

Discrimination against the female surgeon in the exercise of her profession

Discriminación de la cirujana en el ejercicio de su profesión

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Abstract

Objective: To describe the discrimination experienced by the general female surgeon. **Method:** Prospective, cross-sectional and descriptive study, with a survey of 30 questions, closed, anonymous, voluntary and confidential, distributed through a link in the WhatsApp chat in a closed group of female surgeons who are members of the Asociación Mexicana de Cirugía General. **Results:** 146 female surgeons participated, with a response rate of 58.4%. The discrimination perceived by female surgeons in training was 86 (58.9%), and 28 (19.2%) when they are already surgeons by not allowing them to perform the same procedures as their peers. Regarding the patients, discrimination against female surgeons was 72 (49.3%). They do not call them doctors, but "ladies", in 126 (86.3%), and they are asked to perform nursing duties in 120 (82.2%). On the other hand, there is also discrimination against female surgeons by nursing staff in 87 (59.6%). **Conclusions:** Discrimination is common in the daily surgical practice of female surgeons in all three areas: peers, patients, and nursing staff. This is an initial work, where the quantification of discrimination in Mexico is carried out. Strategies must be implemented to avoid discrimination against female surgeons and be in an environment of equality.

Keywords: Female surgeons. Discrimination. Gender.

Resumen

Objetivo: Describir la discriminación que vive la cirujana general en Mexico. **Método:** Estudio prospectivo, transversal y descriptivo, con una encuesta de 30 preguntas cerradas, de manera anónima, voluntaria y confidencial, distribuida a través de un enlace en el chat de WhatsApp en un grupo cerrado de cirujanas de todo el país que son miembros de la Asociación Mexicana de Cirugía General. **Resultados:** Participaron 146 cirujanas, con un porcentaje de respuesta del 58.4%. La discriminación percibida por las cirujanas en formación fue de 86 (58.9%), frente a 28 (19.2%) cuando ya son cirujanas, al no permitirles realizar los mismos procedimientos que sus pares. La discriminación por parte de los pacientes fue de 72 (49.3%). No las llaman doctoras sino «señoritas» en 126 (86.3%) y les solicitan hacer funciones de enfermería en 120 (82.2%). También existe discriminación hacia las cirujanas por el personal de enfermería en 87 (59.6%). **Conclusiones:** La discriminación hacia las cirujanas es frecuente en los tres ámbitos: pares, pacientes y personal de enfermería. Este es un trabajo inicial, donde se realiza la cuantificación de la discriminación en Mexico. Se deberán implementar las estrategias para evitar la discriminación a las cirujanas y estar en un ambiente de igualdad.

Palabras clave: Cirujanas. Discriminación. Género.

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Introduction

Discrimination against women is a universal social phenomenon that manifests in different countries according to educational and economic levels, as documented by the Global Gender Gap Index of 2021¹.

Direct bias and prejudice against doctors by patients based on various backgrounds frequently occur. Female doctors have long experienced discrimination in the healthcare system based on their gender².

Although there is recognition of women's historical contributions to surgical practice, they are still perceived as unequal to their male counterparts; however, there is little reported evidence³.

Throughout history, women have participated in medicine and later in surgery, but their introduction to the male-dominated world across different centuries has been very difficult. Women have had to dress as men to be accepted as medical students and in the practice of medicine or surgery. Currently, this is no longer necessary, but female surgeons still face discrimination. Therefore, this minority group remains vulnerable, even though they may not always perceive it. Discrimination arises from various social relationships, often starting within the family, through the formation of stereotypes and prejudices⁴.

To discriminate means to select by excluding, that is, to treat people or groups inferiorly because of their ethnic or national origin, religion, age, gender, opinions, political preferences, sexual preferences, health conditions, disabilities, marital status, or other reasons. It is understood as unfair treatment of some people by others due to belonging to a social group about which there are prejudices or negative opinions⁵⁻⁶.

Gender inequality is a global social phenomenon, even in countries with higher educational and economic development. In the Global Gender Gap Index of 2021, Sweden was ranked 5th despite being an egalitarian country, and Mexico was ranked 34th out of 156 countries in the world and fourth in Latin America in terms of gender equality¹.

Discrimination against women in medicine has been documented from the time they are students, residents, and surgeons in different countries such as Sweden, the United Kingdom, the United States of America, Kuwait, and Korea, among others, with the percentage varying depending on the degree of social and economic development of each country^{2-3,7-9}.

In Kuwait, a study on microaggressions during the residency training period found that the most frequent was verbal insult (67%), followed by the invalidation of their opinion (62.1%) and acts of discrimination (56.4%)⁸.

Discrimination in medicine is very broad and can be manifested in various forms, both by peers and by patients and health care personnel⁷.

The objective of this study was to describe the discrimination experienced by general surgeons in Mexico in a sample in 2022.

Method

This was a prospective, cross-sectional, and descriptive study developed with 30 closed questions and 2 open ones, categorized into 2 sections: the first for demographic data and the second about discrimination against female surgeons in their routine daily practice. The information was collected from a sample of female surgeons in Mexico. The survey was conducted anonymously, voluntarily, and confidentially. The survey was distributed through an invitation to participate in the study; a link to the self-administered questionnaire was sent via WhatsApp chat to a closed group of female surgeons from all over the country who are members of the Mexican Association of General Surgery (AMCG), during a period of 6 months (from February through August 2022). The inclusion criterion was being a surgeon and willing to complete the entire survey, and the exclusion criterion was being a non-surgeon physician. Data were processed on a computer to create a database. The analysis was descriptive, with the creation of contingency tables and using a statistical package.

Results

A total of 250 female surgeons were invited via chat to respond to a survey, and 146 returned it, with a response rate of 58.4%. Regarding demographic data, concerning the place of birth, 52 (35.6%) were from Mexico City, 11 (7.5%) from Michoacán, 9 (6.2%) from Veracruz, 8 (5.5%) from Puebla, 7 (4.8%) from the State of Mexico, and 7 (4.8%) from Jalisco. The age of the female surgeons was most frequently between 36 and 40 years [32 (21.9%)]; followed by the age group of 46 to 50 years [25 (17.1%)], and thirdly, those aged 41-45 years [24 (16.4%)] (Table 1). Regarding marital status, 52 (35.6%) were married, 43 (29.5%) were single, and 25 (17.1%) were in a common-law union.

Table 1. Age of female surgeons distributed by 5-year periods

Age (years)	n	%
25-30	4	2.7
31-35	16	11
36-40	32	21.9
41-45	24	16.4
46-50	25	17.1
51-55	22	15.1
56-60	7	4.8
61-65	8	5.5
> 65	8	5.5
Total	146	100

Table 2. Academic training of female surgeons

Completion of Undergraduate Degree (Decade)	n	%
1970 to 1979	7	4.8
1980 to 1989	12	8.2
1990 to 1999	43	29.5
2000 to 2009	47	32.2
2010 to 2019	24	16.4
2020 onwards	13	8.9
Total	146	100
Years Until Entering Specialty	n	%
1	40	48.7
2	24	29.2
3	10	12.1
4	4	4.8
5	2	2.4
6	2	2.4
Total	82	100

In terms of the year they completed their undergraduate degree, the highest percentage was between 1990 and 1999 [43 (29.5%)], and between 2000 and 2009 [47 (32.2%)] (Table 2). As observed, the number of female surgeons has increased over time; it remains to be seen how this trend continues in the current decade.

The academic training of female surgeons continued immediately from undergraduate to specialty in

Table 3. Academic development of general female surgeons over time

Institution Where Specialty Was Completed	n	%
Secretaría de Salud	57	39
IMSS	49	33.5
ISSSTE	26	17.8
Pemex	5	3.4
Institutes	4	2.7
Private Hospital	3	2.05
University Hospital	2	1.36
Total	146	100
Time Range	n	%
Before 1980	1	0.7
1980 to 1989	11	7.5
1990 to 1999	29	19.9
2000 to 2009	37	25.3
2010 to 2019	58	39.7
2020 onwards	10	6.8
Total	146	99.9

64 (43.8%). Those who interrupted their postgraduate training were 82 (56.1%) for various reasons, the main one being the lack of sufficient residency positions, as in 2020 there were only 1646 places available for all of Mexico; the second reason was a lack of financial resources, the third was childcare, and the last included other reasons. It was analyzed that the more times one takes the National Exam for Medical Residency Applicants (ENARM), the lower the chance of entering the general surgery residency (Table 2).

The institution where the female surgeons completed their specialty was the Ministry of Health [57 (39%)], followed by the Mexican Social Security Institute (IMSS) [49 (33.6%)], and the Institute for Social Security and Services for State Workers (ISSSTE) [26 (17.8%)] (Table 3). In all these institutions, during their training as specialists, 86 (58.9%) female surgeons experienced discrimination from their peers by not being given the same opportunities to perform surgical procedures as their male counterparts.

The number of female surgeons completing the general surgery specialty has increased over time, as shown in table 3.

Table 4. Public and private sector institutions where female surgeons work

1 job			2 jobs			3 jobs			Total
Sector	n	%	Combination	n	%	Combination	n	%	
IMSS	32	38	IMSS, Secretaría de Salud	11	21	IMSS, Secretaría de Salud, private	5	56	146
Secretaría de Salud	19	23	IMSS, ISSSTE	4	8	IMSS, SEMAR, private	2	22	
ISSSTE	13	15	IMSS, others	7	13	IMSS, ISSSTE, private	2	22	
Others	7	8	Secretaría de Salud, ISSSTE	2	4				
Private	13	15	IMSS, private	16	30				
			Secretaría de Salud, private	9	17				
			ISSSTE, private	4	8				
Total	84	100	Total	53	100	Total	9	100	146
	57.5			36.3			6.2		100

Upon completion of their specialty, 119 (81.5%) female surgeons obtained their certification from the Mexican Council of General Surgery (CMCG). Additionally, 37 (25.3%) continued their training with a high specialty, with endoscopy being the most common, with 16 (43.2%) female surgeons.

In the workplace, 102 (69.8%) female surgeons practice their specialty; of these, 36 (24.6%) in high specialty areas. Only 8 (5%) hold managerial positions in the hospital area, such as director, deputy medical director, head of service, and teaching or as a researcher. Regarding their role as surgeons, they continue to face discrimination, as 28 (19.2%) do not perform the same procedures as their male peers; however, 118 (80.8%) do perform the same procedures.

Of the female surgeons, 64 (43.8%) work in a public institution, 69 (47.2%) in a combination of 2 public or private institutions, and only 13 (8.9%) exclusively in the private sector (Table 4). The private practice is limited for female surgeons, suggesting that their economic income is lower than that of their male peers.

When comparing female and male surgeons in a general surgery unit, females are a minority, with a distribution ranging from 1 (46 [31.5%]) to 9 female surgeons (3 [2.1%]), while male surgeons range from 2 (1.4%) to 26-30 (2.1%), as shown in Table 5.

Discrimination by patients towards female surgeons is significant, as 72 (49.3%) are not equally recognized as male surgeons, with patients referring to female surgeons as “miss” 126 (86.3%) instead of “doctor” like their male counterparts. At the hospital setting, both

Table 5. Comparison of the No. of female and male surgeons working in a General Surgery Unit

Number in Service	Female Surgeons		Male Surgeons	
	n	%	n	%
1	46	31.5	2	1.37
2	16	11.0	4	2.74
3	20	13.7	4	2.74
4	18	12.3	8	5.48
5	18	12.3	5	3.42
6	14	9.6	11	7.53
7	5	3.4	2	1.37
8	6	4.1	8	5.48
9	3	2.1	12	8.22
10	0	0.0	14	9.59
11 to 15	0	0.0	43	29.5
16 to 20	0	0.0	20	13.7
21 to 25	0	0.0	9	6.2
26 to 30	0	0.0	3	2.1
31 or more	0	0.0	1	0.7
Total	146	100	146	100

male and female patients ask female surgeons to perform nursing duties in 120 (82.2%), such as passing or removing bedpans. Additionally, female patients prefer to be taken care of by a male surgeon in

Table 6. Combination of surgical practice and family life

Criterion	n	%
Happy to combine both	87	59.5
Difficult to combine	59	40.4
Total	146	100

64 (43.8%) respondents instead of a female surgeon, although this drops down to 40 (27.4%) for male patients in the same condition. Female patients often bring their husbands to pressure the female surgeon for their care in 45 (30.8%) respondents.

Furthermore, discrimination towards female surgeons occurs with nursing staff in 87 (59.6%) respondents when in the operating room; the surgeon operating with a male assistant addresses him as the leader of the surgical team, as opposed to the female surgeon who is called the scheduled surgeon.

Regarding the location where female surgeons practice, the main location is Mexico City with 41 (28%) respondents, followed by Nuevo León with 11 (7.5%), the State of Mexico with 9 (6.1%), and Michoacán, Morelos, Quintana Roo, and Veracruz each with 8 (5.47%).

On the other hand, female surgeons strive to balance their professional and family lives, divided among multiple activities such as caring for their children if they have any; often, in institutional practice, many choose the night shift to avoid leaving their children alone during the day, although they reported having support from their husbands and a social network. However, they feel overwhelmed with so many activities, and some expressed that it is impossible to stay updated by attending courses or conferences. More than 50% perceive that they can balance their professional and family lives; they stated that when they are single without children or married without children, and when they have a high specialty such as endoscopy, it is easier to perform their activity as a surgeon. On the other hand, 59 (40.4%) who expressed difficulty balancing their life as a surgeon and their family life work the night shift to be able to perform mother and housewife activities, as well as those who have low self-esteem (Table 6).

Discussion

Traditionally, surgery has been considered a “men’s” specialty, but that is changing. The perception that surgery demands too much time, that residency work

is extreme, and that the lifestyle of surgeons is not compatible with a full family and social life discourages many women from becoming general surgery specialists. Surgery does not require physical strength but rather decision-making, intellectual capacity, and motor skills¹⁰.

Overall, women continue to be discriminated against in surgery despite their growth at all levels of education and employment, including medical students, general practitioners, surgical residents, surgeons, and academics⁹.

In Korea, 38.7% of all medical school graduates were women, but only 8.9% graduated as surgeons in 2020⁹. In countries such as the United Kingdom, although 55% of medical school 1st year college students are women, only 28% choose a surgical specialty³. In the United States, more than 50% of medical school 1st year college students are women, but the percentage remains low in surgical specialties such as urology, orthopedics, and cardiothoracic surgery; in general surgery, it has increased to 35.5%¹¹. In Mexico, in 2019, according to INEGI and INMUJERES, the rate of women accessing medical school was 6.9% of all college students vs 6.1% of male students⁴. Similarly, in medical schools, just a little over 50% are women (64% at the National Autonomous University of Mexico); however, the rate remains low for general surgery specialties^{12,13}.

Another relevant factor explaining this trend toward increasing female enrollment is that a career in medicine generally provides a mid-level economic return, leading many men to seek potentially better-paid professions than medicine; however, this assertion requires further studies¹².

In a study conducted in 2017, Heizen et al.¹⁴ documented a total of 147,910 medical specialists, of whom 37.4% were women and 62.6%, men; the male-to-female ratio was 1:7, depending on the specialty. According to the National Occupation and Employment Survey by INEGI, in the second half of 2021, Mexico had 305,418 people working as doctors, of whom 54% were men and 46%, women, aged 25 to 40 years¹⁵.

Our study observed a gradual increase in medical graduates; from 1970 through 1979, only 7 (4.8%) completed their undergraduate degree, and from 2000 through 2009, there were 47 (32.2%). General practitioners accessing the general surgery specialty are highly competitive, as nearly half (64 [43.32%]) entered on their first attempt at the National Exam for Medical Residency Applicants (ENARM), while the rest did not due to a lack of training but probably due

to a lack of residency positions, as in 2019, 42,680 applicants took the ENARM, but only 9480 positions were offered, of which 1646 were for general surgery. Our study also stated that the more times one takes the ENARM, the fewer female doctors enter the specialty; 64 (43.8%) passed on their 1st attempt, 40 (48.1%) on their 2nd attempt, for only 2 (2.4%) on their 6th attempt. The graduation rate of female surgeons has also increased over time; from 1970 to 1979, only 1 (0.7%) graduated, and from 2010 to 2019, 58 (39.7%) graduated¹⁶.

In Kuwait, a study on microaggressions during residency training found that the most common form of discrimination was verbal insult (67%), followed by invalidation⁸. Microaggressions in Mexico can be perceived when a surgical resident is in training, and the attending surgeon makes a stereotypical comment, such as that she would be better “in the kitchen at home” instead of being in the operating room, ridiculing her in front of the entire surgical team¹⁷.

One form of gender discrimination that female surgeons face is from their peers, who do not allow them to perform the same surgical procedures. Dr. Katheryn Dorothy Duncan Anderson, a pediatric surgeon who worked at Georgetown University Hospital, was assigned only 7 cases in 2 years, prompting her to move to community hospitals, where she operated on 700 cases in 1 single year; she was the first female surgeon to become president of the American College of Surgeons (2005-2006)^{11,18}. In our study, it was documented that female surgeons were not allowed to perform the same surgical procedures as men during their training period in 86 (58.9%) respondents, and as practicing surgeons in 28 (19.2%) cases.

A 2017 study on medical specialists in Mexico reported that 69% were certified; of these, female specialists had a higher rate of 73.5%¹⁴. Another important figure regarding certification, published by Zermeño et al.¹⁹, is that approximately 10,232 surgeons are certified by the Mexican Council of General Surgery (CMCG), with an estimated 10.5% being female surgeons. This is corroborated in our study, as 119 (81.5%) female surgeons are certified by the CMCG, indicating that female surgeons adhere to standards and are more competitive.

Among the demographic data, a large percentage of female surgeons were born in Mexico City (52 [35.6%]), probably due to the centralization of the country. Few migrate to other states, with 41 (28%) working in Mexico City, likely due to the infrastructure offered by the hospitals.

Discrimination against women, especially medical students and female surgeons, manifests in different forms according to culture. In highly egalitarian countries such as Sweden, 41.7% of medical students still experience gender discrimination, primarily from medical staff (33.7%), patients and their families (29.7%), and other medical students (14.9%). Discrimination is expressed silently, ignoring them, belittling them, or not caring what they say in a context. Another form is ridiculing them. Patients treat them as objects or toys, calling them “little girl” or “sweet girl,” not taking them as seriously as their male counterparts⁷. In Chile, female surgeons are called “miss” without recognition and are also ignored, even when the surgeon is assessing a patient for emergency surgery, giving credit to male residents instead, as if they were the surgeons who would operate on the patient²⁰. In our study, patient discrimination towards female surgeons in Mexico manifested by calling them “miss” in 126 (86.3%) cases, treating them as nurses, asking them to perform nursing duties, and not taking them seriously.

In a country like Mexico, with a millennia-old sexist tradition, our study shows that female surgeons are discriminated against by patients, with 50.7% not being equally recognized as male surgeons. Moreover, women themselves doubt the capabilities of their peers when they prefer to seek medical consultations with men, distrusting female specialists or surgeons¹⁰. In our study, female patients preferred male surgeons in 43.8% of respondents; in contrast, when a male patient was in the same condition, the percentage was 27.4%. Female patients brought their husbands to pressure the female surgeon for attention in 30.8% of respondents, as a sign of sexism.

Nursing staff do not consider female surgeons to be of higher hierarchy than themselves, treating them as peers and expecting them to perform the same duties, thereby discriminating against female surgeons. When a patient requests a bedpan from a resident or female surgeon, and she informs the nurses, they say, “why don’t you take it to them?” But if it were a male doctor, they would say, “yes, I’ll take it in a moment”¹⁷. Another form of discrimination by nursing staff is not considering the female surgeon capable of operating, so in our results, 59.6% (87) of respondents showed that if a male was present in the operating room, he would be addressed as the leader of the surgical team, despite the female surgeon being scheduled as such.

Few female surgeons have represented academies and associations. For instance, in the National Academy of Medicine, in its 158 years of existence, there has been only one female president. In the Mexican Academy of Surgery, founded 89 years ago, there has been no female president to this day. In the Mexican Association of General Surgery, founded 49 years ago, there have been 2 female presidents only. This phenomenon is not exclusive to Mexico; it is also observed in the United States, where the American College of Surgeons has had four female presidents—Kathryn D. Anderson, Patricia J. Numann, Barbara Lee Bass, and Julie A. Freischlag—in its 109-year history^{18,21-23}. There is a lack of promotion of women to managerial positions, typically occupied by men, as our study shows that only 5% of women hold mid-level management positions such as directors, deputy directors, and heads of general surgery service.

Marital status is important for the holistic development of general surgery, as it can limit academic updates. In a study conducted by Sánchez²⁴ in 1995, 40% were married, and in our study, 52 (35.6%) are married; however, there has been a significant increase in cohabitation, from 1% before to the current 17.1%. There is a lower rate of single women, with a reduction from 46% down to 29.2%. Being married or in a cohabitation relationship involves multiple activities, such as caring for children (if they have any), keeping the house clean, or preparing food, among others, which cause some female surgeons to work the night shift to practice surgery. Despite the multiple activities they perform, 59.5% say they are happy and can balance surgery with their family life; however, 40.4% said they have difficulty balancing household activities with surgery and feel overwhelmed. Some have reported not having the opportunity to attend academic activities due to lack of time and the lack of daycare facilities for their children while they attend courses or conferences. Married female surgeons without children can develop holistically.

Self-discrimination also exists, as women sometimes discriminate against themselves, doubting their own abilities and potential¹⁰, and instead of calling themselves surgeons, they choose the translation women's surgeons as "mujeres cirujanos," when in Spanish it has been accepted since the 1980s by the Real Academia Española that all professions have a feminine form, and therefore it is "cirujana." Others, when called "miss" instead of "doctor," are happy because it means "missus" and do not recognize their intellectual capacity. On the other hand, female

surgeons are addressed by their first name as "doctora," like nurses, and not by their last name, unlike male doctors who are always addressed by their last name.

Strategies should be developed so that female surgeons can develop under equal conditions with male surgeons, possibly creating an infrastructure where female surgeons can have their children cared for in a safe place while they develop in the surgical field, and having daycare facilities at academic events while they attend them. The path is still long, and work must continue day by day.

Conclusions

Discrimination is frequent in the daily surgical practice of female surgeons in 3 areas: peers, patients, and nursing staff. This is an initial work quantifying the discrimination of female surgeons in Mexico. We believe that future studies should explore other aspects of discrimination against female surgeons and whether it influences their performance as such. Strategies should be implemented to avoid discrimination against female surgeons, to achieve an environment of equality. The perception of discrimination against female surgeons during their training and as specialists requires many steps to create behavior changes in healthcare personnel and patients, being social and cultural changes that will take a long time to be considered equal to their male peers.

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Conflicts of interest

None declared.

Ethical disclosures

Protection of human and animal subjects. The authors declare that no experiments were performed on humans or animals for this study.

Confidentiality of data. The authors declare that no patient data appear in this article.

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