

# Preferences of Lebanese adults for the gender of their surgeons: a cross-sectional study

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## Abstract

**Background:** More females are specializing in surgery in Lebanon, but it is not known if a gender bias exists among Lebanese people in their preference of their surgeons.

**Aims:** This study investigated the preference of Lebanese men and women for the gender of surgeons and explored reasons for their preferences.

**Methods:** A convenience sample of 1000 Lebanese adults were asked about their preferences for the gender of surgeons of different specialties (paediatrics, cardiology, neurology, orthopaedics, ophthalmology, ear nose and throat, plastic surgery and obstetrics/gynaecology). The association between the participants' sociodemographic characteristics and gender preference for surgeons was examined in bivariate and multivariable regression analyses. Odds ratios (OR) and 95% confidence intervals (CI) were calculated.

**Results:** Half of the respondents had no gender preference for their surgeons whatever their speciality. Male surgeons were preferred over females for cardiac (44.2% versus 3.7% respectively), neurological (43.4% versus 4.1%) and orthopaedic procedures (41.9% versus 3.5%) whereas male and female obstetricians/gynaecologists were equally preferred (23.6% and 25.0% respectively). Being male (OR = 0.74, 95% CI: 0.57–0.97) or single (OR = 0.65, 95% CI: 0.44–0.96) decreased the likelihood of choosing a male heart surgeon whereas employment increased that likelihood (OR = 1.37, 95% CI: 1.03–1.83). Perceived competence, reputation and trustworthiness of male surgeons influenced participants' choices whereas the choice of an obstetrician/gynaecologist was related to privacy and comfort.

**Conclusions:** The preference for female surgeons in Lebanon varies by the type of surgical specialty. Qualitative studies exploring the social determinants of patients' preferences are needed.

Keywords: surgeons, gender, patient preferences, Lebanon.

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## Introduction

Surgical professions in Lebanon are male dominated, with women constituting less than 0.5% of surgeons (1). Recently however, we have observed an increasing trend of women wanting to specialize in non-surgical specialties. For example, at our institution, women make up 30–40% of the current ophthalmology, otolaryngology or obstetrics/gynaecology departments, as compared to 30 years ago when all physicians in these departments were men. This trend seems to parallel the trend observed in the United States of America (2).

Research on patients' preferences about their physician's gender is lacking, especially in the Middle East. Studies from other countries show that patients have gender preferences that are mostly in favour of male physicians. This is because male doctors are perceived to be more confident and industrious, more knowledgeable, and to have greater technical competence (3–5).

In this study, we examined whether a gender bias exists in choosing surgeons among Lebanese adults, and the reasons for the gender preference, if present.

Our findings will shed light on the cultural barriers that may deter people from choosing a female surgeon in this country at a time when more women are becoming interested in surgical professions.

## Methods

### Study design

This was a cross-sectional survey that was conducted in Greater Beirut, Lebanon between December 2015 and February 2016.

### Participants and setting

The study included a convenience sample of 1000 Lebanese adults older than 18 years who were recruited from six main public areas in Greater Beirut, such as big shopping centres and theatres. Adults visiting those public areas on weekend days during the study period were directly approached to participate in the study. Participants had to be competent in reading and writing in Arabic. Exclusion criteria were any physical challenge that could interfere with the ability of the participant to read or write, such as vision impairment.

## Data collection

Data were collected using an anonymous self-administered questionnaire in Arabic. The questionnaire gathered information on sociodemographic variables such as sex, residence (Beirut Mount Lebanon, other), age, marital status (single, other), education (intermediate and lower, high school, university), monthly income and employment status (employed, not employed). Participants were asked to indicate what sex they preferred their surgeon to be for different specialties, whether for themselves or for another family member. The chosen specialists were: paediatrician (we assumed a neutral gender preference), cardiothoracic surgeon, neurosurgeon (high surgical risk); orthopaedic surgeon (physical strength of surgeon); ophthalmologist, otolaryngologist (lower surgical risk); plastic surgeon (cosmetic outcome); obstetrician-gynaecologist (highly sensitive condition). In addition, participants were asked to indicate the gender of their current surgeon, general practitioner or paediatrician (when applicable) and were prompted to provide comments on the reasons for their preferences. This was done to investigate whether the choice of the gender of their current surgeon, general practitioner or paediatrician corresponded with their answers on gender preference of surgeons in the different specialties given in the survey. The questionnaire was locally prepared for the purpose of the study (Supplement 1, available online) and its validity and reliability were not assessed.

## Statistical analysis

Data were summarized as means for continuous variables and as frequencies and percentages for categorical variables. The reasons given for the preferred gender of physicians were grouped under main themes, such as competence, trustworthiness, experience, reputation and strength. As the themes were qualitative in nature, they were given codes that converted them to categorical data and they were analysed accordingly. Bivariate analysis was done to investigate the association between the participants' preferred gender of physician and their sociodemographic characteristics. A multivariable logistic regression analysis was done, adjusted for independent covariables, with the preferred gender of the surgeon being the dependent variable; no gender preference was the reference category. Sociodemographic variables with a *P*-value less than 0.2 in the bivariate analysis were included in the multivariable analysis. SPSS, version 23 was used for data entry, management and analysis. A *P*-value less than 0.05 was considered statistically significant.

## Ethical considerations

The study was approved by the Institutional Review Board of the American University of Beirut. People who agreed to participate provided verbal consent.

## Results

Our sample consisted of slightly more men than women (53.1%). Most of the participants were young (mean age 30.3 (standard deviation 13.3) years), had a university de-

gree (67.8%) and lived in the capital city of Beirut (67.5%). Table 1 gives the sociodemographic characteristics of the sample.

Of 996 participants who reported how often they consulted a physician, 792 (79.5%) consulted one at least once a year, of whom 577 (72.9%) reported having male doctors as their general practitioner. Of the 349 participants who had a current surgeon, 320 (91.7%) had male surgeons. In comparison, of 375 participants who reported having a current paediatrician, 369 reported the gender, of whom 252 (68.3%) had a male paediatrician while 117 (31.7%) had a female paediatrician. Analysis of the participants' preferences of their surgeon's gender in the different surgical specialties showed that about half of them had no gender preference. The lack of a preference varied by the surgical specialty, from 439 (51.3%) for the gender of obstetrician/gynaecologist to 641 (65.6%) for the gender of the family ear nose and throat surgeon (Table 2). However, male surgeons were preferred over females for most specialties, especially in cardiology (44.2% versus 3.7% respectively), neurology (43.4% versus 4.1%) and orthopaedics (41.9% versus 3.5%). Only for obstetrics/gynaecology were female surgeons slightly more preferred than males (25.0% of the participants would

**Table 1 Participants' sociodemographic characteristics.**

Characteristic	No. (%)
<b>Sex (n = 994)</b>	
Male	528 (53.1)
Female	466 (46.9)
<b>Age (years) (n = 985)</b>	
18–30	644 (65.5)
31–49	246 (24.9)
50–85	95 (9.6)
<b>Single marital status (n = 998)</b>	
Yes	657 (65.8)
No	341 (34.2)
<b>Residence (n = 953)</b>	
Beirut	643 (67.5)
Mount Lebanon	185 (19.4)
Other	125 (13.1)
<b>Highest education level (n = 989)</b>	
Intermediate and lower	68 (6.9)
High school	250 (25.3)
University	671 (67.8)
<b>Employed (n = 996)</b>	
Yes	541 (54.3)
No	455 (45.7)
<b>Monthly income (US\$) (n = 747)</b>	
< 500	151 (20.2)
500–999	265 (35.5)
1000–4999	268 (35.9)
≥ 5000	63 (8.4)

**Table 2 Preferred sex of surgeon by surgical specialty**

Surgical specialty	Preferred sex of surgeon		
	Male No. (%)	Female No. (%)	No preference No. (%)
Personal heart surgeon (n = 988)	437 (44.2)	37 (3.7)	514 (52.0)
Personal neurosurgeon (n = 951)	428 (43.4)	4 (0.4)	519 (52.6)
Personal orthopaedic surgeon (n = 984)	412 (41.9)	34 (3.5)	538 (53.7)
Personal ophthalmologic surgeon (n = 988)	332 (33.6)	61 (6.2)	595 (60.2)
Personal ear nose and throat surgeon (n = 986)	320 (32.5)	62 (6.3)	604 (61.3)
Personal plastic surgeon (n = 979)	316 (32.3)	115 (11.7)	548 (56.0)
Personal obstetric/gynaecological surgeon (n = 855)	202 (23.6) <sup>a</sup>	214 (25.0)	439 (51.3)
Family heart surgeon (n = 981)	410 (41.8)	23 (2.3)	548 (55.9)
Family neurosurgeon (n = 980)	396 (40.4)	32 (3.3)	552 (56.3)
Family orthopaedic surgeon (n = 982)	380 (38.7)	23 (2.3)	579 (59.0)
Family ophthalmologic surgeon (n = 978)	303 (31.0)	44 (4.5)	631 (64.5)
Family ear nose and throat surgeon (n = 977)	294 (30.1)	42 (4.3)	641 (65.6)
Family plastic surgeon (n = 975)	295 (30.3)	86 (8.8)	594 (60.9)
Family obstetric/gynaecological surgeon (n = 972)	196 (20.2)	223 (22.9)	553 (56.9)

<sup>a</sup>It is not unusual in Lebanon for husband to choose the family's obstetrician. Some male participants may have answered on behalf of their wives.

prefer a female obstetrician/gynaecologist versus 23.6% who would prefer a male). There was a higher preference for female plastic surgeons (11.7%) in comparison to other surgical fields except for obstetrics/gynaecology. Similar gender preferences were observed when choosing a surgeon for family members (Table 2).

In bivariate analysis, preferred gender of the surgeon, whether for the participant or for a family member was significantly associated with the participant's sex, age, employment status, marital status, gender of current general practitioner and current surgeon in all the surgical specialties. Table 3 shows the bivariate analysis of the gender preference for a heart surgeon as an example. Similarly, multivariable regression analysis showed that the participant's sex, employment status and marital status were significant predictors of preferring a male surgeon, whether for the participant or for the family in all surgical specialties. For example, male participants were less likely to choose a male heart surgeon (OR = 0.74, 95% CI: 0.57–0.97) as were single participants (OR = 0.65, 95% CI: 0.44–0.96), whereas employed participants were more likely to choose a male heart surgeon (OR = 1.37, 95% CI: 1.03–1.83) (Table 4). In contrast, none of the covariates predicted the preference for a female heart surgeon (Table 4). Bivariate and multivariable regression analyses for the preferred gender of surgeons in the remaining specialties are shown in supplementary tables (Supplement 2, available online).

Analysis of the reasons for the participants preference for male surgeons (n = 223) were the following: 55 (24.7%) gave competence, experience and reputation of the surgeon as their reason, 48 (21.5%) said strength and courage and 28 (12.6%) said trustworthiness. In contrast, of the 238 participants who reported no gender preference for their surgeon, 216 (90.8%) cited competence as the

main reason for choosing a surgeon and not gender. With regard to the preferred gender of an obstetrician/gynaecologist, 45/47 participants (95.7%) who provided a response to the question said they would base their choice on privacy issues and feeling comfortable.

## Discussion

In this study, about half of the respondents had no gender preference when choosing a surgeon irrespective of the surgical specialty. This finding is important as it may imply that the Lebanese are accepting of female surgeons. Their choice of surgeon is mostly determined by the surgeon's competence and surgical skill, rather than his/her gender. Having no preference for the surgeon's gender is consistent with other studies in which patients had no gender preferences for their oral and maxillofacial surgeons (6), plastic surgeons (7), orthopaedic surgeons (8) or emergency physicians (9).

When choosing an obstetrician, our participants had similar preference for female and male physicians. This finding differs from reports from other countries in the region in which female obstetricians were almost exclusively preferred (10–12). This may be explained by the more conservative culture in other countries with Muslim majorities, where observant Muslim women refrain from exposing certain body parts in front of males who are unrelated to them by blood or marriage. Hence, the preference for female obstetricians in these countries is not surprising given the nature of the specialty where women tend to feel more comfortable if checked or operated on by a female physician. A recent survey of 405 female patients in Saudi Arabia about their preference of their surgeon's gender reported that 42% preferred male surgeons but would opt for any other surgeon in cases of emergency if a male surgeon was not available. However,

**Table 3 Bivariate analysis of the association between sociodemographic variables and preferred sex of personal heart surgeon (n = 1000)**

Variable	Preferred sex of heart surgeon			P-value
	Male (n = 437)	Female (n = 37)	No preference (n = 514)	
	No. (%)	No. (%)	No. (%)	
<b>Sex</b>				
Male (n = 523)	211 (40.3)	21 (4.0)	291 (55.6)	0.034
Female (n = 459)	223 (48.6)	15 (3.3)	221 (48.1)	
<b>Age (years) (n = 973)</b>				
18–30	247 (38.8)	29 (4.6)	360 (56.6)	< 0.001
31–50	135 (55.6)	6 (2.5)	102 (42.0)	
51–85	47 (50.0)	1 (1.1)	46 (48.9)	
<b>Highest education (n = 977)</b>				
Intermediate	31 (46.3)	4 (6.0)	32 (47.8)	0.474
High school	99 (40.1)	10 (4.0)	138 (55.9)	
University	303 (45.7)	23 (3.5)	337 (50.8)	
<b>Employed (n = 984)</b>				
Yes	261 (49.1)	24 (4.5)	247 (46.4)	0.001
No	174 (38.5)	13 (2.9)	265 (58.6)	
<b>Monthly income (US\$) (n = 736)</b>				
< 1000	186 (45.8)	12 (3.0)	208 (51.2)	0.611
≥ 1000	140 (42.4)	12 (3.6)	178 (53.9)	
<b>Single marital status (n = 987)</b>				
Yes	249 (38.4)	27 (4.2)	373 (57.5)	< 0.001
No	187 (55.3)	10 (3.0)	141 (41.7)	
<b>Sex of current general practitioner (n = 778)</b>				
Male	323 (49.8)	14 (2.2)	311 (48.0)	< 0.001
Female	43 (33.1)	12 (9.2)	75 (57.7)	
<b>Sex of current paediatrician (n = 367)</b>				
Male	121 (48.4)	6 (2.4)	123 (49.2)	0.112
Female	56 (47.9)	8 (6.8)	53 (45.3)	
<b>Sex of current surgeon (n = 342)</b>				
Male	174 (54.7)	11 (3.5)	133 (41.8)	< 0.001
Female	11 (45.8)	6 (25.0)	7 (29.2)	

in obstetrics and gynaecology clinics, 46% preferred female obstetricians (13).

Our finding that the surgeon's competence and skill, physical strength and trustworthiness were the most cited reasons for choosing surgeons is consistent with the findings of a recent systematic review (14), where competence of the surgeon, surgeon's reputation and interpersonal skills were the most common reasons reported for choosing a surgeon.

Our study has some limitations. Our sample was a convenience sample of people visiting big shopping malls or theatres and hence it is not representative of the Lebanese population at large. Most of the participants were young people with a university degree living in Beirut. Hence, their preferences may not represent those of older people, those with less education, or those living

in other provinces of the country. On the other hand, the study's main strength is its large sample size, and the fact that it examines a largely unaddressed issue in both Lebanon and the region.

## Conclusion

This study provides insight into the current trend of the Lebanese preferences of the gender of their surgeons at a time when a growing number of women are pursuing careers in surgery. The reasons behind this trend could not be explored in depth in this study given its design. Qualitative studies are needed to understand the social factors that affect patients' preferences when choosing their surgeons.

Physicians' interact with their patients based on the nature of their illnesses. Patients, however, interact with

**Table 4 Multivariable logistic regression analysis of factors associated with preferred sex of personal heart surgeon**

Covariates	OR (95% CI)	P-value
<b>Preference for male heart surgeon</b>		
Male sex	0.74 (0.57–0.97)	0.03
Employed	1.37 (1.03–1.83)	0.03
Single marital status	0.65 (0.44–0.96)	0.03
<b>Age category (years)</b>		
18–30	Ref.	
31–50	1.29 (0.86–1.93)	0.20
51–85	1.01 (0.59–1.74)	0.90
<b>Preference for female heart surgeon</b>		
Male sex	1.02 (0.51–2.05)	0.90
Employed	2.09 (0.99–4.43)	0.05
Single marital status	0.62 (0.24–1.66)	0.30
<b>Age category (years)</b>		
18–30	Ref.	
31–50	0.41 (0.14–1.23)	0.10
51–85	0.17 (0.02–1.47)	0.10

OR: odds ratio; CI: confidence interval.

Dependent variable reference category was no gender preference.

physicians based on how they perceive their expertise, competence, reputation and other gender stereotyped traits. Hence, it is important to investigate how patients perceive female surgeons, as this could determine patient's choices of female surgeons. Addressing patient

concerns about female surgeons' abilities and competence can determine their success and recognition as capable surgeons, thus maximizing patient trust and optimizing the patient–surgeon relationship.

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### Authors' Contributions

Authors NAH, PB, MF, SH, AM and SLS contributed equally to conception and design of the study, literature review, protocol writing, data collection, data analysis and drafting of the manuscript. MN contributed to study design, protocol writing, data analysis, drafting and reviewing of the manuscript. All authors read and approved the final manuscript.

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## Préférences des adultes libanais concernant l'appartenance sexuelle de leur chirurgien : étude transversale

### Résumé

**Contexte :** Au Liban, les femmes sont plus nombreuses à se spécialiser en chirurgie, mais on ne sait pas si un biais sexospécifique existe parmi la population libanaise en matière de préférence pour le choix d'un chirurgien.

**Objectifs :** La présente étude avait pour objectif d'examiner la préférence des hommes et des femmes libanais quant à l'appartenance sexuelle des chirurgiens, ainsi que les raisons de leur préférence.

**Méthodes :** Un échantillon de commodité de 1000 adultes libanais a été interrogé sur ses préférences quant à l'appartenance sexuelle des chirurgiens dans différentes spécialités (pédiatrie, cardiologie, neurologie, orthopédie, ophtalmologie, otorhinolaryngologie, chirurgie esthétique et gynécologie/obstétrique). L'association entre les caractéristiques sociodémographiques des participants et leur préférence quant à l'appartenance sexuelle des chirurgiens a été examinée à l'aide des analyses de régression bivariées et multivariées. Les odds ratios (OR) et les intervalles de confiance (IC) à 95 % ont été calculés.

**Résultats :** La moitié des personnes interrogées n'avaient pas de préférence quant à l'appartenance sexuelle de leur chirurgien, quelle que soit sa spécialité. La préférence allait à un chirurgien plutôt qu'à une chirurgienne pour les procédures cardiaques (44,2% contre 3,7% respectivement), neurologiques (43,4% contre 4,1%) et orthopédiques (41,9% contre 3,5%). En revanche, pour les procédures d'obstétrique et de gynécologie, la préférence pour un chirurgien ou une chirurgienne était équivalente (23,6% et 25,0% respectivement). Le fait d'appartenir au sexe masculin (OR = 0,74, IC à 95% : 0,57-0,97) ou d'être célibataire (OR = 0,65, IC à 95% : 0,44-0,96) réduisait la probabilité de choisir un chirurgien cardiaque de sexe masculin, tandis que l'emploi augmentait cette même probabilité (OR = 1,37, IC à 95% : 1,03-1,83%). La compétence, la réputation et la fiabilité perçues des chirurgiens de sexe masculin influençaient le choix des participants. Pour un obstétricien/gynécologue, le choix était lié aux notions d'intimité et de confort.

**Conclusions :** La préférence pour les chirurgiennes au Liban varie selon le type de spécialité chirurgicale. Des études qualitatives s'intéressant aux déterminants sociaux des préférences des patients sont nécessaires.

### تفضيلات اللبنانيين البالغين لجنس الجراحين المعالجين لهم: دراسة مقطعية

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#### الخلاصة

الخلفية: يتزايد عدد الإناث اللواتي يتخصصن في الجراحة في لبنان، ولكن من غير المعروف إذا كان هناك انحياز جنس في أوساط اللبنانيين إزاء اختياراتهم لجنس الجراحين المعالجين لهم.

الأهداف: هدفت هذه الدراسة إلى استقصاء تفضيلات اللبنانيين رجالاً ونساءً لجنس الجراحين المعالجين لهم واستكشاف الأسباب الكامنة وراء تلك التفضيلات.

طرق البحث: طُرح سؤال على عينة عشوائية قوامها 1000 لبناني من البالغين حول تفضيلاتهم بشأن جنس الجراحين المعالجين لهم من مختلف التخصصات (الأطفال، القلب، الأعصاب، تقويم العظام، العيون، الأنف والأذن والحنجرة، التجميل، والنساء والتوليد). وخضعت العلاقة بين الخصائص الاجتماعية السكانية للمشاركين وتفضيلاتهم لجنس الجراحين للدراسة باستخدام تحليلي انحدار أحدهما ثنائي المتغيرات والآخر متعدد المتغيرات. كما احتُسبت نسب الاحتمال وفترات الثقة (95%).

النتائج: لم يكن لدى نصف المستجيبين تفضيل محدد لجنس الجراحين مهما كان تخصصهم. وفضل الجراحون الذكور عن الإناث بالنسبة لجراحات القلب (44.2% في مقابل 3.7% على التوالي)، والأعصاب (43.4% في مقابل 4.1%) وجراحات تقويم العظام (41.9% في مقابل 3.5%). بينما تساوى أطباء النساء والتوليد ذكورا وإناثا من حيث التفضيل (23.6% و 25.0% على التوالي). وقلل كون الجراح ذكرا تلك الاحتمالية (OR=0.74; 95% CI=0.57-0.97) أو أعزبا (OR=1.37; 95% CI=1.03-1.83) وأثرت الكفاءة الواضحة، والسمعة، والموثوقية في الجراحين الذكور على اختيارات المشاركين لهم، بينما اقترن اختيار طبيب النساء والتوليد بالشعور بالخصوصية والراحة.

الاستنتاجات: يتفاوت تفضيل الجراحين من الإناث في لبنان وفقاً لنوع التخصص الجراحي المطلوب. وتتمس الحاجة إلى إجراء دراسات نوعية لاستقصاء المحددات الاجتماعية لتفضيلات المرضى واختياراتهم.

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