

undergo the procedure and were then included in the study.

Patients’ characteristics

Patients’ age was 37.5 ± 7.6 years and 94.7% had from 18 to 49 years. Seventy-four percent of patients had university level and 79.4% of them were married. Regarding their history, 27.6% of

patients were nulligravida with median gravidity of 2 and extremes from 0 to 11. Patients were nulliparous in 60.7% of cases with a median parity of 0 and extremes from 0 to 8. Sixty-two percent (61.7%) had at least either one abortion or one miscarriage with a median of 1 and extremes from 0 to 9 and 4.7% were menopausal (table 1).

Variable	Frequency	Percentage	Means	SD	Median	Extremes
Age (year)						
18 – 34	353	34.5				
35 – 49	615	60.2	37.5	7.6		
At least 50	54	5.3				
Education level						
Primary	38	3.7				
Secondary	229	22.4				
University	755	73.9				
Marital status						
Married	811	79.4				
Unmarried	191	18.7				
Divorced	12	1.2				
Widow	8	.8				
Gravidity						
Nulligravida	282	27.6				
Paucigravida	519	50.8			2	0 – 11
Multigravida	221	21.6				
Parity						
Nulliparous	620	60.7				
Pauciparous	336	32.9				
Multiparous	55	5.4			0	0 – 8
Great multiparous	11	1.1				
Abortion/miscarriage						
No	391	38.3				
1 – 3	549	53.7			1	0 – 9
At least 4	82	8.0				
Menopausal status						
Yes	48	4.7				
No	974	95.3				
Total	1022	100.0				

Table 1. Patients’ characteristics

Procedure description

Hysteroscopy was performed for infertility in 54.8%, for abnormal uterine bleeding in 20.3% and as a postoperative uterine cavity control procedure in 7.6 % of cases (figure 1). Considering the procedure characteristics, almost all hysteroscopies (99.7%) were performed using a vaginoscopic approach (without speculum, without tenaculum), 98.7% were conducted without anesthesia and less than 1 % (0.5 %) of patients benefited from general anesthesia because they didn't want to be lucid during the procedure. Patients reported no pain in 51.8 % and mild pain in 44.2 %. The median pain score was 0 with extremes from 0 to 8 according to simple numeric scale. The median duration of the procedure was 6.7 minutes varying from 2 to 45 minutes and 83.1 % of procedures varied from 2 to 9 minutes (table 2).

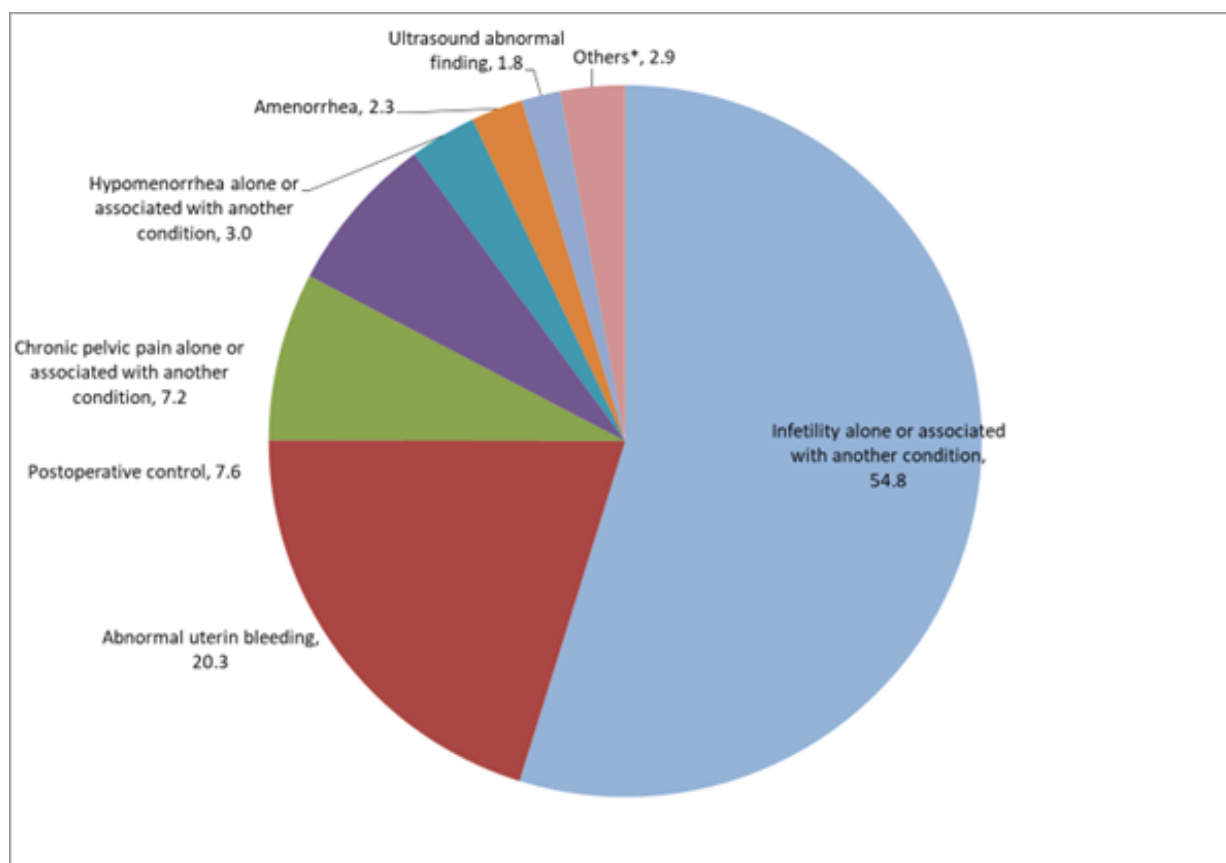


Figure 1: Proportions in percent of hysteroscopy indications in percent (n=1122)

Variables	Frequency	Percentage	Median	Extremes
Process completion (n=1024)				
Yes	1022	99.6		
No	2	0.4		
Hysteroscopic approach (n=1022)				
Vaginoscopic	1019	99.7		
With speculum	3	0.3		
Anesthesia (n=1022)				
Without anesthesia	1009	98.7		
General anesthesia	5	0.5		
Paracervical bloc	8	0.8		
Pain according to Simple Numeric Scale (n=1022)				
Non pain	527	51.8		
Mild pain	450	44.2	0	0 – 8
Moderate pain	38	3.7		
Severe pain	2	0.2		
Procedure duration in minute (n=532)				
2 à 6	331	62.2		
7 à 9	111	20.9	6.7	2 – 45
Au moins 10	90	16.9		
Complications (n=1022)				
During the procedure				
No complication	1015	99.5		
Uterine perforation	3	0.3		
Vasovagal reaction	2	0.2		
After the procedure				
No complication	1020	99.8		
Persistent bleeding after procedure	2	0.2		

Table 2. Characteristics of hysteroscopy procedure

In all, complications were noted in seven patients (0,7%). Five patients had complications during the procedure, and this has been dominated by uterine perforation (0.3%) which occurred during adhaesiolysis.

The hysteroscopy showed a pathology in 84.3% and the five main hysteroscopic findings were submucous fibroids (15.7%), intrauterine adhesions (14.5%), endometrial polyps (14.3%), cervical stenosis (10.3%) and adenomyosis (9.1%) (figure 2 and 3).

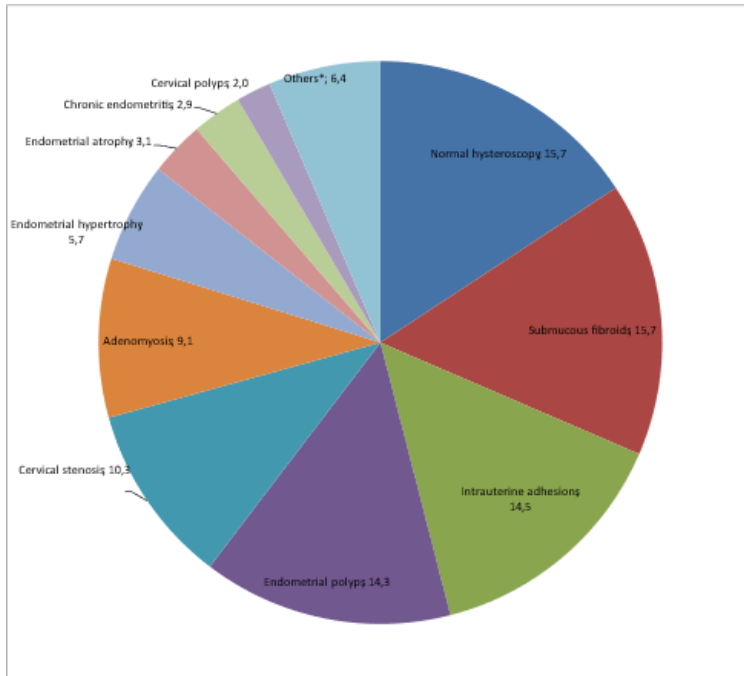


Figure 2: Proportions in percent of hysteroscopic findings in percent (n=1150)

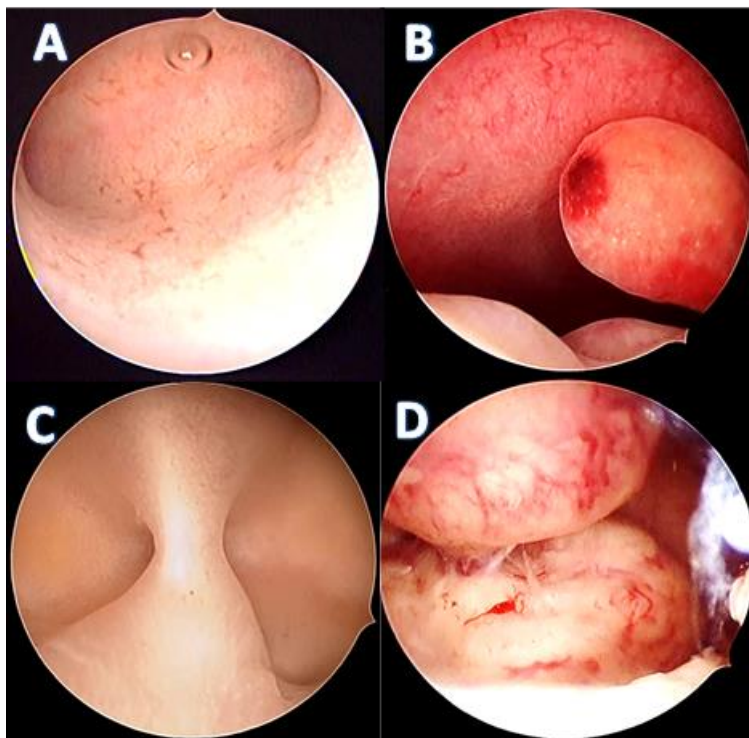


Figure 3: Some images of hysteroscopic findings. A: normal uterine cavity, B: endometrial polyps, C: intrauterine adhesions, D: submucous fibroids.

Operative procedures during office hysteroscopy

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During this period, 29 myomectomies (16%), 161 polypectomies (97.9%) and 165 intrauterine adhesiolyses (98.8%) were performed (table 4) in a “see and treat” approach. These operative procedures were conducted using mechanical instruments (hysteroscopic 5 FR scissors and/or biopsy/grasper forceps) (table 4).

Associations between variables

Patients with history of abortion/miscarriage had more cervical stenosis (14.7%) and more intrauterine adhesions (20.8%) compared to those without this history (6.9% for cervical stenosis and 8.7% for intrauterine adhesions) ($p = 0.000$ for both) (table 3). Among patients with cervical stenosis, 71.4% experienced pain compared to 45.1% in the group without cervical

stenosis and the difference between the two groups was statistically significant ($p = 0.000$). This study showed that patients with abortion/miscarriage history had more pain (50%) than others (45.2%) but it failed to establish a statistically significant difference ($p=0.140$).

Comparing patients with abnormal uterine bleeding to those without this complaint, the difference was statistically significant when taking in consideration the finding of submucous fibroid and/or endometrial polyp with respectively 56.5% and 25.3%. Hysteroscopic diagnosis didn't differ in terms of abnormal findings when comparing patients with and without infertility.

Variable	Variable	Total (n=1022)	p
Cervical stenosis			
Abortion/miscarriage	Yes	No	
Yes	93 (14.7%)	538 (85.3%)	631 (100.0%)
No	27 (6.9%)	364 (93.1%)	391 (100.0%)
Pain			
Abortion/miscarriage	Yes	No	
Yes	314 (50.0%)	314 (50.0%)	628 (100.0%)
No	176 (45.2%)	213 (54.8%)	389 (100.0%)
Cervical stenosis			
Yes	85 (71.4%)	34 (18.6)	119 (100.0%)
No	405 (45.1%)	493 (54.9)	898 (100.0%)
Intrauterine adhesions			
Abortion/miscarriage	Yes	No	
Yes	131 (20.8%)	499 (79.2%)	630 (100.0%)
No	34 (8.7%)	357 (91.3%)	391 (100.0%)
Submucous fibroid and/or Endometrial polyp			
Abnormal uterine bleeding	Yes	No	
Yes	117 (56.5%)	90 (43.5%)	207 (100.0%)
No	206 (25.3%)	609 (74.7%)	815 (100.0%)
Abnormal hysteroscopic findings			
Infertility	Yes	No	
Yes	450 (80.5%)	109 (19.5%)	559 (100.0%)
No	391 (84.4%)	72 (15.6%)	463 (100.0%)

Table 3. Association between some variables

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Conditions	Total cases	Cases operated	Percentage
Submucous fibroids	181	29	16.0
Endometrial polyps	165	161	97.6
Intrauterine adhesions	167	165	98.8
DIU extraction	10	10	100
Stenosis resection	119	119	100
Opening adenomyosis cysts with scissors (ademomysis with cysts)	27	7	25.7

Table 4. Operative procedures during office hysteroscopy

Discussion

Indications

In literature, clinical presentations in patients benefiting from hysteroscopy are dominated by abnormal uterine bleeding with frequencies varying between 45 and 86,5% (10, 11).

In this study, hysteroscopic evaluation of the uterine cavity as infertility workup constituted the main indication (54,8%), and the abnormal uterine bleeding represented less than a half (20.3%). This result is different from those reported above but in accordance with 49,2% noted by Tangri et al. (12) in India. The difference could be related to the selection of patients in many studies and to the fact that routine evaluation of the uterine cavity even in conventional management or in In Vitro Fertilization is not uncontroversial. In fact, in the absence of suggesting complaints, ultrasound features or IVF failures, a systematic hysteroscopic evaluation of uterine cavity is not cost-effective (13, 14). Obviously, the debate still needs to be raised in our area on the usefulness and cost-effectiveness of routine hysteroscopic evaluation of uterine cavity in infertile women.

Hysteroscopic procedure

Almost all hysteroscopies were managed using vaginoscopic approach (99.7%). This result is in accordance with Pluchino et al. (15) in Italy (2010) and Stefanescu et al. (5) in Romania (2012) reporting respectively 90 % and 78 % of vaginoscopic approach. It differs from the 30% of vaginoscopic approach shown by Cooper et al. (16) in Great Britain (2013). This approach has been widely recommended to allow more procedures in the office setting as it reduces the patient discomfort induced by the speculum and the tenaculum. But this is related to the experience of practitioners and the policy regarding health insurance. In fact, in some areas, practitioners prefer to perform hysteroscopy in the operating room, as traditionally, due to the lack of fiscal incentives for office procedures (17). However, it is obvious that vaginoscopy, not only simplifies the procedure, but lowers its cost and should be recommended particularly in low-income countries.

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Pain during office hysteroscopy

Office hysteroscopy with vaginoscopic approach is well tolerated by patients as shown in the present study. In fact, 51.8% of patients had no pain and 44.2% reported to have experienced mild pain during the procedure. This is similar to the result published by Deffieux et al. (18) in France and also to the data in the literature.

The pain score did not display normal distribution because some operative procedures, producing more pain, were practiced. The median pain score was 0, varying from 0 to 8 out of 10. The experience of severe pain was less encountered compared to several studies in the literature. It was 0.2% in the present study, much lower than the 32.3% reported by de Freitas Fonseca et al. (19), the 20.4% by Bettocchi et al. (20). and as reported by De Angelis et al. (21). This reality can reflect the disparity in relation to the perception of pain depending on the painful stimuli, the level of education, cultural factors, a previous bad experience in relation to pain and the circumstances of onset of pain (22). The question that should be asked is whether the patients in our setting are more resilient to pain than those studied in the above-mentioned publications. This question would raise a lot of speculation but deserves to be studied to adapt certain anesthesia protocol during hysteroscopy but also the caliber of the hysteroscope according to the characteristics of our populations in relation to pain.

The vagino-scopic approach, almost used in all cases but 3 in the present study, has been demonstrated to be associated with a statistically significance reduction in pain (9) and should be preferred in office setting. The knowledge of hysteroscopic anatomy (instrumentation and genital tract) is very crucial

to allow a smooth navigation and avoid discomfort to patients (20).

Findings

Submucous fibroid was the main finding in hysteroscopy (15.7%) followed by intrauterine adhesions (14.5%), endometrial polyps (14.3%), cervical stenosis (10.3%) and adenomyosis (9.1%). Hysteroscopic findings vary from one study to another depending on the selection of patients and the epidemiology of pathologies in each area. In their study, Capmas et al. (6), noted submucous fibroid predominating, followed by endometrial polyps and intrauterine adhesions. Ajayi et al. (7) comparing infertile Nigerian to Indians patients, reported that intrauterine adhesions and submucous fibroid were the pronounced findings in Nigerians whereas in Indians, they noted that polyps and uterine malformations were dominating. In Kenia, Parkar et al. (8) found that submucous fibroid and endometrial polyps were the predominant pathologies.

In many studies and particularly in Africa, submucous fibroid, intrauterine adhesions and endometrial polyps are the main findings reported with different proportions. In sub-Saharan Africa, the racial disparity reported for fibroid; whose prevalence is 3 times higher in black women (23) and the prevalence of unsafe abortion could contribute to maintaining in top 2 or 3 the two main findings namely fibroid and intrauterine adhesions.

Adenomyosis had a significant proportion in the present study (9.1%). This should raise the question of its extent in our areas and its association with other forms of endometriosis. Cervical stenosis is another drawback of unsafe abortion and there was a statistically significant

association to abortion/miscarriage ($p=0,000$) in the present study.

Operative procedures

In our practice, we apply a “see and treat” approach and that allowed us, in the present series, to perform some operative procedures mostly adhaesiolysis for intrauterine adhesions (97.6% of all adhesions) and polypectomies (98.8% of all polyps). Endometrial biopsy has not been considered as being an operative procedure. Several studies in the literature showed the great possibility of performing various hysteroscopic procedures in an office setting (24, 25) which drastically reduces the cost and promotes the extension of the practice, especially in low-resource countries.

Association

Regarding the associated factors, patients with a history of abortion had more cervical stenosis, those with cervical stenosis had more pain and this was statistically significant. Since all cervical stenoses were either resected with scissors or dilated with the tip of the hysteroscope or the jaws of the grasping forceps, the pain could be linked to this act and also to the loss of cervical smoothness related to fibrosis causing then pain when rotating to explore from one tubal ostium to another. The practitioner in our settings should learn how to manage cervical stenosis given that this pathology is frequent, especially in patients with a history of abortion. However, the history of abortion was not statistically associated with pain during hysteroscopy, probably because of not having differentiated abortions with dilation and curettage or aspiration from those without this treatment.

This study did not analyze other risk factors of pain during office hysteroscopy such as diabetes,

age, previous curettage, dyspareunia, dysmenorrhea, hysteroscopist experience, anxiety and patient waiting time before the procedure (19, 26) Further specific studies will have to integrate these factors and analyze them to provide important information for the management of pain during office hysteroscopy in our environment.

Although the main pathological findings at hysteroscopy were uterine fibroids, intrauterine adhesions and endometrial polyps, which can to some extent lead to delayed conception or infertility, infertile patients did not have more abnormal findings than the others. This result may be supported by the predominance in Sub-Saharan Africa of tubal and peritoneal causes of infertility rather than uterine anomalies (27, 28).

Study limitations

Although the present study is the first in the DRC to address hysteroscopy and its sample size is large, it does have some limitations. On abortions, a clarification should be given regarding the practice of curettage. Surgical history, particularly caesarean section and myomectomy could be associated with certain findings such as intrauterine adhesions. Being a study of patients’ records, these details could not be retrieved mostly in patients coming from other colleagues. The analysis of factors associated with pain perception is another limitation that should be addressed in further studies.

Conclusion

Office hysteroscopy is a simple and acceptable procedure in experienced hands. It is very well tolerated even without analgesia or anaesthesia and the rate of complications is very low. This procedure is performed mostly in patients who

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are at their thirtieth, with university level, non-menopausal and married. The main indications are infertility workup and abnormal uterine bleeding. The experience of pain is less marked in patients and the most associated factor is the presence of cervical stenosis. A great number of the most common findings can be treated in the

office setting in a “see and treat” approach and this could help in developing the practice of hysteroscopy in low-income settings. Further studies are therefore awaited to address various specificities of hysteroscopy to improve its performance in our setting.

Disclosure of interest

The authors declare that they have no competing interest.

References

1. Gkrozou F, Dimakopoulos G., Vrekoussis T. et al. Hysteroscopy in women with abnormal uterine bleeding: a meta-analysis on four major endometrial pathologies. *Arch Gynecol Obstet* 2015; 291 : 1347–1354.
2. Kaskas M, Mergui JL, Yazbeck C et al. Office hysteroscopy for infertility : a series of 557 consecutive cases. *Obstet Gynecol int* 2010 ; 168096: 1 – 4.
3. Gimplerson R. Panoramic hysteroscopy with directed biopsies versus dilatation and curettage for accurate diagnosis. *J Reprod Med* 1984; 29: 575-578.
4. Hamou J, Microhysteroscopy. A new procedure and its original applications in gynecology. *J Reprod Med*. 1981; 26: 375 – 382.
5. Stefanescu A, Marinescu B, 2012 Diagnostic hysteroscopy a Retrospective study of 1545 cases. *Maedica (Bucur)* 2012; 7: 309-14.
6. Capmas P, Pourcelot AG, Giral E et al. Office hysteroscopy: A report of 2402 cases. *J Gynecol et Biol Reprod* 2016; 45: 445 – 50.
7. Ajayi VD, Ajayi AB, Ramesh B et al. Comparative Analysis of Hysteroscopic Findings among infertile Women in Nigeria and in India: a Preliminary Investigation. *J Gynecol and Women’s Health* 2017; 6: JGWH.MS.ID.555681
8. Parkar R.B, Thagana N.G. Hysteroscopy surgery at the AGA KHAN HOSPITAL NAIROBI. *East African Medical Journal* 2004; 81: 336 – 340.

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DOI: 10.36205/ trocar3.2022006

Received 20-07-2022 - Accepted 14-9 -2022

9. De Silva PM, Carnegy A, Smith PP, Clark TJ. Vaginoscopy for office hysteroscopy: A systematic review & meta-analysis. *European Journal of Obstetrics & Gynecology and Reproductive Biology* 2020; 22: 278-285.
10. Garbin O, Kutnahorsky R, Göllner JL, et al. Vaginoscopic versus conventional approaches to outpatient diagnostic hysteroscopy: a two – centre randomized prospective study. *Hum Reprod* 2006; 21: 2996 – 3000.
11. Sagiv R, Boaz M, Dishy M et al. A new approach to office hysteroscopy compared with traditional hysteroscopy: a randomized controlled trial. *Obstet Gynecol* 2006; 108: 387 – 392.
12. Tangri MK, Lele P, Kapur K et al. Role of office hysteroscopy in gynecology: retrospective observational study at a tertiary care hospital. *J Reprod Contracept Obstet Gynecol* 2017; 6: 111 – 116.
13. Kumar P, Mohan S, Talwar P et al. Diagnostic Office Vaginoscopy in Evaluation of Infertility Prior to IVF: A Retrospective Analysis of 1000 Cases. *The Journal of Obstetrics and Gynecology of India* 2017; 67: 275 – 281.
14. El-Mazny A, Abou-Salem N, El-Sherbiny W et al. Outpatient hysteroscopy: a routine investigation before assisted reproductive techniques? *Fertility and Sterility* 2011; 95: 271 – 276.
15. Pluchino N, Ninni F, Angioni et al.. Office vaginoscopic hysteroscopy in infertile women: Effects of Gynecologist experience, instrument size, and distention medium on patient discomfort. *JMIG* 2010; 17: 344 – 350.
16. Cooper N, Clark J. Ambulatory hysteroscopy. *The Obstet & Gynecol* 2013; 15: 159 – 166.
17. Munro MG, Kasiewicz JL, Desai VB. Office versus Institutional Operative Hysteroscopy: An Economic Model. *JMIG* 2022; 29: 535 – 548.
18. Deffieux X, T Gauthier, N Ménager et al. Prevention of the complications related to hysteroscopy: Guidelines for clinical practice. *J Gynecol Obstet & Biol Reprod* 2013; 42: 1031 – 1049.
19. de Freitas Fonseca M, Sessa FV, Resende JAD Jr et al. Identifying Predictors of Unacceptable Pain at Office Hysteroscopy. *JMIG* 2014; 21: 586–591.
20. Bettocchi S, Selvaggi L. A vaginoscopic approach to reduce the pain of office hysteroscopy. *JMIG* 1997 ; 4: 255 – 258.
21. De Angelis C, Santoro G, Re ME et al. Office hysteroscopy and compliance: mini-hysteroscopy versus traditional hysteroscopy in a randomized trial. *Human Reproduction* 2003; 18: 2441 – 2445.
22. Geha P, Waxman SG. Pain perception: Multiple matrices or one. *JAMA Neurol.* 2016; 73: 628–630.

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DOI: 10.36205/ trocar3.2022006

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23. Prathiba M. De Silva, , Paul P. Smith T. Justin Clark. Vaginoscopy for office hysteroscopy: A systematic review & meta-analysis. *European Journal of Obstetrics & Gynecology and Reproductive Biology* 2020; 22: 278-285.
24. Catherino WH, Eltoukhi HM, Al-Hendy A. Racial and Ethnic Differences in the Pathogenesis and Clinical Manifestations of Uterine Leiomyoma. *Semin Reprod Med* 2013; 31: 370-379.
25. Bettocchi S, Ceci O, Nappi L et al. Operative Office Hysteroscopy without Anesthesia: Analysis of 4863 Cases Performed with Mechanical Instruments. *J Am Assoc Gynecol Laparosc* 2004; 11: 59–61.
26. Keyhan S, Munro MG. Office Diagnostic and Operative Hysteroscopy Using Local Anesthesia Only: An Analysis of Patient Reported Pain and Other Procedural Outcomes. *JMIG* 2014; 21: 791–798.
27. Carta G, Palermo P, Marinangeli F et al. Waiting Time and Pain During Office Hysteroscopy. *JMIG* 2012 ; 19: 360–364.
28. Mboloko E, Nzau N, Lokengo L. Itinerary of woman seeking care for couple’s infertility in Kinshasa. *Ann Afr Med* 2011; 4: 855 – 864.
29. Larsen U. Infertility in Central Africa. *Tropical Medicine and International Health* 2003; 8: 354-367.