of sensitive aspects, the GC-A in its initial and final values showed significant values (p = 0.033), while the (GE-A and GE-B), as well as, the (GC- B), showed extremely significant values (p = 0.0001).

In the intergroup analysis, it was checked that in the comparison between (GC-A x GE-A) and (GC-A x GE-B), extremely significant data (p = 0, 0001) were evidenced. Regarding the values corresponding to the affective variable, the GE-A and GC-B, presented extremely significant values being (p = 0, 0003) and (p = 0, 0001), respectively. In the intergroup analysis, it was checked that the comparison between the groups (GC-A x GE-A) and (GC-A x GE-B) was extremely significant (p = 0.0001).

In the evaluative domains, in the intragroup evaluation, the groups: (GE - A) (p = 0.048), and (GC-B) (p = 0.048), showed significant values, whereas in the intergroup analysis there was no statistical difference between the groups studied. The miscellaneous aspects in the groups (GE-A and GC-B) remained with extremely significant results (p = 0, 0003), in the intergroup analysis the comparison between the groups (GC-A x GE-A) and (GC-A x GE-B) presents extremely significant and significant values, being (p = 0, 0001) and (p = 0; 05).

**Figure 2.** Analysis of intra and intergroup pain characteristics using the McGill questionnaire



- Intergroup analysis

Intragroup analysis
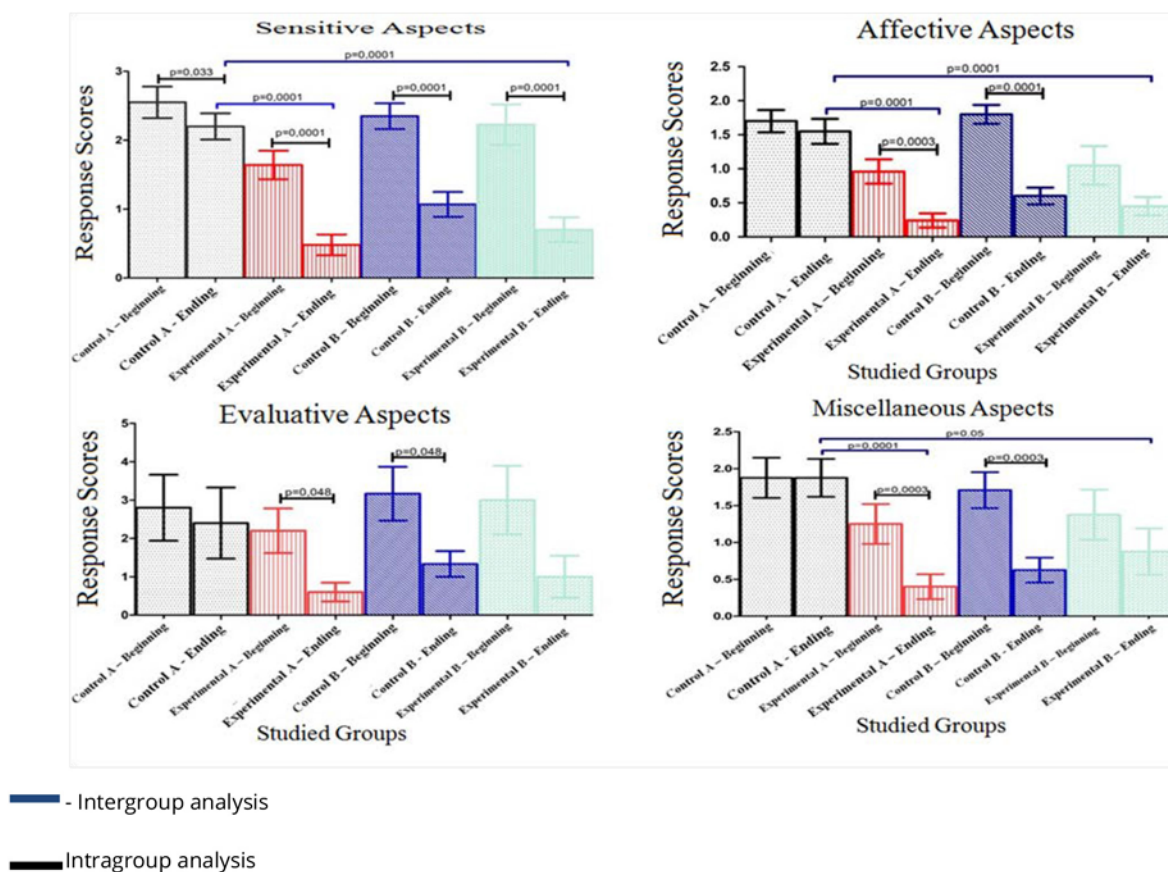
Source: Responsible researchers, 2018

## Discussion

The population of this research has an average age of 19.8 years, brown color predominance, all with regular menstrual cycle, when most menstrual pains appear two days before menstruation, and after three days these pains disappear in 82% of patient cases. In a survey made with 107 women, PD appeared after two years of menarche and manifested itself in the first two days of menstrual flow[15]. This information corresponds to the same data found in this research. The places where there is the greatest involvement of pain associated with menorrhea is the lumbar and sacral region, with less occurrence in the anal area and inner thighs.

The prevalence of PD is in 71% of women with an average age of 20.8 years, in relation to menarche; in the same study is of 12.37 years, similar to other studies found with values of approximately 12 years[16,17]. In a randomized, double-blind placebo-controlled study of 54 higher education students with PD received interventions using the homeopathic method, the average age of the participants was 22.3 years, and the average age of menarche was 13.0 years[18].

The most common symptoms during the menstrual period pointed out in this research are headaches, nervous irritation, vomiting, diarrhea and sweating. 33.3% of the population in this study, sometimes have absenteeism at school and at work during menstruation. In a survey in which the characteristics of pain were investigated, the main complaints pointed out among women with dysmenorrhea are headache, diarrhea, nausea and vomiting. It is indicated that the symptoms may be before menstruation or during menstrual days. The pain can radiate to the thigh or the lower back. Dysmenorrhea can be described as colic, and the way the pain presents varies between women. Women with severe pain characteristics have greater negative effects[19].

The characteristics of pain are determined through individual perception. Therefore, dysmenorrhea, despite being a global affliction, has an individual conception because the nature of pain is personal19. An exploratory study recruited a group of 106 volunteers who were women in the community with dysmenorrhea. These women had several symptoms including back pain, fatigue, breast tenderness, nausea, headaches and intestinal disorders, consistent with many other populations with primary dysmenorrhea[20].

In women with a family history of dysmenorrhea, PD is more recurrent[16,17]. A cross-sectional study that points to data similar to this research had 389 participants studied and their sociodemographic characteristics were: the average age of 21 years old and the age when they started menstruating from 12 to 14 years old. About half (50.6%) of the interviewees reported having a family history of dysmenorrhea[21].

In contrast to other studies, in a study 50% to 64% of the volunteers said they did not know about the family history of dysmenorrhea, as well as reporting pain at the beginning of menstruation, moderate and continuous pain, which lasted 1-2 days. More than two thirds of the studied population have a menstrual cycle between 26-30 days, with the duration of the flow 3 to 4 days. In this same study, the most reported symptoms of PD were abdominal spasm, back pain and weakness[21].

A cross-sectional survey of 130 women investigated the relationship between PD and school absenteeism. The participants were aged between 17 and 33 years (20.6 ± 2.7 years). Of these women one hundred and twenty four volunteers complained of PD. The intensity of menstrual pain was moderate or severe. A total of 60 participants referred to school absenteeism due to menstrual pain. These ones were the volunteers who had moderate and severe dysmenorrhea[22].

According to the domains of the McGill questionnaire, in the sensitive aspects in the GC-A of the protocol, containing the sympathetic point, changes in the aspect of pain were obtained for this domain in the intra-group evaluation after auriculotherapy. However, the sympathetic GE-A and GE-B liver and GC-B liver groups showed greater significance in relation to the decrease in this aspect in GC-A. In the intergroup comparison, sympathetic GE-A and liver GE-B showed extremely significant changes in this aspect when compared to GC-A. In the affective aspect, in the intragroup interpretation, the groups that showed alterations were sympathetic GE-A and liver GC-B. In the intergroups, the result was the same as in the sensitive aspect.

In the evaluative domain, in the intragroup analysis, only the sympathetic GE-A and liver GC-B showed post-application results. In the intergroup analysis, there was no difference between groups for this domain. The miscellaneous aspects, in the intragroup evaluation, the groups which showed results were the sympathetic GE-A and liver GC-B. In the intergroups, sympathetic GE-A and liver GE-B showed results in comparison to sympathetic GC-A. However, sympathetic GE-A showed a higher result than liver GE-B in this respect.

A research made with a group used a protocol of 12 visits, twice a week, lasting 5 to 10 minutes and made an intervention without a protocol in the other group. During the interventions, the points Shenmen, Brain Stem, Kidney, Yang of the Liver were used, in order to reduce pain rates. The protocol group achieved the best result with a great reduction in pain levels by 36%. The group without protocol managed to achieve a reduction pain rate of 27% on average. However, both groups managed to maintain positive results[23, 24].

Two protocols were set up in this study with the points: Sympathetic, Kidney, ShenMen, Ovary, Uterus, and Endocrine. In the second protocol, the sympathetic point was replaced by the liver point. However, both protocols showed significance in the results of the interventions.

A randomized controlled clinical study carried out with 75 health professionals, randomly distributed the professionals into three groups: Group 1 (control); Group 2 (needle) and Group 3 (seed). This was done to compare the influences of the objects used during the application in relation to the medium and high level stress scores. The intervention groups received eight visits at the points Shenmen, Rim and Brainstem. The seed and needle groups did not show statistically significant results for the average stress level. However, for the high level of stress, the results were significant[25].

A survey involving 133 health professionals with anxiety and pain, were divided into four groups (control, seed, needle and tape) and were classified according to the levels of anxiety and pain, moderate and high. The protocol used was the beta version of the Auricular Protocol for Pain and Anxiety containing a Shenmen point, tranquilizer, thalamus, sympathetic and zero point. At the end of ten visits, the treatment with needles reduced the levels of anxiety with rates of 17% reduction. In pain levels, the needle achieved a 36% reduction rate. As for the other instruments, there was no difference between the times in the analysis[26].

In this study, the controlled groups, in which pieces of micropore tape were used at the points according to the corresponding protocol, also showed significant results in relation to changes in pain characteristics. This may have occurred due to a placebo effect by inducing the simulation of an auriculotherapy application. Both groups showed some change in the characteristics of the pain. However, experimental groups showed more significant results compared to controlled groups.

According to literature, the relaxation of the smooth muscles of the uterus will be through the nervous-vegetative system that will be represented by the sympathetic point. This point has pain function, especially for visceral pains such as intestinal spasm or colic, biliary, renal, menstrual and stomach pains. The other points, such as the kidney point, the analgesic effect may be related to the activation of toxin withdrawals and increased tissue oxygenation capacity[27].

The Shenmen point is also known as the "spirit or mind door". When stimulated it opens a conduction of subsequent neurochemical stimuli capable of releasing analgesic substances. The ovary point is widely used for ovarian disorders such as fibroids, cysts, problems that occur in the premenstrual phase with pain, female infertility and some cases of male infertility[27]. The uterus is indicated for gynecological and obstetric changes. The endocrine point regulates the functions of endogenous secretion glands, being used in gynecological disorders, among others[28].

Liver point is located in the upper shell, in the direction of Darwin's tubercle, always in the right ear. It is important in the treatment of liver infections. It is also considered a hepato-protective point, aiding in liver treatment and in some cases in the treatment of gastritis. It is also used for food intolerances. It is an auxiliary point in the functioning of the intestine and is always found in the right ear, for both right and left-handed people. It is an important point for working with anger[27].

The experimental groups (EG) showed greater results compared to the other groups. However, if compared to each other, or GE, with the protocol containing the points, sympathetic, shenmen, hoop, ovary, uterus and endocrine, (GE-A), the highest result is the result of the group of points, liver, shenmen, hoop, ovary, uterus and endocrine (GE-B). The GE-A presents modifications in the four domains of the McGill questionnaire, in the analysis of intruders and three intergroups. The GE-B introduced a group of variables that changes in one domain, and a grouping in three with static results, but less than the GE-A in the last domain.

## Conclusion

The present study obtained the outline in the sociodemographic aspects of the population that has primary dysmenorrhea. Regarding the influences of auriculotherapy on the characteristics of pain, the method was statistically significant. After auriculotherapy, the group that showed the greatest result was the experimental one of the protocol containing the sympathetic point, being effective to modify the aspects of pain determining beneficial results for the use of the method and the protocol.

### Author contributions

All authors participated equally in this project

### Competing interests

No financial, legal or political competing interests with third parties (government, commercial, private foundation, etc.) were disclosed for any aspect of the submitted work (including but not limited to grants, data monitoring board, study design, manuscript preparation, statistical analysis, etc.).

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