



BMJ Open is committed to open peer review. As part of this commitment we make the peer review history of every article we publish publicly available.

When an article is published we post the peer reviewers' comments and the authors' responses online. We also post the versions of the paper that were used during peer review. These are the versions that the peer review comments apply to.

The versions of the paper that follow are the versions that were submitted during the peer review process. They are not the versions of record or the final published versions. They should not be cited or distributed as the published version of this manuscript.

BMJ Open is an open access journal and the full, final, typeset and author-corrected version of record of the manuscript is available on our site with no access controls, subscription charges or pay-per-view fees (<http://bmjopen.bmj.com>).

If you have any questions on BMJ Open's open peer review process please email [info.bmjopen@bmj.com](mailto:info.bmjopen@bmj.com)

# BMJ Open

## Sexism and sexual harassment in medicine in French-speaking Switzerland: A survey.

Journal:	<i>BMJ Open</i>
Manuscript ID	bmjopen-2021-049520
Article Type:	Original research
Date Submitted by the Author:	28-Jan-2021
Complete List of Authors:	<p>Najjar, Iris; HUG, Medicine  Socquet, Jennifer; HUG  Gayet-Ageron, Angele; Univ of Geneva Hospitals, Infection Control Programme  Ricou, Bara; Geneva University Hospitals of Geneva, APSI  Le Breton, Julien; HUG, Department of rehabilitation and geriatrics  Rossel, Anne; HUG, Department of Medicine  Abdulcadir, Jasmine; University Hospitals of Geneva , Obstetrics and Gynecology; University of Geneva, Faculty of Medecine  Soroken, Cindy; HUG, Department of Maternity, Adolescent and Child Health  Tessitore, Elena; HUG, Departement of cardiology  Gerstel, Caroline; Delta Practice Network, Department of general internal medicine  Halimi, Julie; HUG, Department of child psychiatry  Frasca Polara, Giulia; Hôpital Lariboisière, Departement of neurology  Coen, Matteo; University of Geneva Faculty of Medicine  Niyibizi, Eva; Hirslanden Clinique La Colline, Emergency Care</p>
Keywords:	MEDICAL ETHICS, PUBLIC HEALTH, MEDICAL EDUCATION & TRAINING, ETHICS (see Medical Ethics)

SCHOLARONE™  
Manuscripts



I, the Submitting Author has the right to grant and does grant on behalf of all authors of the Work (as defined in the below author licence), an exclusive licence and/or a non-exclusive licence for contributions from authors who are: i) UK Crown employees; ii) where BMJ has agreed a CC-BY licence shall apply, and/or iii) in accordance with the terms applicable for US Federal Government officers or employees acting as part of their official duties; on a worldwide, perpetual, irrevocable, royalty-free basis to BMJ Publishing Group Ltd ("BMJ") its licensees and where the relevant Journal is co-owned by BMJ to the co-owners of the Journal, to publish the Work in this journal and any other BMJ products and to exploit all rights, as set out in our [licence](#).

The Submitting Author accepts and understands that any supply made under these terms is made by BMJ to the Submitting Author unless you are acting as an employee on behalf of your employer or a postgraduate student of an affiliated institution which is paying any applicable article publishing charge ("APC") for Open Access articles. Where the Submitting Author wishes to make the Work available on an Open Access basis (and intends to pay the relevant APC), the terms of reuse of such Open Access shall be governed by a Creative Commons licence – details of these licences and which [Creative Commons](#) licence will apply to this Work are set out in our licence referred to above.

Other than as permitted in any relevant BMJ Author's Self Archiving Policies, I confirm this Work has not been accepted for publication elsewhere, is not being considered for publication elsewhere and does not duplicate material already published. I confirm all authors consent to publication of this Work and authorise the granting of this licence.

## Sexism and sexual harassment in medicine in French-speaking Switzerland:

### A survey.

Iris Najjar<sup>1\*</sup>, Jennifer Socquet<sup>2\*</sup>, Angèle Gayet-Ageron<sup>5</sup>, Bara Ricou<sup>4,6</sup>, Julien Le Breton<sup>7</sup>, Anne Rossel<sup>1</sup>, Jasmine Abdulcadir<sup>8</sup>, Cindy Soroken<sup>8</sup>, Elena Tessitore<sup>9</sup>, Caroline Gerstel<sup>10</sup>, Julie Halimi<sup>11</sup>, Giulia Frasca Polara<sup>12</sup>, Matteo Coen<sup>1,4,#</sup>, Eva Niyibizi<sup>3,#</sup>

\*,# Equal contribution to the manuscript

<sup>1</sup> Service of General Internal Medicine, Geneva University Hospitals, Rue Gabrielle-Perret-Gentil 4, 1211, Geneva 14, Switzerland.

<sup>2</sup> Department of Primary Health Care Center, Geneva University Hospitals, Rue Gabrielle-Perret-Gentil 4, 1211, Geneva 14, Switzerland.

<sup>3</sup> Emergency Care Department, Hirslanden Clinic La Colline, Avenue de Beau Séjour 6, 1206 Geneva, Switzerland.

<sup>4</sup> Faculty of Medicine, University of Geneva, Rue Michel-Servet 1, 1211, Geneva 14, Switzerland.

<sup>5</sup> Department of Clinical Epidemiology, Geneva University Hospitals, Rue Gabrielle-Perret-Gentil 4, 1211, Geneva 14, Switzerland.

<sup>6</sup> Department of Anaesthesiology, Pharmacology and Intensive Care, Geneva University Hospitals, Rue Gabrielle-Perret-Gentil 4, 1211, Geneva 14, Switzerland.

<sup>7</sup> Department of rehabilitation and geriatrics, Trois-Chêne Hospital, Chemin du Pont-Bochet 3, 1226 Thônex, Switzerland.

<sup>8</sup> Department of Maternity, Adolescent and Child Health, Geneva University Hospitals, Rue Gabrielle-Perret-Gentil 4, 1211, Geneva 14, Switzerland.

<sup>9</sup> Department of Cardiology, Geneva University Hospitals, Rue Gabrielle-Perret-Gentil 4, 1211, Geneva 14, Switzerland.

<sup>10</sup> General internal medicine, Delta practice network, Chemin de la Tour 21, 1217, Geneva, Switzerland.

<sup>11</sup> Department of child psychiatry, Geneva University Hospitals, Rue Gabrielle-Perret-Gentil 4, 1211, Geneva 14, Switzerland.

<sup>12</sup> Département de neurologie, Lariboisière Hospital, 2 rue Ambroise-Paré, 75010 Paris, France.

**Correspondence to:** Iris Najjar, Service of General Internal Medicine, Department of Medicine, Geneva University Hospitals, Rue Gabrielle-Perret-Gentil 4, 1211, Geneva 14, Switzerland, [iris.najjar@gmail.com](mailto:iris.najjar@gmail.com).

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

**Abstract**

**Objectives:** The aim of this study was to determine the prevalence and type of gender-discrimination and sexual harassment experienced by medical students and physicians in French-speaking Switzerland.

**Design and Setting:** In 2019 an online questionnaire composed of 9 multiple choice and 2 open questions was developed and distributed via social media platforms and emailed to medical students, to hospital physicians of French-speaking Switzerland as well as to general practitioners in Geneva. Statistical tests were done using the chi square-test and the bilateral Fisher’s exact T-test.

**Results:** Among 1071 responders, a total of 889 were included (625 females, 264 males). 182 were excluded because they did not mention their working place, were working only outside Switzerland or did not identify to a binary gender. Of the 889 participants, 199 (31.8%) women and 18 (6.8%) men reported having personally experienced gender discrimination, in terms of sexism, difficulties in career development and psychological pressure. Among women, senior attendings were the most affected 16/625 (55.2%), followed by residents 52/625 (44.1%), and junior attendings 37/625 (41.1%). Sexual harassment was equally observed in women 119/625 (19.0%) and men 44/264 (16.7%). Compared with men 124/264 (47%), women 384/625 (61.4%) expressed more frequently the need to promote equality and inclusivity in medicine ( $p<0.001$ ), as well as the need for support in their professional development (242/625 (38.7%) women, 63/264 (23.9%) men,  $p<0.001$ ).

**Conclusions:** Gender-discrimination in medicine in French-speaking Switzerland affects one third of women in particular those working in hospital settings and senior positions.

## Strength and limitations of the study

- Outreach to students and medical professionals in different working environments (university, public hospital, private clinic, medical practice).
- High number of participants.
- The response rate could not be estimated as the total number of persons reached via social media is unknown.
- The study did not take into account race or ethnicity which can also play a role in discrimination and sexual harassment.

**Funding:** This research received no specific grant from any funding agency in the public, commercial or not-for-profit sectors

**Competing Interest Statement:** All authors have completed the [Unified Competing Interest form](#) (available on request from the corresponding author) and declare: no support from any organisation for the submitted work; no financial relationships with any organisations that might have an interest in the submitted work in the previous three years, no other relationships or activities that could appear to have influenced the submitted work.

**Ethics approval and consent to participate:** Ethical approval was not necessary as confirmed by the president of the cantonal ethics committee of Switzerland (Commission cantonale d'éthique de la recherche – CCER). A consent of the participants was not needed as the data is anonymous and cannot be traced back to an individual.

**Availability of data and materials:** The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

**Word count :** 2774

**Introduction**

Achieving Gender equality is the number 5 goal of the United Nations 17 Sustainable Development Goals (SDGs) to be achieved by 2030,(1). However, the magnitude of feminist movements like #MeToo, and organisations providing legal and professional support for women like Times up or Times up healthcare,(2), demonstrates the widespread presence of gender discrimination and sexual harassment against women. The medical field is no exception to this phenomenon with numerous international studies showing alarming results,(3–6). In a survey published in the Journal of the American Medical Association in 2016 (JAMA),(3), 66% of female versus 10% of male research-clinicians reported having endured gender-related discrimination and 30% of women versus 4% men sexual harassment. The disproportionate underrepresentation of women in leading positions, in the academic field or within certain specialities,(7–9), as well as gender pay-gaps,(7), highlight the extent of the issue. The 2019 LeanIn.Org and McKinsey survey « Women in the healthcare industry » highlighted the influence of gender and ethnicity in the underrepresentation of women in leadership positions,(10). The study “Gender Pay Gap in Medicine” conducted by the United Kingdom National Health Services (UK-NHS) (7) in 2019 found that 64% of medical attendings were men even though 2/3 of the students were women and found a gender pay-gap of 17%, with a difference of 33% in general practitioners’ practices. In Switzerland, the 2019 Statistics of the Fédération des Médecins Helvétiques (FMH) showed that although 57.8% of residents are women, only 12,8% of female physicians occupy department chairs positions,(11). Although the frontline healthcare workforce is composed of 70% women, 75% of top leadership positions are still held by men, (12,13). Medfem, an association of physicians working towards more equality and inclusivity in the medical field (14), conducted the first survey in French-speaking Switzerland on sexism and sexual harassment in medicine. The objective of this study was threefold: Firstly, to determine the prevalence and type of sexism and sexual harassment endured by medical students and physicians, secondly to evaluate their needs on this issue; and thirdly to collect their opinion on the improvements needed in the future.

**Methods**

A survey was developed using Monkey Survey® (15) and distributed from January to march 2019 via social media platforms and emails to medical students of the University of Geneva and Lausanne, to physicians working at the University Hospitals of Geneva, of Lausanne, the hospitals of Neuchâtel and to a group of general practitioners in Geneva. The questionnaire was

composed of 9 multiple choice questions, 2 open-ended questions (questions 9 and 11) and had an estimated fill-out time of 4 minutes (Appendix 1). One open question enabled participants to express in their own words their opinion on needed improvements and the remaining challenges. A second open question allowed participants to make a general comment. Answers were categorised manually using thematic clusters. Results of women and men were compared using the Chi square-test and the bilateral Fisher's exact T-test. A threshold value of  $p \leq 0.05$  was considered statistically significant.

### Patient and Public Involvement Statement

MedFem members were involved from the very beginning and during every stage of the research: brainstorming, conceptualization, method development and realisation. Everyone can become a member of MedFem by filling out an online application form (14). Discussion rounds were organized to enable non-members to participate and express their opinion. We will disseminate the results by sharing the published article via the website and twitter account of MedFem.

### Results

Of the 1071 respondents, 889 were included in our analysis. Excluded were: 14 participants who were working outside Switzerland and 164 who did not mention their working place. The 4 participants who did not identify to a binary gender were excluded because their number was too small for statistically significant analysis. All remaining participants were either medical students or medical doctors. The total number of persons reached through our survey is unknown since it was also shared via social media platforms. The response rate among general practitioners in Geneva was 207/439 (47.2%). The response rate of medical students and physicians working in the above-mentioned hospitals is unknown but may be considered as similar.

**Table 1:** Demographic characteristics of participants and distribution according to professional position and workplace and gender. n: number of persons, %: percentage, p: p-value.

	Female	Male	Total	Significance
n (%)	625 (70.3)	264 (29.7)	889 (100)	
Position n (%)				
Student	262 (41.9)	102 (15.5)	364 (41.9)	p=0.36
Resident	118 (18.9)	41 (15.5)	159 (17.9)	p=0.23
Junior attending	90 (14.4)	29 (11.0)	119 (13.4)	p=0.17
Senior attending	29 (4.6)	29 (11.0)	58 (10.5)	p<0.001
Independant	132 (21.1)	64 (24.2)	196 (22.0)	p=0.30



Retired	1 (0.2)	3 (1.1)	4 (0.5)	p=0.08
<b>Workplace n (%)</b>				
Public hospital	356 (57.0)	146 (55.3)	502 (56.5)	p=0.65
Private hospital	11 (1.8)	4 (1.5)	16 (1.5)	p=1
Outpatient Clinic	137 (21.9)	70 (26.5)	207 (23.3)	p=0.14
Other				
- University	130 (20.8)	48 (18.2)	178 (20.0)	p=0.37
- Not working	10 (1.6)	2 (0.8)	12 (1.3)	p=0.53
- Other	12 (1.9)	7 (2.7)	19 (2.1)	p=0.49

Of the 889 included participants, 625 (70.3%) were female and 264 (29.7%) male. The demographic characteristics of participants and their professional distribution are summarized in table 1. Medical students were the most numerous to participate and participation decreased with seniority. Distribution of the professional position was similar between genders with the exception of the attending position occupied by twice as many men than women (table 1). The workplace distribution between genders was similar with a majority working in public hospitals, followed by outpatient clinics and universities. Most participants had less than 5 years of professional experience and a higher percentage of women reported less than 10 years experience (figure 1). Starting from 15 years experience, the percentage of men was higher ( $p < 0.001$ ) (figure 1).

**Figure 1:** Distribution of participants according to gender and work-experience. %: percentage. \*:  $p < 0.05$ , \*\*\*:  $p < 0.001$ .

217/889 (24.4%) participants reported that they had suffered acts of discrimination, sexism or gender-inequalities: 199/625 (31.8%) were women and 18/264 (6.8%) were men ( $p < 0.001$ ) (figure 2). Among women, attendings were the most affected with 16/29 (55.2%), followed by residents and junior attendings (figure 3). The same proportion of women 166/625 (26.6%) and men 73/264 (27.6%) reported having witnessed acts of sexism, discrimination or gender-inequalities ( $p > 0.05$ ) (not shown on figure). Male residents, junior and senior attendings witnessed more frequently acts of discrimination, sexism or gender-inequalities compared to their female peers, the difference being statistically significant among residents (figure 4). When asked differently “In your opinion, what problems have you observed?”, the proportion of total participants reporting having observed acts of sexism increases to 365/889 (41.1%); with no statistically significant difference between genders ( $p = 0.4$ ) (figure 5).

**Figure 2:** Participants victim of discrimination, sexism or gender-inequalities according to gender. %: percentage. \*\*\*:  $p<0.001$ .

**Figure 3:** Victims of discrimination, sexism, gender-inequality according to professional position and gender. %: percentage. \*\*\*:  $p<0.001$ .

**Figure 4:** Witnesses of discrimination, sexism, gender-inequality according to professional position and gender. %: percentage. \*:  $p<0.05$ . \*\*:  $p<0.01$ .

Compared to men, significantly more women reported difficulties in career development ( $p<0.001$ ), discrimination in hiring and working conditions ( $p=0.002$ ), non-respect of maternity laws ( $p=0.003$ ) and difficult access to research ( $p=0.01$ ) as shown on figure 5. Among participants, 119/625 (19.7%) women and 44/264 (16.7%) men had observed sexual harassment ( $p>0.05$ ). Twice as many men reported having detected no problems (88/625 (14.1%) women, 75/264 (28.4%) men,  $p=0.004$ )(figure 5) and not feeling concerned (48/625 (7.7%) women, 40/264 (15.1 %) men  $p<0.001$ )(not shown on figure). More men indicated supporting initiatives to change the medical culture (398/625 (63.7%) women, 188/264 (71.2%) men,  $p=0.03$ ).

**Figure 5:** Problems observed by participants according to gender. %: percentage. \*:  $p<0.05$ . \*\*:  $p<0.01$ . \*\*\*:  $p<0.001$ .

Although both women and men perceived the promotion of equality and inclusion in medicine as the most important need, a significant gender difference was observed (figure 6). Women expressed statistically significantly more frequently the need to be supported in their professional development (242/625 (38.7%) women, 63/264 (23.9%) men,  $p<0.001$ ) and to gain knowledge about their rights and have them respected (189/625 (30.2%) women, 36/264 (13.6%) men,  $p=0.002$ )(figure 6). Statistically significantly more men reported having no particular need ( $p<0.001$ ) (figure 6).

**Figure 6:** Needs of participants according to gender. %: percentage. \*:  $p<0.05$ . \*\*:  $p<0.01$ . \*\*\*:  $p<0.001$ .

359/625 (57.4%) of women and 146/264 (55.3%) of men replied to the open question on what needs to be done in the future to achieve an ideal professional world and on the remaining challenges. New aspects that were more frequently highlighted by women compared to men, were the introduction of part-time work (60/359 (16.7%) women, 10/146 (6.8%) men,  $p=0.004$ ), wage equality (44/359 (12.3%) women, 5/146 (3.4%) men,  $p=0.002$ ), equal opportunities in career progression with, amongst others, appointment of more women in leading positions (63/359 (17.5%) women, 13/146 (8.9%) men,  $p=0.01$ ). 5/359 (1.4%) women versus no men referred to the notion of “glass ceiling”. Men highlighted mostly the importance of respect, communication and exchange between genders (37/359 (10.3%) women, 24/146 (16.4%) men,  $p=0.9$ ) and the need to promote equality in a broad sense (55/359 (15.3%) women, 23/146 (15.8%) men,  $p=0.9$ ). Women and men reported equally the need to improve paternal leave laws (27/359 (7.5%) women, 10/146 (6.8%) men,  $p=0.8$ ).

**Discussion**

To our knowledge, this study is the first in French-speaking Switzerland assessing the extent of sexism in the medical community. Our study shows that discrimination, sexism and gender-inequalities in medicine in French-speaking Switzerland affects one third of women (31.8%) and a small portion of men (6.8%). Interestingly, gender-discrimination and sexual harassment was witnessed by women and men equally, thus demonstrating the general awareness of the issue. Due to the use of social media distribution the response rate could not be estimated and the generalizability of the results needs to be done with caution. However the number of 1071 answers is significant as such. A second limitation is the potential selection bias since the respondents might be those who were sensitive to the theme beforehand. Furthermore this survey did not address other discrimination factors such as ethnicity, gender orientation, or religion.

Data on sexual harassment and gender discrimination against women varies widely in the literature reaching up to 76%,(3,16,17). Recent studies conducted among research-clinicians (3) and emergency physicians (16) in the United States reported higher rates of gender discrimination than in our study respectively reaching 66.3% and 62.7% in women and 9.8% and 12.5% in men. The over-representation of medical students in our study (364/889 (40.9%)), reporting less gender discrimination (22.5% in female and 9.8% in male students) compared with senior attending physicians (55.2% in female versus 6.9% in male) could partly explain these differences. Cumulative work experience only partly explains why female senior

1  
2  
3 attendings report the highest incidence of gender-discrimination. In fact, women working in an  
4 independent medical practice with a supposedly seniority comparable to junior or senior  
5 attending physicians, reported only 27.3% of gender related discrimination. These findings  
6 suggest that female physicians working in senior positions in University Hospitals in French-  
7 speaking Switzerland are the most affected by gender discrimination and sexism. Addressing  
8 this issue is crucial as gender-discrimination was shown to have long-lasting consequences on  
9 victim's well-being: decrease in self-confidence, burn-out, profession reorientation, change in  
10 medical specialisation, (14-17). Concerning sexual harassment, a recent study carried out in  
11 Germany (17) found much higher rates of sexual harassment in both women (76.1%) and men  
12 (61.6%) than we found witnesses of such acts in the present survey (19.7 % of women and  
13 16.7% of men). The higher incidence might be explained by the wider definition of the different  
14 forms of sexual harassment used in the German study ranging from degrading speech to sexual  
15 attack. Since our survey did not specify the different forms of sexual harassment, it might have  
16 missed the mildest form as verbal misconduct may not have been considered offensive enough  
17 by participants.  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29

30 Compared to men, more women reported problems in their career progression, in the  
31 application of maternity laws, as well as discrimination in hiring. This could at least partially  
32 explain the scarcity of women in senior positions in our study demographics. In the "open-  
33 ended question" section of the survey, a few women referred to the notion of "glass ceiling", to  
34 describe an invisible barrier hindering women from accessing high responsibility positions  
35 despite skills similar to their male peers,(18). The "sticky floor" phenomenon is a similar barrier  
36 encountered at an earlier stage. The needs expressed by women (i.e. support, mentoring,  
37 sponsorship in professional development, networking, knowledge and respect of their rights)  
38 well reflect these findings.  
39  
40  
41  
42  
43  
44  
45

46 It is noteworthy that the majority of female and male participants expressed the need to promote  
47 equality and inclusion in the medical field and their support towards initiatives in this field. The  
48 feminisation of the medical profession in Switzerland, with a 50% increase in female physicians  
49 in the last 10 years(11), was not sufficient to stop gender discrimination. Yet, the importance  
50 of diversified teams in terms of gender, as well as the equivalent-to-superior competence of  
51 women physicians has been demonstrated,(19-21). Authors Mello and Jagsi, in their 2020  
52 NEJM publication, suggest that re-framing gender bias and harassment as an ethical issue in  
53 academics could help passive bystanders become active upstanders by having a professional  
54  
55  
56  
57  
58  
59  
60

and ethical obligation to speak up and intervene when sexual harassment or gender bias occurs,(22).

Conclusion

Gender-discrimination in medicine in French-speaking Switzerland affects one third of women in particular those working in hospital settings and senior positions. Women report more frequently difficulties in career development, discrimination in hiring and working conditions and a non-respect of maternity laws. However, women and men equally reported having witnessed acts of sexism and sexual harassment demonstrating an awareness of the issue by both genders. Nearly 50% of men and 2/3 of women are would support initiatives aimed at reducing gender-discrimination and sexual harassment.

The findings of this survey prompt action tailored to the medical field and serve as a foundation for further, more robust and detailed studies that should include an intersectional approach. Female and male medical doctors together should collect and assess data on gender-discrimination and sexual harassment in a bottom-up approach and develop targeted interventions in a structural systemic manner. Moreover, and most importantly, a change in the conservative medical culture towards a culture of zero tolerance against discriminatory behaviours and sexual harassment at all hierarchy levels is mandatory.

List of abbreviations

SGDs	Sustainable Development Goals
JAMA	American medical Association
UK-NHS	United Kingdom National Health Services
FMH	Fédération des Médecins Helvétiques
N	Number
P	P-value
NEJM	New England Journal of Medicine

**Author’s contributions:** IN analysed and interpreted the data and was a major contributor in writing the manuscript. JS made substantial contributions to the design of the work and was a major contributor in writing the manuscript. AG made substantial contribution in analysing the data and critically reviewing the manuscript. BR was a major contributor in the conception of the study and substantively revised the manuscript. JL, AR, JA, CS, ET, CG, JH, GF made

substantial contributions to the conception and design of the study and the acquisition of the data and critically reviewed the manuscript. JA was a major contributor in the conception of the work and substantively revised the manuscript. MC made substantial contribution in the conception of the work, the interpretation of the data and the revision of the manuscript. EN made substantial contribution to the conception and design of the study and critically reviewed the manuscript.

All authors have approved the submitted version and have agreed both to be personally accountable for their own contributions and to ensure that questions related to the accuracy or integrity of any part of the work, even ones in which they were not personally involved, are appropriately investigated, resolved, and the resolution documented in the literature.

**Acknowledgements:** We thank all the members of the association Medfem for their support and useful discussions.

References

1. Gender diversity journey: Company good practices. International Labour Organization. 2017. Labhttp://www.ilo.org/actemp/publications/WCMS\_578768/lang--en/index.htm. Accessed 19 Dec 2020.
2. Frellick M. Leading Women in Medicine Launch “Time’s Up Healthcare”. Medscape. 2019. https://www.medscape.com/viewarticle/909777#vp\_1. Accessed Jul 11 2020.
3. Jagsi R, Griffith KA, Jones R, Perumalswami CR, Ubel P, Stewart A. Sexual harassment and discrimination experiences of academic medical faculty. JAMA 2016; 315(19):2120-1..
4. Larsson C, Hensing G, Allebeck P. Sexual and gender-related harassment in medical education and research training: Results from a Swedish survey. Med Educ. 2003;37(1):39–50.
5. Fnais N, Soobiah C, Chen MH, Lillie E, Perrier L, Tashkhandi M, et al. Harassment and discrimination in medical training: a systematic review and meta-analysis. Acad Med. 2014;89(5):817-27.
6. Dzau VJ, Johnson PA. Ending Sexual Harassment in Academic Medicine. N Engl J Med. 2018;379(17):1589-1591.
7. New data on gender pay gap in medicine. GOV.UK. 2019. https://www.gov.uk/government/news/new-data-on-gender-pay-gap-in-medicine. Accessed 10 Jul 2020.
8. Yong CM, Abnoui F, Rzeszut AK, Douglas PS, Harrington RA, Mehran R, et al. Sex Differences in the Pursuit of Interventional Cardiology as a Subspecialty Among Cardiovascular Fellows-in-Training. JACC Cardiovasc Interv. 2019;12(3):219–28.
9. Rampersad PP, Capdeville M. Who Decided Cardiology Was a Man’s Job? The Future of Cardiovascular Medicine and Why Women Are Key. J Cardiothorac Vasc Anesth. 2020;34(3):575-581.
10. Berlin G, Darino L, Greenfield M, Starikova I. Women in the healthcare industry. McKinsey & Company. 2019. https://www.mckinsey.com/industries/healthcare-



- systems-and-services/our-insights/women-in-the-healthcare-industry#. Accessed 19 Dec 2020.
11. Hostettler S, Kraft E. Statistique médicale 2019 de la FMH: forte dépendance de l'étranger. Bull des Médecins Suisses. 2019. <https://doi.org/10.4414/bms.2020.18725>.
  12. National Academies of Sciences, Engineering, and Medicine; Policy and Global Affairs; Committee on Women in Science, Engineering, and Medicine; Committee on the Impacts of Sexual Harassment in Academia. Sexual Harassment of Women: Climate, Culture, and Consequences in Academic Sciences, Engineering, and Medicine. Washington (DC): National Academies Press (US); 2018. <https://www.ncbi.nlm.nih.gov/books/NBK507206/> doi: 10.17226/24994
  13. WHO | Delivered by Women, Led by Men: A Gender and Equity Analysis of the Global Health and Social Workforce. WHO. 2019. <http://www.who.int/hrh/resources/health-observer24/en/>. Accessed 19 Dec 2020.
  14. Accueil | MedFem. <https://www.medfem.org/>. Accessed 19 Dec 2020.
  15. SurveyMonkey - Free online survey software and questionnaire tool. <https://www.surveymonkey.com/>. Accessed 19 Dec 2020.
  16. Lu, D. W., Lall, M. D., Mitzman, J., Heron, S., Pierce, A., Hartman, N. D., McCarthy, D. M., Jauregui, J., & Strout TD. #MeToo in EM: A Multicenter Survey of Academic Emergency Medicine Faculty on Their Experiences with Gender Discrimination and Sexual Harassment. West J Emerg Med. 2020 Feb 21;21(2):252-260.
  17. Oertelt-Prigione S, Jenner S, Djermeester P, Prügl J, Kurmeyer C. Prevalence of Sexual Harassment in Academic Medicine. JAMA Intern Med. 2019;179(1):108-111..
  18. Hingle S, Barrett E. Gender Differences in Resident Assessment: The Glass Ceiling and Sticky Floor for Women in Medicine Begin Early. JAMA Netw open. 2020;3(7):e2010985.
  19. Tsugawa Y, Jena AB, Figueroa JF, Orav EJ, Blumenthal DM, Jha AK. Comparison of hospital mortality and readmission rates for medicare patients treated by male vs female physicians. JAMA Intern Med. 2017;177(2):206–13.



20. Greenwood BN, Carnahan S, Huang L. Patient–physician gender concordance and increased mortality among female heart attack patients. *Proc Natl Acad Sci U S A*. 2018;115(34):8569–74.

21. Wang TY, Grines C, Ortega R, Dai D, Jacobs AK, Skelding KA, et al. Women in interventional cardiology: Update in percutaneous coronary intervention practice patterns and outcomes of female operators from the National Cardiovascular Data Registry®. *Catheter Cardiovasc Interv*. 2016;87(4):663–8.

22. Mello MM, Jagsi R. Standing Up against Gender Bias and Harassment — A Matter of Professional Ethics. *N Engl J Med*. 2020;382(15):1385–7.

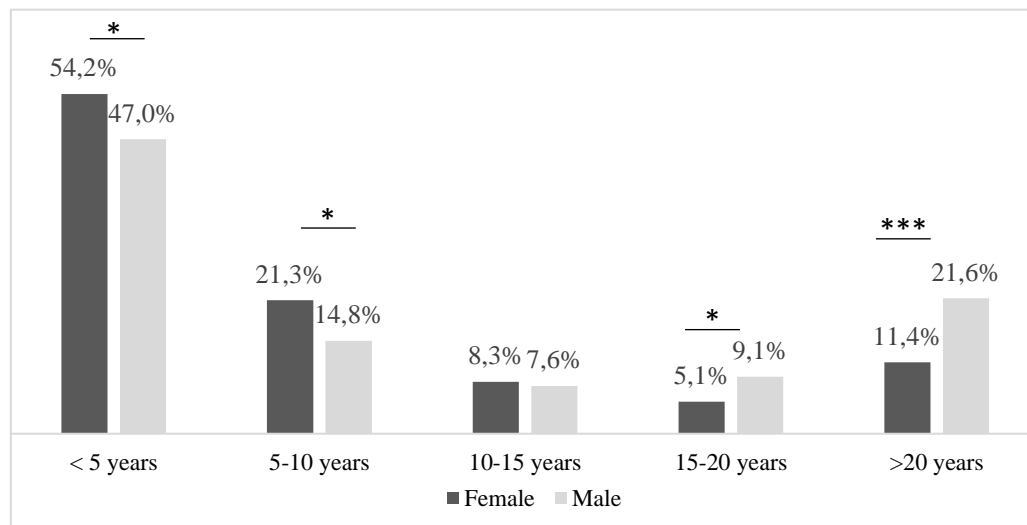
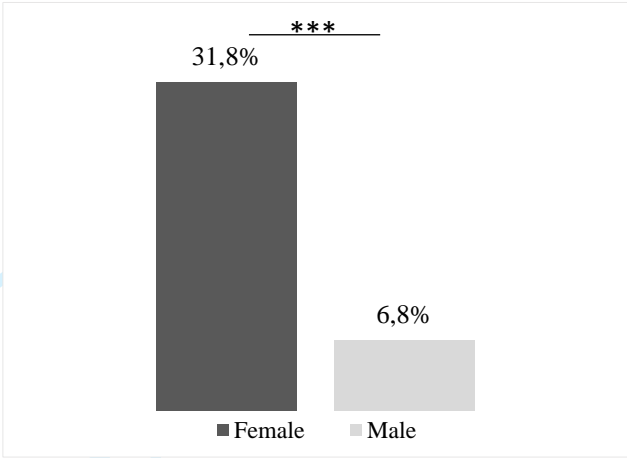
**Figure 1**

Figure 2



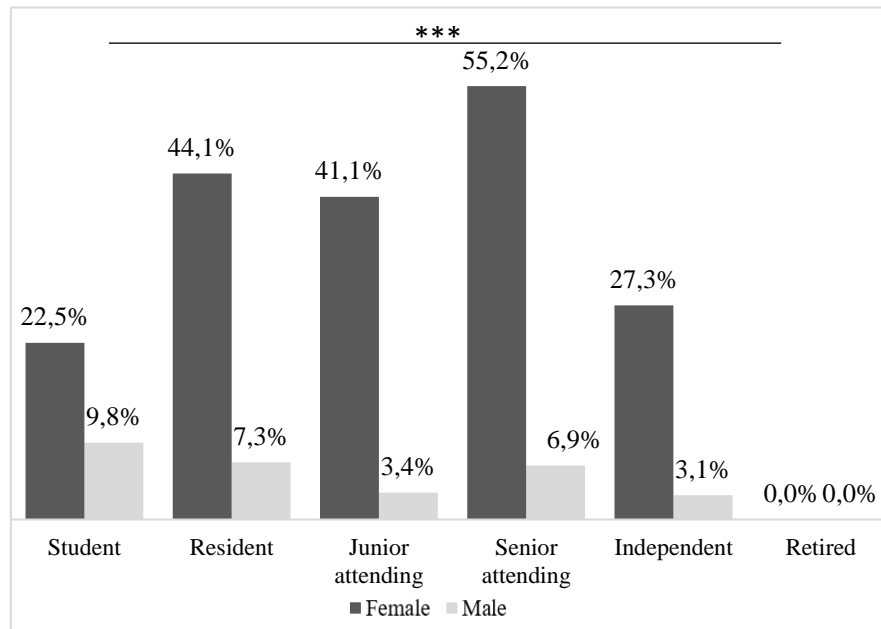
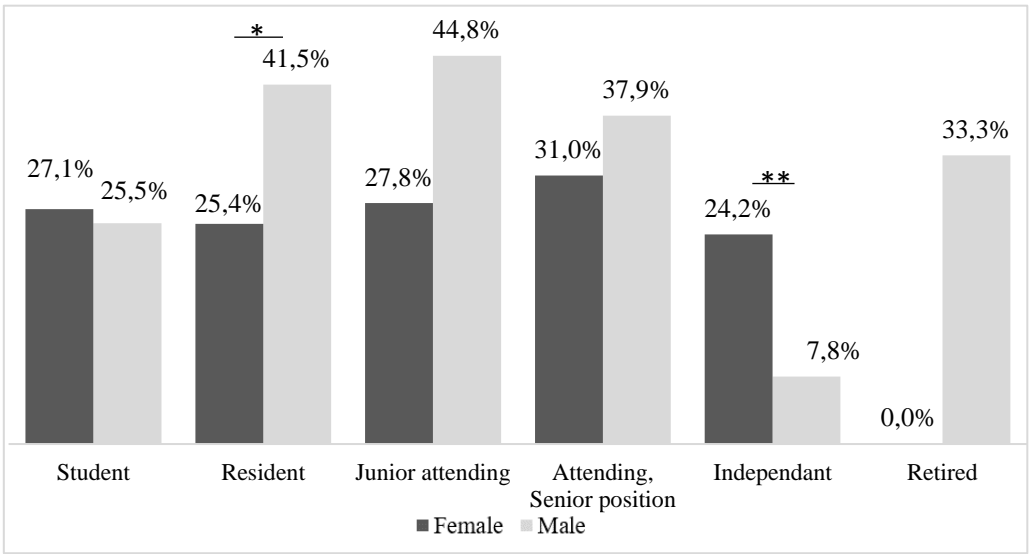
**Figure 3**

Figure 4



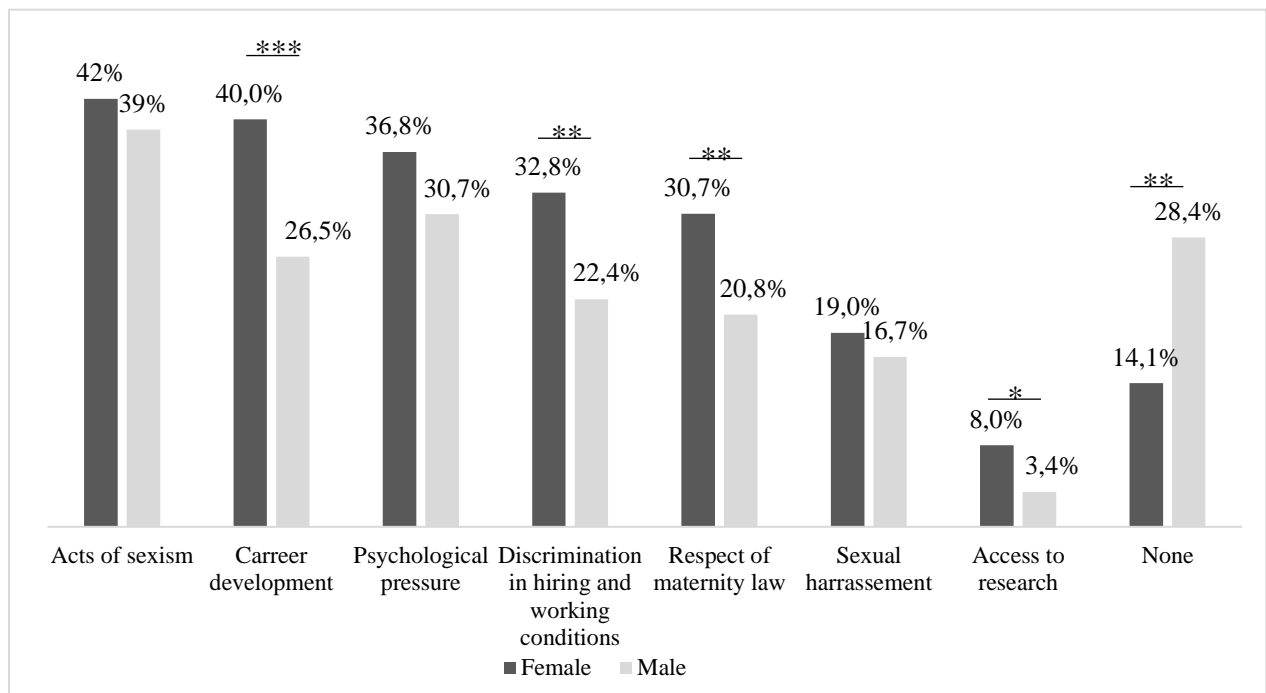
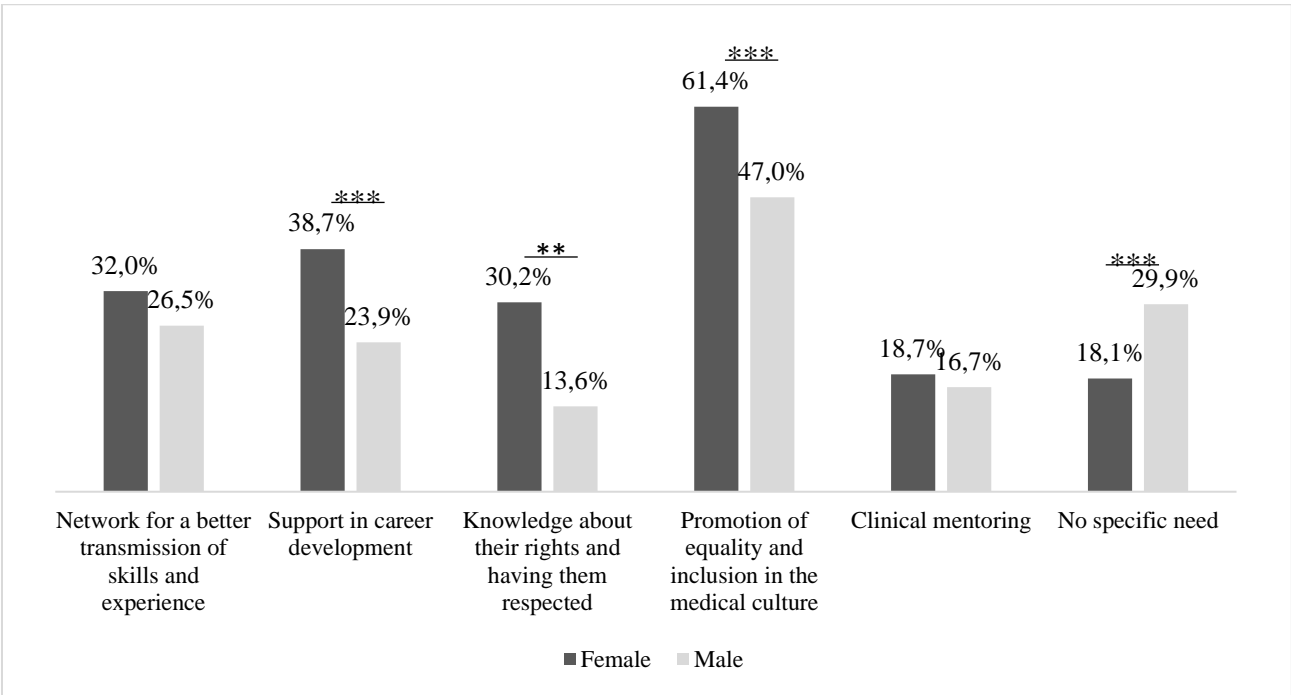
**Figure 5**

Figure 6



## Appendix 1

### Questionnaire:

1. You are
  - A man
  - A woman
  - Other
2. Currently you are
  - Student
  - Resident
  - Physician without speciality title
  - Physician with speciality title
  - Senior attending
  - Independent
  - Retired
  - Other occupation (please specify)
3. You have:
  - < 5 years experience
  - 5-10 years experience
  - 10-15 years experience
  - 15-20 years experience
  - > 20 years experience
  - Other (please specify)
4. You work in:
  - A public hospital
  - A private hospital
  - Medical practice
  - Other
5. Workplace
  - Switzerland
  - Europe
  - Outside Europe
6. What is your current position:
  - You were victim of discrimination, acts of sexism or gender-inequality.
  - You witnessed discrimination, acts of sexism or gender-inequality.
  - It is an ethical engagement. I support initiatives that help the medical culture to evolve.
  - I don't feel concerned.



- 1  
2  
3  
4  
5 7. According to your experience what problems have you observed?  
6 - Discrimination in hiring, and working conditions  
7 - Career development  
8 - Access to research  
9 - Respect of maternity laws  
10 - Acts of sexism  
11 - Psychological pressure  
12 - Sexual harassment  
13 - None  
14 - Other  
15  
16  
17  
18  
19 8. At the present time, what are your needs?  
20 - Network for a better transmission of skills and competence  
21 - Support in career development  
22 - Knowledge about my rights and have them respected  
23 - Promotion of equality and inclusivity in the medical culture  
24 - Clinical mentoring  
25 - No specific need  
26 - Other  
27  
28  
29  
30  
31 9. What needs to be done in the future to achieve an ideal professional world and what are  
32 the remaining challenges?  
33  
34  
35 10. I am interested in MedFem. I would like to contribute by :  
36 - Talking about Medfem around me  
37 - Participating to MedFem events  
38 - Helping organizing events  
39 - Developing a communication strategy via social media  
40 - Collecting funds  
41 - Participating in mentoring  
42 - Supporting us without being concretely involved  
43 - I don't want to contribute  
44 - Other  
45  
46  
47  
48  
49  
50 11. With respect to anonymity, I would like to add:  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

STROBE Statement—Checklist of items that should be included in reports of *cohort studies*

Checklist for the article “Sexism and sexual harassment in medicine in French-speaking Switzerland”:

1. (a-b) completed	12. (a-b) completed (c-e) not applicable
2. completed	13. not applicable
3. completed	14. (a) completed (b-c) not applicable
4. completed	15. not applicable
5. completed	16. not applicable
6. (a) completed (b) not applicable	17. completed
7. completed	18. completed
8. completed	19. completed
9. completed	20. completed
10. completed	21. completed
11. completed	22. completed

	Item No	Recommendation
<b>Title and abstract</b>	1	(a) Indicate the study’s design with a commonly used term in the title or the abstract (b) Provide in the abstract an informative and balanced summary of what was done and what was found
<b>Introduction</b>		
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported
Objectives	3	State specific objectives, including any prespecified hypotheses
<b>Methods</b>		
Study design	4	Present key elements of study design early in the paper
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection
Participants	6	(a) Give the eligibility criteria, and the sources and methods of selection of participants. Describe methods of follow-up (b) For matched studies, give matching criteria and number of exposed and unexposed
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable
Data sources/measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group
Bias	9	Describe any efforts to address potential sources of bias
Study size	10	Explain how the study size was arrived at
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why
Statistical methods	12	(a) Describe all statistical methods, including those used to control for confounding (b) Describe any methods used to examine subgroups and interactions (c) Explain how missing data were addressed (d) If applicable, explain how loss to follow-up was addressed (e) Describe any sensitivity analyses

**Results**

Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed
		(b) Give reasons for non-participation at each stage
		(c) Consider use of a flow diagram
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders
		(b) Indicate number of participants with missing data for each variable of interest
		(c) Summarise follow-up time (eg, average and total amount)
Outcome data	15*	Report numbers of outcome events or summary measures over time
Main results	16	(a) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included
		(b) Report category boundaries when continuous variables were categorized
		(c) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses
<b>Discussion</b>		
Key results	18	Summarise key results with reference to study objectives
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence
Generalisability	21	Discuss the generalisability (external validity) of the study results
<b>Other information</b>		
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based

\*Give information separately for exposed and unexposed groups.

**Note:** An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at <http://www.plosmedicine.org/>, Annals of Internal Medicine at <http://www.annals.org/>, and Epidemiology at <http://www.epidem.com/>). Information on the STROBE Initiative is available at <http://www.strobe-statement.org>.

# BMJ Open

## Prevalence and forms of gender discrimination and sexual harassment among medical students and physicians in French-speaking Switzerland: A survey.

Journal:	<i>BMJ Open</i>
Manuscript ID	bmjopen-2021-049520.R1
Article Type:	Original research
Date Submitted by the Author:	15-Jul-2021
Complete List of Authors:	Najjar, Iris; HUG, Medicine Socquet, Jennifer; HUG Gayet-Ageron, Angele; Univ of Geneva Hospitals, Infection Control Programme Ricou, Bara; Geneva University Hospitals of Geneva, APSI Le Breton, Julien; HUG, Department of rehabilitation and geriatrics Rossel, Anne; HUG, Department of Medicine Abdulcadir, Jasmine; University Hospitals of Geneva , Obstetrics and Gynecology; University of Geneva, Faculty of Medecine Soroken, Cindy; HUG, Department of Maternity, Adolescent and Child Health Tessitore, Elena; HUG, Departement of cardiology Gerstel, Caroline; Delta Practice Network, Department of general internal medicine Halimi, Julie; HUG, Department of child psychiatry Frasca Polara, Giulia; Hôpital Lariboisière, Departement of neurology Coen, Matteo; University of Geneva Faculty of Medicine Niyibizi, Eva; Hirslanden Clinique La Colline, Emergency Care
<b>Primary Subject Heading</b>:	Ethics
Secondary Subject Heading:	Medical education and training, Public health
Keywords:	MEDICAL ETHICS, PUBLIC HEALTH, MEDICAL EDUCATION & TRAINING, ETHICS (see Medical Ethics)

SCHOLARONE™  
Manuscripts



I, the Submitting Author has the right to grant and does grant on behalf of all authors of the Work (as defined in the below author licence), an exclusive licence and/or a non-exclusive licence for contributions from authors who are: i) UK Crown employees; ii) where BMJ has agreed a CC-BY licence shall apply, and/or iii) in accordance with the terms applicable for US Federal Government officers or employees acting as part of their official duties; on a worldwide, perpetual, irrevocable, royalty-free basis to BMJ Publishing Group Ltd ("BMJ") its licensees and where the relevant Journal is co-owned by BMJ to the co-owners of the Journal, to publish the Work in this journal and any other BMJ products and to exploit all rights, as set out in our [licence](#).

The Submitting Author accepts and understands that any supply made under these terms is made by BMJ to the Submitting Author unless you are acting as an employee on behalf of your employer or a postgraduate student of an affiliated institution which is paying any applicable article publishing charge ("APC") for Open Access articles. Where the Submitting Author wishes to make the Work available on an Open Access basis (and intends to pay the relevant APC), the terms of reuse of such Open Access shall be governed by a Creative Commons licence – details of these licences and which [Creative Commons](#) licence will apply to this Work are set out in our licence referred to above.

Other than as permitted in any relevant BMJ Author's Self Archiving Policies, I confirm this Work has not been accepted for publication elsewhere, is not being considered for publication elsewhere and does not duplicate material already published. I confirm all authors consent to publication of this Work and authorise the granting of this licence.

## Prevalence and forms of gender discrimination and sexual harassment among medical students and physicians in French speaking Switzerland: A survey.

Iris Najjar<sup>1\*</sup>, Jennifer Socquet<sup>2\*</sup>, Angèle Gayet-Ageron<sup>5</sup>, Bara Ricou<sup>4,6</sup>, Julien Le Breton<sup>7</sup>, Anne Rossel<sup>1</sup>, Jasmine Abdulcadir<sup>8</sup>, Cindy Soroken<sup>8</sup>, Elena Tessitore<sup>9</sup>, Caroline Gerstel<sup>10</sup>, Julie Halimi<sup>11</sup>, Giulia Frasca Polara<sup>12</sup>, Matteo Coen<sup>1,13,#</sup>, Eva Niyibizi<sup>3,#</sup>

\*,# Equal contribution to the manuscript

<sup>1</sup> Service of General Internal Medicine, Geneva University Hospitals, Rue Gabrielle-Perret-Gentil 4, 1211, Geneva 14, Switzerland.

<sup>2</sup> Department of Primary Health Care, Geneva University Hospitals, Rue Gabrielle-Perret-Gentil 4, 1211, Geneva 14, Switzerland.

<sup>3</sup> Emergency Care Department, Hirslanden Clinic La Colline, Avenue de Beau Séjour 6, 1206 Geneva, Switzerland.

<sup>4</sup> Faculty of Medicine, University of Geneva, Rue Michel-Servet 1, 1211, Geneva 14, Switzerland.

<sup>5</sup> Department of Clinical Epidemiology, Geneva University Hospitals, Rue Gabrielle-Perret-Gentil 4, 1211, Geneva 14, Switzerland.

<sup>6</sup> Department of Anaesthesiology, Pharmacology and Intensive Care, Geneva University Hospitals, Rue Gabrielle-Perret-Gentil 4, 1211, Geneva 14, Switzerland.

<sup>7</sup> Department of rehabilitation and geriatrics, Trois-Chêne Hospital, Chemin du Pont-Bochet 3, 1226 Thônex, Switzerland.

<sup>8</sup> Department of Maternity, Adolescent and Child Health, Geneva University Hospitals, Rue Gabrielle-Perret-Gentil 4, 1211, Geneva 14, Switzerland.

<sup>9</sup> Department of Cardiology, Geneva University Hospitals, Rue Gabrielle-Perret-Gentil 4, 1211, Geneva 14, Switzerland.

<sup>10</sup> General Internal Medicine, Delta practice network, Chemin de la Tour 21, 1217, Geneva, Switzerland.

<sup>11</sup> Department of child Psychiatry, Geneva University Hospitals, Rue Gabrielle-Perret-Gentil 4, 1211, Geneva 14, Switzerland.

<sup>12</sup> Département de Neurologie, Lariboisière Hospital, 2 rue Ambroise-Paré, 75010 Paris, France.

<sup>13</sup> Unit of Development and Research in Medical Education, Faculty of Medicine, University of Geneva, Rue Michel-Servet 1, 1211, Geneva 14, Switzerland.

**Correspondence to:** Iris Najjar, Service of General Internal Medicine, Department of Medicine, Geneva University Hospitals, Rue Gabrielle-Perret-Gentil 4, 1211, Geneva 14, Switzerland, [iris.najjar@gmail.com](mailto:iris.najjar@gmail.com).

**Word count :** 2546

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

**Abstract (267 words)**

**Objectives:** The aim of this study was to determine the prevalence and forms of gender discrimination and sexual harassment experienced by medical students and physicians in French-speaking Switzerland.

**Design and Setting:** We conducted an online survey using a questionnaire of 9 multiple-choice and 2 open questions between January 24 and February 24 2019. Our target population was medical students and physicians working at hospitals and general practitioners from the French-speaking part of Switzerland. The online survey was sent via social media platforms and direct emails. We compared answers between male and female-determined respondents using either Chi-2 or Fisher’s exact tests.

**Results:** Among 1071 responders, a total of 893 were included (625 females, 264 males, 4 non-binary, 1 non-binary and male). 182 were excluded because they did not mention their working place or were working only outside Switzerland. Because of the small number of non-binary participants they were not contemplated in further statistical analysis. Of the 889 participants left, 199 (31.8%) women and 18 (6.8%) men reported having personally experienced gender discrimination, in terms of sexism, difficulties in career development and psychological pressure. Among women, senior attendings were the most affected (55.2%), followed by residents (44.1%), and junior attendings (41.1%). Sexual harassment was equally observed among women (19.0%) and men (16.7%). Compared with men (47%), women (61.4%) expressed the need to promote equality and inclusivity in medicine more frequently ( $p<0.001$ ), as well as the need for support in their professional development (38.7% women, 23.9% men,  $p<0.001$ ).

**Conclusions:** Gender discrimination in medicine in French-speaking Switzerland affects one third of women, in particular those working in hospital settings and senior positions.

## Strength and limitations of the study

- Outreach to students and medical professionals in different working environments (university, public hospital, medical practice).
- High number of participants.
- The response rate could not be estimated as the total number of persons reached via social media is unknown.
- The study did not take into account race or ethnicity which can also play a role in discrimination.

**Funding:** This research received no specific grant from any funding agency in the public, commercial or not-for-profit sectors.

**Competing Interest Statement:** All authors have completed the [Unified Competing Interest form](#) (available on request from the corresponding author) and declare: no support from any organisation for the submitted work; no financial relationships with any organisations that might have an interest in the submitted work in the previous three years, no other relationships or activities that could appear to have influenced the submitted work.

**Ethics approval and consent to participate:** Ethical approval was not necessary as confirmed by the president of the cantonal ethics committee of Switzerland (Commission cantonale d'éthique de la recherche – CCER). A consent of the participants was not needed as the data is anonymous and cannot be traced back to an individual.

**Availability of data and materials:** The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.



1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

**Introduction**

Achieving Gender equality is the number 5 goal of the United Nations 17 Sustainable Development Goals (SGDs) to be fulfilled by 2030.(1) The magnitude of the feminist movements like #MeToo and the emergence of organisations providing legal and professional support for women like TIME’S UP and TIME’S UP Healthcare demonstrate the issue has starkly mobilized civil society; both instances signal, finally, the widespread presence of sexism and sexual harassment in professional environments.(2) Sexism is commonly defined as a discrimination based on gender and often used as a synonym to gender discrimination. Sexual harassment is defined as “any unwelcome sexual advance, request for sexual favours, or other verbal or physical conduct of a sexual nature, when it interferes with work, is made a condition of employment, or creates an intimidating, hostile or offensive work environment”.(3) The medical field is no exception to this phenomenon with numerous international studies showing alarming results.(4–7) In a survey published in the Journal of the American Medical Association in 2016, 66% of female research-clinicians reported having endured gender-related discrimination, and 30% sexual harassment.(4) Furthermore, although the female component of frontline healthcare workers reaches 70%, 75% of top leadership positions in academia and medical specialties are still held by men.(8–12) The 2019 LeanIn.Org and McKinsey survey « Women in the healthcare industry » highlighted the influence of gender and ethnicity in the underrepresentation of women in leadership positions.(13) Gender pay gaps persist as pointed out by the study “Gender Pay Gap in Medicine” conducted by the United Kingdom National Health Services in 2019. This study found a gender pay-gap of 17%, with a difference of 33% in general practitioners’ practices.(10) In Switzerland, the 2019 Statistics of the *Foederatio Medicorum Helveticorum* (Federation of the Swiss physicians) showed that 57.8% of residents are women, but only 12,8% of female physicians occupy department chairs positions.(14) MedFem, an association of physicians working towards more equality and inclusivity in the medical field, conducted the present survey in French-speaking Switzerland.(15) It is the first survey effort on sexism and sexual harassment in medicine in that country. The objectives of this study were: 1) To determine the prevalence and forms of sexism and gender discrimination endured by medical students and physicians across specialities, 2) to evaluate their needs regarding this issue, and 3) to collect their opinion on the improvements needed in the future.

## Methods

We conducted an online survey in French using Monkey Survey® that was available from January 24 to February 24, 2019. The questionnaire was reviewed by four members of the association MedFem. Following the review, an introduction was added to make the objectives of the survey more clear, to present the association MedFem and to inform about its anonymity. It was pretested among 164 participants, and their answers were secondly deleted. Following the pretest, a question was added on place of practice. The questionnaire was sent on social media platforms (Facebook, Linkedin, Whatsapp, Twitter) but also direct emails were sent to medical students of the University of Geneva and Lausanne from 2<sup>nd</sup> to 6<sup>th</sup> pregraduate years, to physicians working at the University Hospitals of Geneva across different specialities (ambulatory medicine, neurology, visceral surgery, radiology, internal medicine, gynaecology, geriatrics), at the Lausanne university hospital (CHUV), to the hospitals of Neuchâtel and to members of the Delta network in Geneva, a group of general practitioners.(16) No reminder was send. The choice to include exclusively students and healthcare professionals working in the French-speaking part of Switzerland (Romandy) was dictated by the simplicity to use only French in the survey and to be homogeneous regarding working conditions and cultural aspects linked with the topic. Indeed, wide cultural, professional, and linguistic gaps exists between the four language regions (*viz.* French, German, Italian and Romansh-speaking).(17) The questionnaire was composed of 9 multiple-choice questions (with multiple answer options) and 2 open-ended questions (questions 9 and 11) and had an estimated fill-out time of 4 minutes (Appendix 1). To note, question 9 permitted participants to express their opinion on improvements needed and on remaining challenges. Question 11 allowed participants to add a general comment. Answers were categorised manually using thematic groups (13 groups for Question 9 e.g. part-time work, wage equality, career progression; 9 groups for Question 11 e.g. equality between genders, encouragements and gratitude, no comment).

All variables in the questionnaire were categorical; they were reported by their frequencies and relative percentages by category. We compared various answers to questions between respondents who defined themselves as men, and those as women. We performed either Chi square-test or the bilateral Fisher's exact T-test, when expected frequencies were  $\leq 5$ , using the software STATA 16 IC (Stata Corp., TX, USA).  $P \leq 0.05$  were considered as statistically significant.

Patient and Public Involvement Statement

MedFem members were involved from the very beginning and during every stage of the research, i.e. brainstorming, conceptualization, method development and realisation). It is worth noticing that membership to MedFem is open to everyone interested using an online application form.(15) We will disseminate the results by sharing the published article via the website and twitter account of MedFem.

Results

Of the 1071 respondents, 893 were included in our analysis. We excluded 14 respondents who were working outside Switzerland and 164 who did not mention their working place. Participants were either medical students (41.1%) or medical doctors from junior to more senior physicians (58.9%). The total number of persons reached through our survey is unknown since it was also shared via social media platforms. The response rate among general practitioners in Geneva was 207/439 (47.2%). The response rate of medical students and physicians working in the above-mentioned hospitals is unknown.

Table 1: Demographic characteristics of participants and distribution according to professional position, workplace and gender. n: number of persons, %: percentage, p: p-value.

	Female	Male	Significance	Non-binary	Total
n (%)	625 (70.0)	264 (29.6)		5 (0.6)	893
Position n (%)					
Student	262 (41.9)	102 (15.5)	p=0.36	3 (60.0)	367 (41.1)
Resident	118 (18.9)	41 (15.5)	p=0.23	0	159 (17.8)
Junior attending	90 (14.4)	29 (11.0)	p=0.17	0	119 (13.3)
Senior attending	29 (4.6)	29 (11.0)	p<0.001	1 (20.0)	59 (6.6)
Independant	132 (21.1)	64 (24.2)	p=0.30	1 (20.0)	197 (22.1)
Retired	1 (0.2)	3 (1.1)	p=0.08	0	4 (0.4)
Workplace n (%)					
Public hospital	356 (57.0)	146 (55.3)	p=0.65	0	502 (56.5)
Private hospital	11 (1.8)	4 (1.5)	p=1	1 (20.0)	16 (15)
Outpatient Clinic	137 (21.9)	70 (26.5)	p=0.14	1 (20.0)	207 (23.3)
Other					
- University	130 (20.8)	48 (18.2)	p=0.37	2 (40.0)	178 (20.0)
- Not working	10 (1.6)	2 (0.8)	p=0.53	0	12 (1.3)
- Other	12 (1.9)	7 (2.7)	p=0.49	0 (20.0)	19 (2.1)

Of the 893 included participants, 625 (70.3%) were female, 264 (29.7%) male, 5 did not identify to a binary gender (0.6%) (of these, one identified as male and non-binary). The demographic characteristics of participants are summarized in table 1. Because of their small number, participants identifying as non-binary where not contemplated in further analysis. Medical students were the most numerous to participate with 374/893 (41.1%) and participation

decreased with seniority. Distribution of the professional position was similar between genders except for the attending position which was occupied by twice as many men than women. The workplace distribution between genders was similar: the majority worked in public hospitals, followed by outpatient clinics and universities. Most participants had less than 5 years of professional experience. Compared to men, women reported having less professional experience (figure 1).

Among participants, 217/889 (24.4%) reported that they had suffered acts of discrimination, sexism or gender-inequalities. Of these, 199/625 (31.8%) were women and 18/264 (6.8%) were men ( $p < 0.001$ ) (figure 2). Among women, senior attendings (*médecins adjoint·e·s*) were the most affected with 16/29 (55.2%), followed by residents (*médecins internes ou assis·e·s*) with 52/118 (44.1%) and junior attendings (*chef·fe·s de Clinique*) with 37/90 (41.1%)(figure 3). The same proportion of women 166/625 (26.6%) and men 73/264 (27.6%) reported having witnessed acts of sexism and discrimination or gender-inequality ( $p > 0.05$ )(not shown on figure). Male residents, junior and senior attendings witnessed acts of discrimination, sexism or gender-inequality more frequently compared to their female peers, the difference being statistically significant among residents (figure 4). When the question was raised differently ("In your opinion, what problems have you observed?"), the proportion of total participants that reported having observed acts of sexism increased to 365/889 (41.1%); with no statistically significant difference between genders ( $p = 0.4$ ) (figure 5).

Compared to men, significantly more women reported difficulties in career development ( $p < 0.001$ ), discrimination in hiring and working conditions ( $p = 0.002$ ), non-respect of maternity laws ( $p = 0.003$ ) and difficult access to research opportunities ( $p = 0.01$ ) as shown on figure 5. Among participants, 119/625 (19.7%) women and 44/264 (16.7%) men had observed sexual harassment ( $p > 0.05$ ). Twice as many men reported having detected no problems (88/625 (14.1%) women, 75/264 (28.4%) men,  $p = 0.004$ )(figure 5) and not feeling concerned (48/625 (7.7%) women, 40/264 (15.1 %) men  $p < 0.001$ )(not shown on figure). On the other hand, a higher proportion of men than of women indicated supporting initiatives to change medical culture (398/625 (63.7%) women, 188/264 (71.2%) men,  $p = 0.03$ ) (not shown on figure).

Although both women and men perceived the promotion of equality and inclusion in medicine as the most important need, a significant gender difference was observed (figure 6). Women expressed statistically significantly more frequently the need to be supported in their career development ( $p < 0.001$ ) and to gain knowledge about their rights and have them respected more

frequently ( $p<0.005$ )(figure 6). Statistically significantly more men reported having no particular need( $p <0.001$ ) (figure 6).

359/625 (57.4%) of women and 146/264 (55.3%) of men replied to the open questions. Compared to men, new aspects that were more frequently highlighted by women, that had not been referred to in the survey, were the necessity of part-time work (60/359 (16.7%) women, 10/146 (6.8%) men,  $p=0.004$ ), wage equality (44/359 (12.3%) women, 5/146 (3.4%) men,  $p=0.002$ ) and equal opportunities in career progression with, amongst others, appointment of more women in leading positions (63/359 (17.5%) women, 13/146 (8.9%) men,  $p=0.01$ ). 5/359 (1.4%) women – but no men – referred to the notion of “glass ceiling”. Men highlighted mostly the importance of respect, communication and exchange between genders (37/359 (10.3%) women, 24/146 (16.4%) men,  $p=0.9$ ) and the need to promote equality in a broad sense (55/359 (15.3%) women, 23/146 (15.8%) men,  $p=0.9$ ). Women and men reported the need to improve paternal leave laws equally (27/359 (7.5%) women, 10/146 (6.8%) men,  $p=0.8$ ).

Discussion

To our knowledge, this study is the first to assess the extent of gender-related discrimination in the medical community of French-speaking Switzerland. Our study shows that discrimination, sexism and gender inequality in medicine affects one third of women (31.8%) and a small portion of men (6.8%). Interestingly, gender-discrimination and sexual harassment was witnessed by women and men equally, thus demonstrating the general awareness of the issue. Recent studies conducted among research-clinicians and emergency physicians in the United States, in turn, reported higher rates of gender discrimination than in our study reaching 66.3% (research-clinicians) and 62.7% (emergency physicians) in women and 9.8% and 12.5% in men.(4,18) The over-representation of medical students in our study (40.9%), reporting less gender discrimination (22.5% in female and 9.8% in male students) compared with senior attending physicians (55.2% for female versus 6.9% for male responders) could partly explain these differences. Cumulative work experience only partly explains why female senior attendings report the highest incidence of gender discrimination. In fact, women working in an independent medical practice with a seniority comparable to junior or senior attending physicians, reported only 27.3% of gender-related discrimination. These findings suggest that female attending physicians working in Hospitals in French-speaking Switzerland are the most affected by gender discrimination and sexism. Addressing this issue is crucial as gender discrimination was shown to have long-lasting consequences on victims’ well-being, from

decreased self-confidence and burnouts, to prompting professional reorientation or a change in medical specialisation.(14-17)

Recent studies carried out in Germany found an alarming rate of physicians (76.1% of women and 61.6% of men) and medical students (59.8%) that reported having experienced acts of sexual harassment.(19,20) In the present survey, participants were not asked if they had experienced acts of sexual harassment, but rather if they had witnessed this kind of acts; the reported rates were much lower (19.7 % of women and 16.7% of men) compared to that of the German studies. The higher incidence might be explained by the wider definition of forms of sexual harassment used in the German studies, ranging from degrading speech to sexual assault. Since our survey did not clearly define what could be classed as sexual harassment, milder forms (e.g. verbal misconduct) might have been underreported by participants. Considering the disparity to the findings in Germany, further studies are urgently needed to assess the true extent of sexual harassment in the Swiss context.

When asked about the problems they faced, female participants reported problems in career progression, in the enforcement of maternity laws, as well as discrimination in hiring more frequently. This could explain at least in part the scarcity of women in senior positions in our study demographics. In the “open-ended question” section of the survey, a few women used the metaphor of the “glass ceiling” to describe the invisible barrier hindering women from accessing high responsibility positions despite having skills similar to their male peers.(21) The “sticky floor” in turn, is an analogous hindrance encountered at an earlier career stage. The needs more frequently expressed by female respondents (i.e., support, mentoring, sponsorship in professional development, networking, knowledge and respect of their rights) also reflect the problems reported.

It is noteworthy that a majority of both female and male participants expressed the need to promote equality and inclusion in the medical field as well as their support for initiatives that contribute to these goals. The feminisation of the medical profession in Switzerland, with a 50% increase in female physicians in the last 10 years has clearly not been sufficient to stop gender discrimination, even if the importance of diversified teams in terms of gender and the equivalent-to-superior competence of women physicians has been demonstrated.(14,22–24) A recent publication of the New England Journal of Medicine suggested that re-framing gender bias and harassment as ethical issues in academics could help passive bystanders become active



upstanders that have a professional and ethical duty to speak up and intervene when such acts occur.(25)

**Limitations**

Due to the use of distribution via social media, the response rate could not be precisely estimated and the generalizability of the results should be considered with caution. The number of answers (1071) obtained is, nevertheless, important and we have a large panel of healthcare professionals and medical students who participated. A second limitation is the potential selection bias since the respondents might be those who were sensitive to the theme beforehand. This survey did not address other discrimination factors such as ethnicity, sexual orientation, or religion. Nor did it assess who the perpetrators of gender discrimination or of sexual harassment were. A recent German study showed that the more severe forms of sexual harassment like forced physical contact were carried out by patients while sexual assault came mainly from staff and supervisors.(20) Understanding this factor is essential to develop effective measures targeted at different groups of perpetrators.

**Conclusion**

Gender discrimination in medicine in French-speaking Switzerland affects one third of women, in particular those working in hospital settings and senior positions. Women report difficulties in career development, discrimination in hiring and working conditions and a non-respect of maternity laws more frequently. On the other hand, women and men reported having witnessed acts of sexism and sexual harassment at similar rates, demonstrating an awareness of the issue by both genders. Nearly 50% of men and 2/3 of women would support initiatives aimed at reducing gender discrimination and sexual harassment.

The findings of this survey prompt action on gender equality tailored to the medical field and serve as a foundation for further, more robust and detailed studies that should include an intersectional approach. Female and male medical doctors together should collect and assess data on gender discrimination and sexual harassment in a bottom-up manner and develop targeted interventions that reverberate at the structural and systemic levels. Finally, and most importantly, a change in medical culture that establishes an environment of zero tolerance against discriminatory behaviours and sexual harassment at all hierarchy levels is paramount.

**List of abbreviations**

SGDs	Sustainable Development Goals
UK-NHS	United Kingdom National Health Services
FMH	Fédération des Médecins Helvétiques
N	Number
P	P-value

**Author's contributions:** IN analysed and interpreted the data and was a major contributor in writing the manuscript. JS made substantial contributions to the design of the work and was a major contributor in writing the manuscript. AGA made substantial contribution in analysing the data and critically reviewing the manuscript. BR was a major contributor in the conception of the study and substantively revised the manuscript. JL, AR, JA, CS, ET, CG, JH, GF made substantial contributions to the conception and design of the study and the acquisition of the data and critically reviewed the manuscript. JA was a major contributor in the conception of the work and substantively revised the manuscript. MC made substantial contribution in the conception of the work, the interpretation of the data and the revision of the manuscript. EN made substantial contribution to the conception and design of the study and critically reviewed the manuscript.

All authors have approved the submitted version and have agreed both to be personally accountable for their own contributions and to ensure that questions related to the accuracy or integrity of any part of the work, even ones in which they were not personally involved, are appropriately investigated, resolved, and the resolution documented in the literature.

**Acknowledgements:** We thank all the members of the association MedFem for their support and useful discussions.

## Legends

**Figure 1:** Distribution of participants according to gender and work-experience. %: percentage.

\*:  $p < 0.05$ , \*\*\*:  $p < 0.001$ .

**Figure 2:** Participants victim of discrimination, sexism or gender-inequalities according to gender. %: percentage. \*\*\*:  $p < 0.001$ .

**Figure 3:** Victims of discrimination, sexism, gender-inequality according to professional position and gender. %: percentage. \*\*\*:  $p < 0.001$ .



1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

**Figure 4:** Witnesses of discrimination, sexism, gender-inequality according to professional position and gender. %: percentage. \*:  $p<0.05$ . \*\*:  $p<0.01$ .

**Figure 5:** Problems observed by participants according to gender. %: percentage. \*:  $p<0.05$ . \*\*:  $p<0.01$ . \*\*\*:  $p<0.001$ .

**Figure 6:** Needs of participants according to gender. %: percentage. \*:  $p<0.05$ . \*\*:  $p<0.01$ . \*\*\*:  $p<0.001$ .

For peer review only

## References

1. International Labour Organization. Gender diversity journey: Company good practices. *ILO* 2017. Available: [http://www.ilo.org/actemp/publications/WCMS\\_578768](http://www.ilo.org/actemp/publications/WCMS_578768) [Accessed 25 June 2021].
2. Leading Women in Medicine Launch “Time’s Up Healthcare”. Available: [https://www.medscape.com/viewarticle/909777#vp\\_1](https://www.medscape.com/viewarticle/909777#vp_1) [Accessed 11 July 2020].
3. World Health Organization. Definition of sexual harassment. *WHO* 2001. Available: <http://www.un.org/womenwatch/osagi/pdf/who.pdf> [Accessed 13 June 2021].
4. Jaggi R, Griffith KA, Jones R, et al. Sexual harassment and discrimination experiences of academic medical faculty. *JAMA* 2016;315(19):2120–2121.
5. Larsson C, Hensing G, Allebeck P. Sexual and gender-related harassment in medical education and research training: Results from a Swedish survey. *Med Educ* 2003;37(1):39–50.
6. Fnais N, Soobiah C, Chen MH, et al. Harassment and discrimination in medical training: a systematic review and meta-analysis. *Acad Med* 2014;89(5):817–27.
7. Dzau VJ, Johnson PA. Ending Sexual Harassment in Academic Medicine. *N Engl J Med* 2018;379(17):1589–91.
8. National Academies of Sciences, Engineering, and Medicine; Policy and Global Affairs; Committee on Women in Science, Engineering, and Medicine; Committee on the Impacts of Sexual Harassment in Academia. Sexual Harassment of Women: Climate, Culture, and Consequences in Academic Sciences, Engineering, and Medicine. *National Academies Press (US)* 2018. Available: <https://www.nap.edu/catalog/24994>
9. World Health Organization. Delivered by Women, Led by Men: A Gender and Equity Analysis of the Global Health and Social Workforce. *WHO* 2019. Available: <http://www.who.int/hrh/resources/health-observer24/en/> [Accessed 19 December 2020].
10. Government United Kingdom. New data on gender pay gap in medicine. *GOV.UK*.

Available: <https://www.gov.uk/government/news/new-data-on-gender-pay-gap-in-medicine> [Accessed 10 July 2020].

11. Yong CM, Abnoui F, Rzeszut AK, et al. Sex Differences in the Pursuit of Interventional Cardiology as a Subspecialty Among Cardiovascular Fellows-in-Training. *JACC Cardiovasc Interv* 2019;12(3):219–28.

12. Rampersad PP, Capdeville M. Who Decided Cardiology Was a Man’s Job? The Future of Cardiovascular Medicine and Why Women Are Key. *J Cardiothorac Vasc Anesth* 2020; 34(3):575-581.

13. Berlin G, Darino L, Greenfield M, et al. Women in the healthcare industry. *Mc Kinsey and Company* 2019. Available: <https://www.mckinsey.com/industries/healthcare-systems-and-services/our-insights/women-in-the-healthcare-industry#> [Accessed 19 December 2020].

14. Hostettler S, Kraft E. Statistique médicale 2019 de la FMH: forte dépendance de l'étranger. *Bull des Médecins Suisses* 2020;101(13):450–5.

15. Association MedFem. Available: <https://www.medfem.org/> [Accessed 11 July 2020].

16. SurveyMonkey - Free online survey software and questionnaire tool. Available: <https://www.surveymonkey.com/>.

17. Casillas A, Paroz S, Green AR, et. al. Cultural competency of health-care providers in a Swiss University Hospital: Self-assessed cross-cultural skillfulness in a cross-sectional study. *BMC Med Educ.* 2014;14:19.

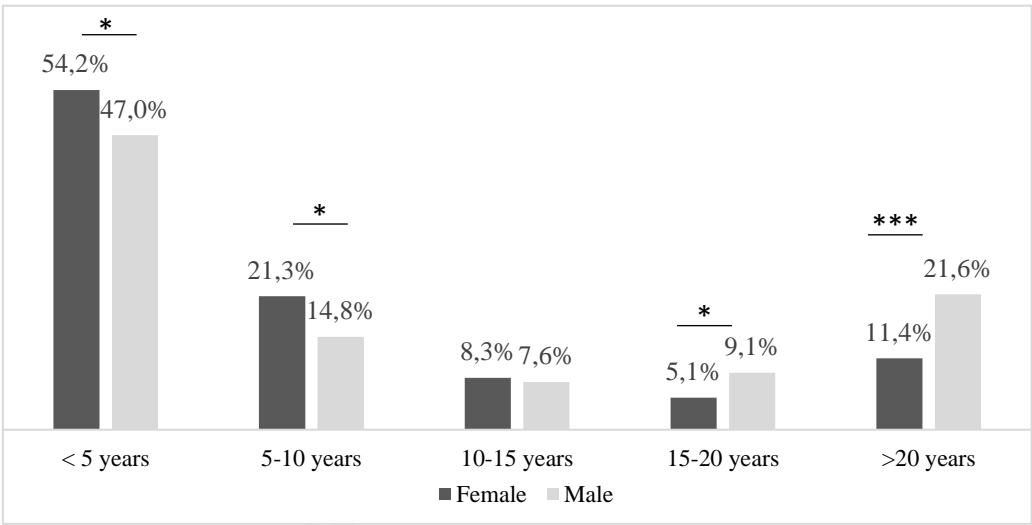
18. Lu DW, Lall MD, Mitzman J, et al. #MeToo in EM: A Multicenter Survey of Academic Emergency Medicine Faculty on Their Experiences with Gender Discrimination and Sexual Harassment. *West J Emerg Med* 2020;21(2):252-260.

19. Oertelt-Prigione S, Jenner S, Djermeester P, et al. Prevalence of Sexual Harassment in Academic Medicine. *JAMA Intern Med* 2019;179(1):108-111.

20. Schoenefeld E, Marschall B, Paul B, et al. Medical education too: sexual harassment within the educational context of medicine – insights of undergraduates. *BMC Med Educ* 2021;21(1):1–6.

21. Hingle S, Barrett E. Gender Differences in Resident Assessment: The Glass Ceiling and Sticky Floor for Women in Medicine Begin Early. *JAMA Netw open* 2020;3(7):e2010985.
22. Tsugawa Y, Jena AB, Figueroa JF, et al. Comparison of hospital mortality and readmission rates for medicare patients treated by male vs female physicians. *JAMA Intern Med* 2017;177(2):206–13.
23. Greenwood BN, Carnahan S, Huang L. Patient–physician gender concordance and increased mortality among female heart attack patients. *Proc Natl Acad Sci U S A* 2018;115(34):8569–74.
24. Wang TY, Grines C, Ortega R, et al. Women in interventional cardiology: Update in percutaneous coronary intervention practice patterns and outcomes of female operators from the National Cardiovascular Data Registry®. *Catheter Cardiovasc Interv* 2016;87(4):663–8.
25. Mello MM, Jagsi R. Standing Up against Gender Bias and Harassment — A Matter of Professional Ethics. *N Engl J Med* 2020;382(15):1385–7.

Figure 1



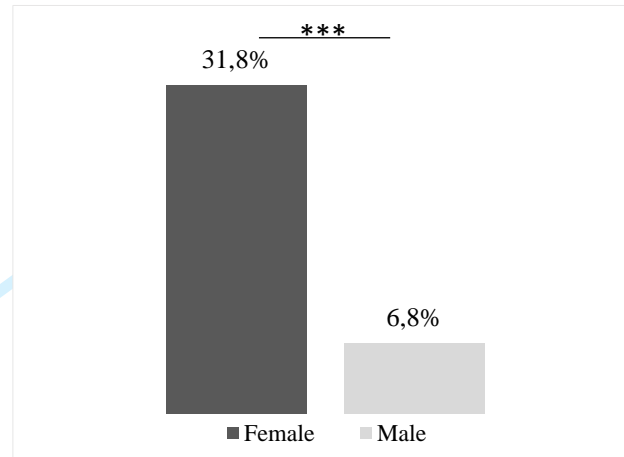
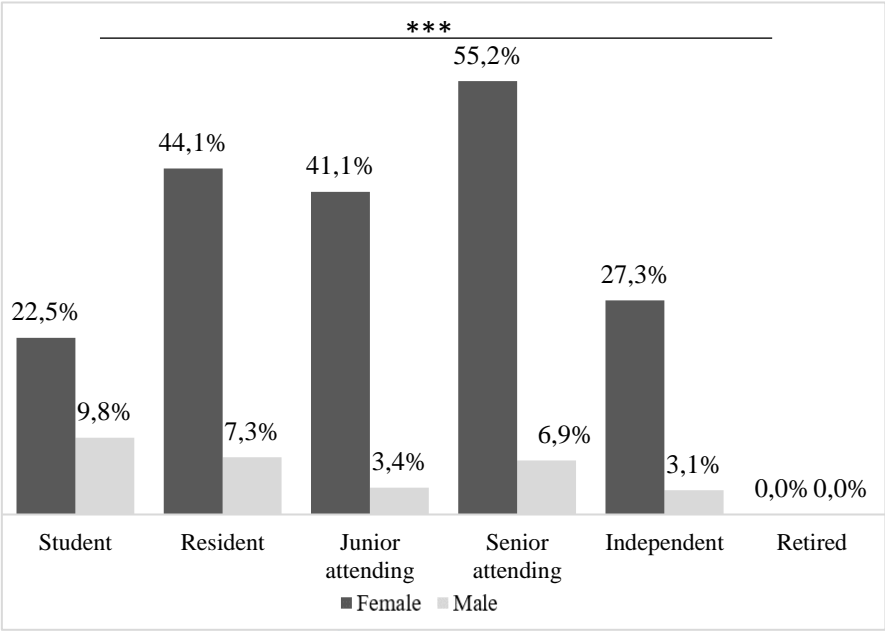
**Figure 2**

Figure 3



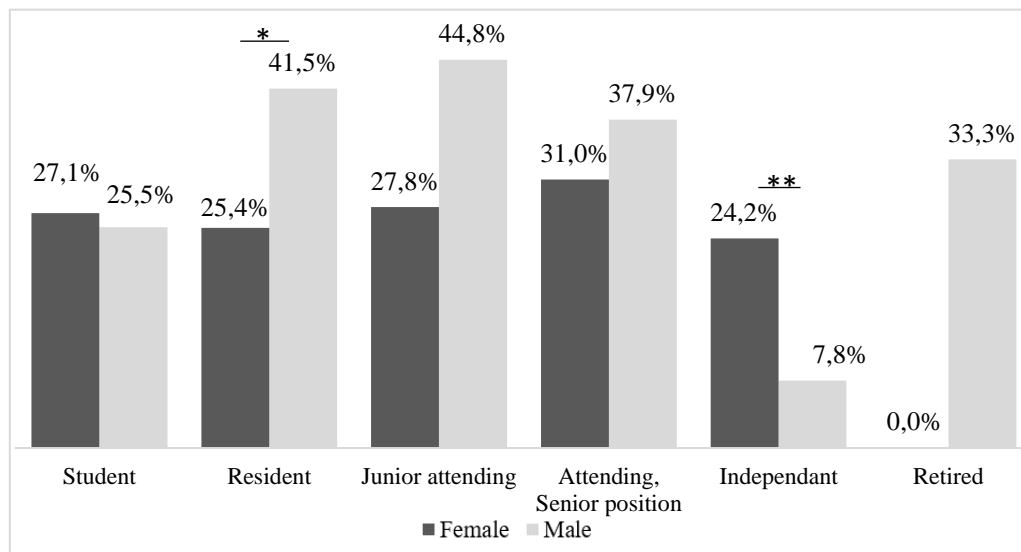
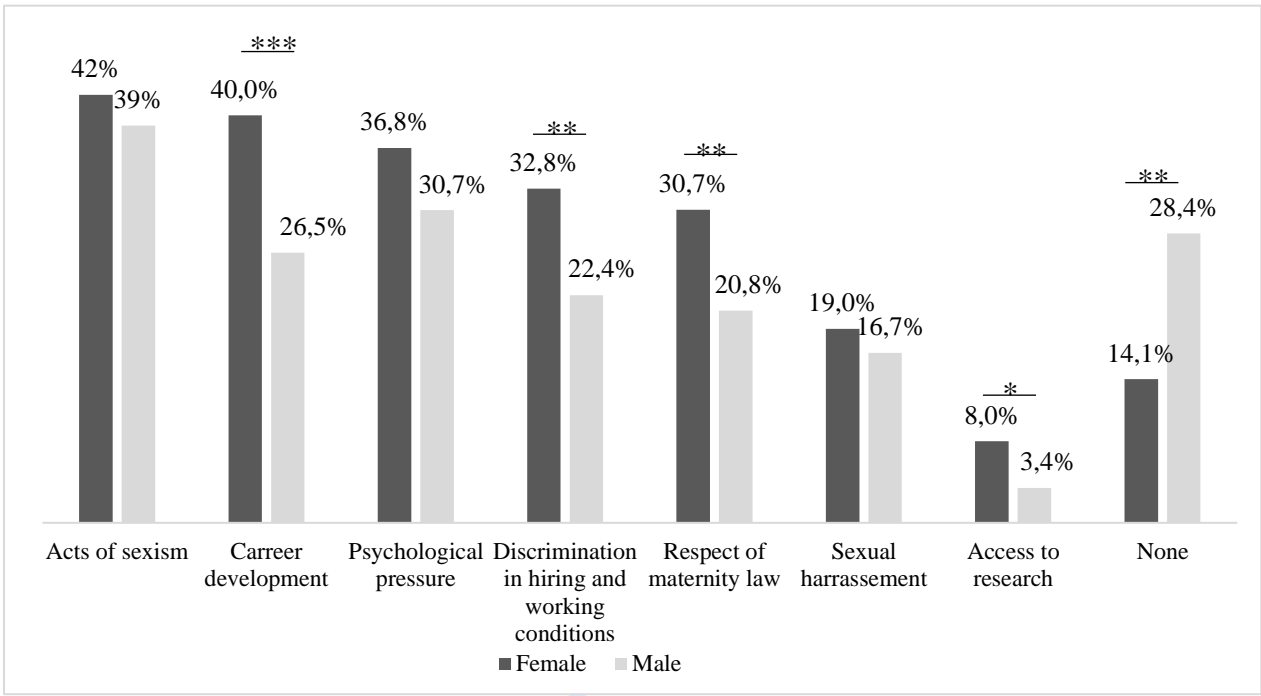
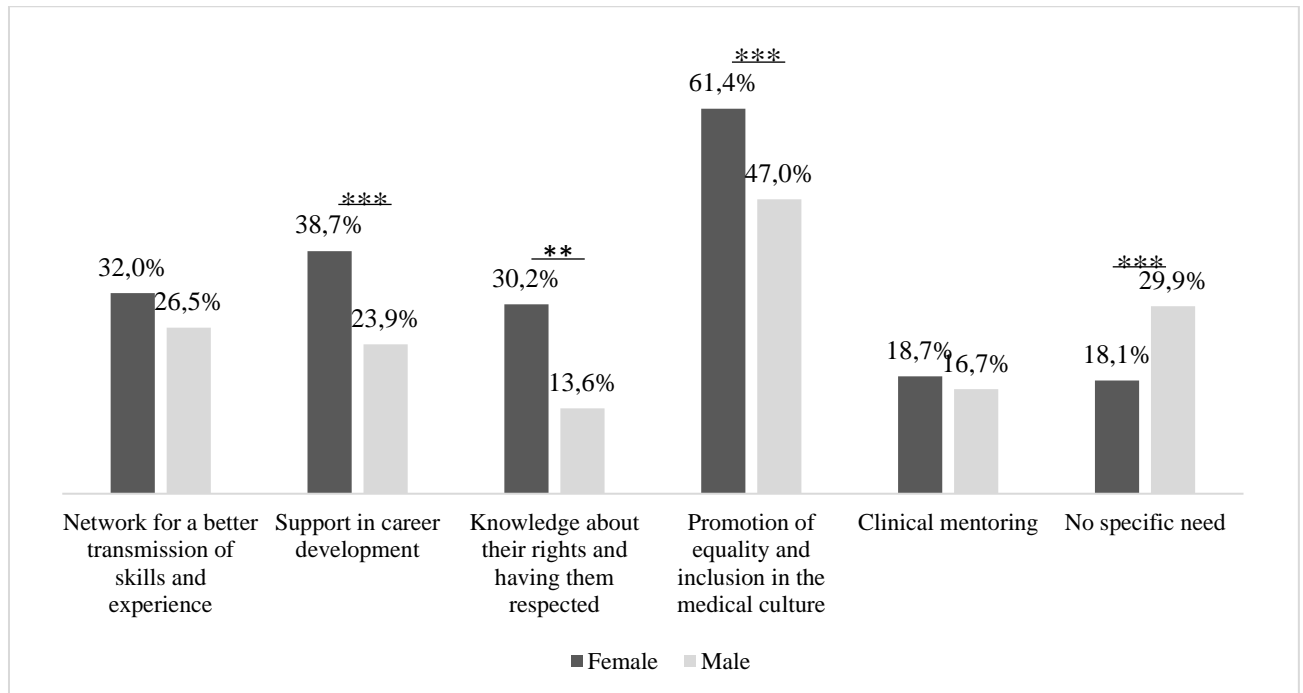
**Figure 4**



Figure 5



**Figure 6**

**Appendix 1**

Questionnaire:

1. You are
  - A man
  - A woman
  - Other
  
2. Currently you are
  - Student
  - Resident
  - Physician without speciality title
  - Physician with speciality title
  - Senior attending
  - Independent
  - Retired
  - Other occupation (please specify)
  
3. You have:
  - < 5 years experience
  - 5-10 years experience
  - 10-15 years experience
  - 15-20 years experience
  - > 20 years experience
  - Other (please specify)
  
4. You work in:
  - A public hospital
  - A private hospital
  - Medical practice
  - Other
  
5. Workplace
  - Switzerland
  - Europe
  - Outside Europe
  
6. What is your current position:
  - You were victim of discrimination, acts of sexism or gender-inequality.
  - You witnessed discrimination, acts of sexism or gender-inequality.
  - It is an ethical engagement. I support initiatives that help the medical culture to evolve.
  - I don't feel concerned.

- 1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60
7. According to your experience what problems have you observed?
    - Discrimination in hiring, and working conditions
    - Career development
    - Access to research
    - Respect of maternity laws
    - Acts of sexism
    - Psychological pressure
    - Sexual harassment
    - None
    - Other
  8. At the present time, what are your needs?
    - Network for a better transmission of skills and competence
    - Support in career development
    - Knowledge about my rights and have them respected
    - Promotion of equality and inclusivity in the medical culture
    - Clinical mentoring
    - No specific need
    - Other
  9. What needs to be done in the future to achieve an ideal professional world and what are the remaining challenges?
  10. I am interested in MedFem. I would like to contribute by :
    - Talking about Medfem around me
    - Participating to MedFem events
    - Helping organizing events
    - Developing a communication strategy via social media
    - Collecting funds
    - Participating in mentoring
    - Supporting us without being concretely involved
    - I don't want to contribute
    - Other
  11. With respect to anonymity, I would like to add:

1 STROBE Statement—Checklist of items that should be included in reports of *cohort studies*  
2  
3  
4 Checklist for the article “Sexism and sexual harassment in medicine in French-speaking  
5 Switzerland”:  
6

- |  |  |
|--|--|
| 7 1. (a-b) completed                   | 12. (a-b) completed (c-e) not applicable |
| 8 2. completed                         | 13. not applicable                       |
| 9 3. completed                         | 14. (a) completed (b-c) not applicable   |
| 10 4. completed                        | 15. not applicable                       |
| 11 5. completed                        | 16. not applicable                       |
| 12 6. (a) completed (b) not applicable | 17. completed                            |
| 13 7. completed                        | 18. completed                            |
| 14 8. completed                        | 19. completed                            |
| 15 9. completed                        | 20. completed                            |
| 16 10. completed                       | 21. completed                            |
| 17 11. completed                       | 22. completed                            |

	Item No	Recommendation
Title and abstract	1	(a) Indicate the study’s design with a commonly used term in the title or the abstract (b) Provide in the abstract an informative and balanced summary of what was done and what was found
Introduction		
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported
Objectives	3	State specific objectives, including any prespecified hypotheses
Methods		
Study design	4	Present key elements of study design early in the paper
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection
Participants	6	(a) Give the eligibility criteria, and the sources and methods of selection of participants. Describe methods of follow-up (b) For matched studies, give matching criteria and number of exposed and unexposed
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable
Data sources/measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group
Bias	9	Describe any efforts to address potential sources of bias
Study size	10	Explain how the study size was arrived at
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why
Statistical methods	12	(a) Describe all statistical methods, including those used to control for confounding (b) Describe any methods used to examine subgroups and interactions (c) Explain how missing data were addressed (d) If applicable, explain how loss to follow-up was addressed (e) Describe any sensitivity analyses

Results

Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed (b) Give reasons for non-participation at each stage (c) Consider use of a flow diagram
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders (b) Indicate number of participants with missing data for each variable of interest (c) Summarise follow-up time (eg, average and total amount)
Outcome data	15*	Report numbers of outcome events or summary measures over time
Main results	16	(a) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included (b) Report category boundaries when continuous variables were categorized (c) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses
<b>Discussion</b>		
Key results	18	Summarise key results with reference to study objectives
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence
Generalisability	21	Discuss the generalisability (external validity) of the study results
<b>Other information</b>		
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based

\*Give information separately for exposed and unexposed groups.

**Note:** An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at <http://www.plosmedicine.org/>, Annals of Internal Medicine at <http://www.annals.org/>, and Epidemiology at <http://www.epidem.com/>). Information on the STROBE Initiative is available at <http://www.strobe-statement.org>.

# BMJ Open

## Prevalence and forms of gender discrimination and sexual harassment among medical students and physicians in French-speaking Switzerland: A survey.

Journal:	<i>BMJ Open</i>
Manuscript ID	bmjopen-2021-049520.R2
Article Type:	Original research
Date Submitted by the Author:	11-Nov-2021
Complete List of Authors:	Najjar, Iris; HUG, Medicine Socquet, Jennifer; HUG Gayet-Ageron, Angele; Univ of Geneva Hospitals, Infection Control Programme Ricou, Bara; Geneva University Hospitals of Geneva, APSI Le Breton, Julien; HUG, Department of rehabilitation and geriatrics Rossel, Anne; HUG, Department of Medicine Abdulcadir, Jasmine; University Hospitals of Geneva , Obstetrics and Gynecology; University of Geneva, Faculty of Medecine Soroken, Cindy; HUG, Department of Maternity, Adolescent and Child Health Tessitore, Elena; HUG, Departement of cardiology Gerstel, Caroline; Delta Practice Network, Department of general internal medicine Halimi, Julie; HUG, Department of child psychiatry Frasca Polara, Giulia; Hôpital Lariboisière, Departement of neurology Coen, Matteo; University of Geneva Faculty of Medicine Niyibizi, Eva; Hirslanden Clinique La Colline, Emergency Care
<b>Primary Subject Heading</b>:	Ethics
Secondary Subject Heading:	Medical education and training, Public health
Keywords:	MEDICAL ETHICS, PUBLIC HEALTH, MEDICAL EDUCATION & TRAINING, ETHICS (see Medical Ethics)

SCHOLARONE™  
Manuscripts



I, the Submitting Author has the right to grant and does grant on behalf of all authors of the Work (as defined in the below author licence), an exclusive licence and/or a non-exclusive licence for contributions from authors who are: i) UK Crown employees; ii) where BMJ has agreed a CC-BY licence shall apply, and/or iii) in accordance with the terms applicable for US Federal Government officers or employees acting as part of their official duties; on a worldwide, perpetual, irrevocable, royalty-free basis to BMJ Publishing Group Ltd ("BMJ") its licensees and where the relevant Journal is co-owned by BMJ to the co-owners of the Journal, to publish the Work in this journal and any other BMJ products and to exploit all rights, as set out in our [licence](#).

The Submitting Author accepts and understands that any supply made under these terms is made by BMJ to the Submitting Author unless you are acting as an employee on behalf of your employer or a postgraduate student of an affiliated institution which is paying any applicable article publishing charge ("APC") for Open Access articles. Where the Submitting Author wishes to make the Work available on an Open Access basis (and intends to pay the relevant APC), the terms of reuse of such Open Access shall be governed by a Creative Commons licence – details of these licences and which [Creative Commons](#) licence will apply to this Work are set out in our licence referred to above.

Other than as permitted in any relevant BMJ Author's Self Archiving Policies, I confirm this Work has not been accepted for publication elsewhere, is not being considered for publication elsewhere and does not duplicate material already published. I confirm all authors consent to publication of this Work and authorise the granting of this licence.



## Prevalence and forms of gender discrimination and sexual harassment among medical students and physicians in French speaking Switzerland: A survey.

Iris Najjar<sup>1\*</sup>, Jennifer Socquet<sup>2\*</sup>, Angèle Gayet-Ageron<sup>5</sup>, Bara Ricou<sup>4,6</sup>, Julien Le Breton<sup>7</sup>, Anne Rossel<sup>1</sup>, Jasmine Abdulcadir<sup>8</sup>, Cindy Soroken<sup>8</sup>, Elena Tessitore<sup>9</sup>, Caroline Gerstel<sup>10</sup>, Julie Halimi<sup>11</sup>, Giulia Frasca Polara<sup>12</sup>, Matteo Coen<sup>1,13,#</sup>, Eva Niyibizi<sup>3,#</sup>

\*,# Equal contribution to the manuscript

<sup>1</sup> Service of General Internal Medicine, Geneva University Hospitals, Rue Gabrielle-Perret-Gentil 4, 1211, Geneva 14, Switzerland.

<sup>2</sup> Department of Primary Health Care, Geneva University Hospitals, Rue Gabrielle-Perret-Gentil 4, 1211, Geneva 14, Switzerland.

<sup>3</sup> Emergency Care Department, Hirslanden Clinic La Colline, Avenue de Beau Séjour 6, 1206 Geneva, Switzerland.

<sup>4</sup> Faculty of Medicine, University of Geneva, Rue Michel-Servet 1, 1211, Geneva 14, Switzerland.

<sup>5</sup> Department of Clinical Epidemiology, Geneva University Hospitals, Rue Gabrielle-Perret-Gentil 4, 1211, Geneva 14, Switzerland.

<sup>6</sup> Department of Anaesthesiology, Pharmacology and Intensive Care, Geneva University Hospitals, Rue Gabrielle-Perret-Gentil 4, 1211, Geneva 14, Switzerland.

<sup>7</sup> Department of rehabilitation and geriatrics, Trois-Chêne Hospital, Chemin du Pont-Bochet 3, 1226 Thônex, Switzerland.

<sup>8</sup> Department of Maternity, Adolescent and Child Health, Geneva University Hospitals, Rue Gabrielle-Perret-Gentil 4, 1211, Geneva 14, Switzerland.

<sup>9</sup> Department of Cardiology, Geneva University Hospitals, Rue Gabrielle-Perret-Gentil 4, 1211, Geneva 14, Switzerland.

<sup>10</sup> General Internal Medicine, Delta practice network, Chemin de la Tour 21, 1217, Geneva, Switzerland.

<sup>11</sup> Department of child Psychiatry, Geneva University Hospitals, Rue Gabrielle-Perret-Gentil 4, 1211, Geneva 14, Switzerland.

<sup>12</sup> Département de Neurologie, Lariboisière Hospital, 2 rue Ambroise-Paré, 75010 Paris, France.

<sup>13</sup> Unit of Development and Research in Medical Education, Faculty of Medicine, University of Geneva, Rue Michel-Servet 1, 1211, Geneva 14, Switzerland.

**Correspondence to:** Iris Najjar, Service of General Internal Medicine, Department of Medicine, Geneva University Hospitals, Rue Gabrielle-Perret-Gentil 4, 1211, Geneva 14, Switzerland, [iris.najjar@gmail.com](mailto:iris.najjar@gmail.com).

**Word count :** 2546

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

**Abstract (267 words)**

**Objectives:** The aim of this study was to determine the prevalence and forms of gender discrimination and sexual harassment experienced by medical students and physicians in French-speaking Switzerland.

**Design and Setting:** We conducted an online survey using a questionnaire of 9 multiple-choice and 2 open questions between January 24 and February 24 2019. Our target population was medical students and physicians working at hospitals and general practitioners from the French-speaking part of Switzerland. The online survey was sent via social media platforms and direct emails. We compared answers between male and female-determined respondents using either Chi-2 or Fisher’s exact tests.

**Results:** Among 1071 responders, a total of 893 were included (625 females, 264 males, 4 non-binary, 1 non-binary and male). 182 were excluded because they did not mention their working place or were working only outside Switzerland. Because of the small number of non-binary participants they were not contemplated in further statistical analysis. Of the 889 participants left, 199 (31.8%) women and 18 (6.8%) men reported having personally experienced gender discrimination, in terms of sexism, difficulties in career development and psychological pressure. Among women, senior attendings were the most affected (55.2%), followed by residents (44.1%), and junior attendings (41.1%). Sexual harassment was equally observed among women (19.0%) and men (16.7%). Compared with men (47%), women (61.4%) expressed the need to promote equality and inclusivity in medicine more frequently ( $p<0.001$ ), as well as the need for support in their professional development (38.7% women, 23.9% men,  $p<0.001$ ).

**Conclusions:** Gender discrimination in medicine in French-speaking Switzerland affects one third of women, in particular those working in hospital settings and senior positions.

## Strength and limitations of the study

- Outreach to students and medical professionals in different working environments (university, public hospital, medical practice).
- High number of participants.
- The response rate could not be estimated as the total number of persons reached via social media is unknown.
- The study did not take into account race or ethnicity which can also play a role in discrimination.

**Funding:** This research received no specific grant from any funding agency in the public, commercial or not-for-profit sectors.

**Competing Interest Statement:** All authors have completed the [Unified Competing Interest form](#) (available on request from the corresponding author) and declare: no support from any organisation for the submitted work; no financial relationships with any organisations that might have an interest in the submitted work in the previous three years, no other relationships or activities that could appear to have influenced the submitted work.

**Ethics approval and consent to participate:** Ethical approval was not necessary as confirmed by the president of the cantonal ethics committee of Switzerland (Commission cantonale d'éthique de la recherche – CCER). A consent of the participants was not needed as the data is anonymous and cannot be traced back to an individual.

**Availability of data and materials:** The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

**Introduction**

Achieving Gender equality is the number 5 goal of the United Nations 17 Sustainable Development Goals (SGDs) to be fulfilled by 2030.(1) The magnitude of the feminist movements like #MeToo and the emergence of organisations providing legal and professional support for women like TIME’S UP and TIME’S UP Healthcare demonstrate the issue has starkly mobilized civil society; both instances signal, finally, the widespread presence of sexism and sexual harassment in professional environments.(2) Sexism is commonly defined as a discrimination based on gender and often used as a synonym to gender discrimination. Sexual harassment is defined as “any unwelcome sexual advance, request for sexual favours, or other verbal or physical conduct of a sexual nature, when it interferes with work, is made a condition of employment, or creates an intimidating, hostile or offensive work environment”.(3) The medical field is no exception to this phenomenon with numerous international studies showing alarming results.(4–7) In a survey published in the Journal of the American Medical Association in 2016, 66% of female research-clinicians reported having endured gender-related discrimination, and 30% sexual harassment.(4) Furthermore, although the female component of frontline healthcare workers reaches 70%, 75% of top leadership positions in academia and medical specialties are still held by men.(8–12) The 2019 LeanIn.Org and McKinsey survey « Women in the healthcare industry » highlighted the influence of gender and ethnicity in the underrepresentation of women in leadership positions.(13) Gender pay gaps persist as pointed out by the study “Gender Pay Gap in Medicine” conducted by the United Kingdom National Health Services in 2019. This study found a gender pay-gap of 17%, with a difference of 33% in general practitioners’ practices.(10) In Switzerland, the 2019 Statistics of the *Foederatio Medicorum Helveticorum* (Federation of the Swiss physicians) showed that 57.8% of residents are women, but only 12,8% of female physicians occupy department chairs positions.(14) MedFem, an association of physicians working towards more equality and inclusivity in the medical field, conducted the present survey in French-speaking Switzerland.(15) It is the first survey effort on sexism and sexual harassment in medicine in that country. The objectives of this study were: 1) To determine the prevalence and forms of sexism and gender discrimination endured by medical students and physicians across specialities, 2) to evaluate their needs regarding this issue, and 3) to collect their opinion on the improvements needed in the future.

## Methods

We conducted an online survey in French using Monkey Survey® that was available from January 24 to February 24, 2019. The questionnaire was reviewed by four members of the association MedFem. Following the review, an introduction was added to make the objectives of the survey more clear, to present the association MedFem and to inform about its anonymity. It was pretested among 164 participants, and their answers were secondly deleted. Following the pretest, a question was added on place of practice. The questionnaire was sent on social media platforms (Facebook, Linkedin, Whatsapp, Twitter) but also direct emails were sent to medical students of the University of Geneva and Lausanne from 2<sup>nd</sup> to 6<sup>th</sup> pregaduate years, to physicians working at the University Hospitals of Geneva across different specialities (ambulatory medicine, neurology, visceral surgery, radiology, internal medicine, gynaecology, geriatrics), at the Lausanne university hospital (CHUV), to the hospitals of Neuchâtel and to members of the Delta network in Geneva, a group of general practitioners.(16) No reminder was send. The choice to include exclusively students and healthcare professionals working in the French-speaking part of Switzerland (Romandy) was dictated by the simplicity to use only French in the survey and to be homogeneous regarding working conditions and cultural aspects linked with the topic. Indeed, wide cultural, professional, and linguistic gaps exists between the four language regions (*viz.* French, German, Italian and Romansh-speaking).(17) The questionnaire was composed of 9 multiple-choice questions (with multiple answer options) and 2 open-ended questions (questions 9 and 11) and had an estimated fill-out time of 4 minutes (Appendix 1). To note, question 9 permitted participants to express their opinion on improvements needed and on remaining challenges. Question 11 allowed participants to add a general comment. Answers were categorised manually using thematic groups (13 groups for Question 9 e.g. part-time work, wage equality, career progression; 9 groups for Question 11 e.g. equality between genders, encouragements and gratitude, no comment).

All variables in the questionnaire were categorical; they were reported by their frequencies and relative percentages by category. We compared various answers to questions between respondents who defined themselves as men, and those as women. We performed either Chi square-test or the bilateral Fisher's exact T-test, when expected frequencies were  $\leq 5$ , using the software STATA 16 IC (Stata Corp., TX, USA).  $P \leq 0.05$  were considered as statistically significant.

Patient and Public Involvement Statement

MedFem members were involved from the very beginning and during every stage of the research, i.e. brainstorming, conceptualization, method development and realisation). It is worth noticing that membership to MedFem is open to everyone interested using an online application form.(15) We will disseminate the results by sharing the published article via the website and twitter account of MedFem.

Results

Of the 1071 respondents, 893 were included in our analysis. We excluded 14 respondents who were working outside Switzerland and 164 who did not mention their working place. Participants were either medical students (41.1%) or medical doctors from junior to more senior physicians (58.9%). The total number of persons reached through our survey is unknown since it was also shared via social media platforms. The response rate among general practitioners in Geneva was 207/439 (47.2%). The response rate of medical students and physicians working in the above-mentioned hospitals is unknown.

Table 1: Demographic characteristics of participants and distribution according to professional position, workplace and gender. n: number of persons, %: percentage, p: p-value.

	Female	Male	Significance	Non-binary	Total
n (%)	625 (70.0)	264 (29.6)		5 (0.6)	893
Position n (%)					
Student	262 (41.9)	102 (15.5)	p=0.36	3 (60.0)	367 (41.1)
Resident	118 (18.9)	41 (15.5)	p=0.23	0	159 (17.8)
Junior attending	90 (14.4)	29 (11.0)	p=0.17	0	119 (13.3)
Senior attending	29 (4.6)	29 (11.0)	p<0.001	1 (20.0)	59 (6.6)
Independant	132 (21.1)	64 (24.2)	p=0.30	1 (20.0)	197 (22.1)
Retired	1 (0.2)	3 (1.1)	p=0.08	0	4 (0.4)
Workplace n (%)					
Public hospital	356 (57.0)	146 (55.3)	p=0.65	0	502 (56.5)
Private hospital	11 (1.8)	4 (1.5)	p=1	1 (20.0)	16 (15)
Outpatient Clinic	137 (21.9)	70 (26.5)	p=0.14	1 (20.0)	207 (23.3)
Other					
- University	130 (20.8)	48 (18.2)	p=0.37	2 (40.0)	178 (20.0)
- Not working	10 (1.6)	2 (0.8)	p=0.53	0	12 (1.3)
- Other	12 (1.9)	7 (2.7)	p=0.49	0 (20.0)	19 (2.1)

Of the 893 included participants, 625 (70.3%) were female, 264 (29.7%) male, 5 did not identify to a binary gender (0.6%) (of these, one identified as male and non-binary). The demographic characteristics of participants are summarized in table 1. Because of their small number, participants identifying as non-binary where not contemplated in further analysis. Medical students were the most numerous to participate with 374/893 (41.1%) and participation



decreased with seniority. Distribution of the professional position was similar between genders except for the attending position which was occupied by twice as many men than women. The workplace distribution between genders was similar: the majority worked in public hospitals, followed by outpatient clinics and universities. Most participants had less than 5 years of professional experience. Compared to men, women reported having less professional experience (figure 1).

Among participants, 217/889 (24.4%) reported that they had suffered acts of discrimination, sexism or gender-inequalities. Of these, 199/625 (31.8%) were women and 18/264 (6.8%) were men ( $p < 0.001$ ) (figure 2). Among women, senior attendings (*médecins adjoint·e·s*) were the most affected with 16/29 (55.2%), followed by residents (*médecins internes ou assis·e·s*) with 52/118 (44.1%) and junior attendings (*chef·fe·s de Clinique*) with 37/90 (41.1%)(figure 3). The same proportion of women 166/625 (26.6%) and men 73/264 (27.6%) reported having witnessed acts of sexism and discrimination or gender-inequality ( $p > 0.05$ )(not shown on figure). Male residents, junior and senior attendings witnessed acts of discrimination, sexism or gender-inequality more frequently compared to their female peers, the difference being statistically significant among residents (figure 4). When the question was raised differently ("In your opinion, what problems have you observed?"), the proportion of total participants that reported having observed acts of sexism increased to 365/889 (41.1%); with no statistically significant difference between genders ( $p = 0.4$ ) (figure 5).

Compared to men, significantly more women reported difficulties in career development ( $p < 0.001$ ), discrimination in hiring and working conditions ( $p = 0.002$ ), non-respect of maternity laws ( $p = 0.003$ ) and difficult access to research opportunities ( $p = 0.01$ ) as shown on figure 5. Among participants, 119/625 (19.7%) women and 44/264 (16.7%) men had observed sexual harassment ( $p > 0.05$ ). Twice as many men reported having detected no problems (88/625 (14.1%) women, 75/264 (28.4%) men,  $p = 0.004$ )(figure 5) and not feeling concerned (48/625 (7.7%) women, 40/264 (15.1 %) men  $p < 0.001$ )(not shown on figure). On the other hand, a higher proportion of men than of women indicated supporting initiatives to change medical culture (398/625 (63.7%) women, 188/264 (71.2%) men,  $p = 0.03$ ) (not shown on figure).

Although both women and men perceived the promotion of equality and inclusion in medicine as the most important need, a significant gender difference was observed (figure 6). Women expressed statistically significantly more frequently the need to be supported in their career development ( $p < 0.001$ ) and to gain knowledge about their rights and have them respected more

frequently ( $p<0.005$ )(figure 6). Statistically significantly more men reported having no particular need( $p <0.001$ ) (figure 6).

359/625 (57.4%) of women and 146/264 (55.3%) of men replied to the open questions. Compared to men, new aspects that were more frequently highlighted by women, that had not been referred to in the survey, were the necessity of part-time work (60/359 (16.7%) women, 10/146 (6.8%) men,  $p=0.004$ ), wage equality (44/359 (12.3%) women, 5/146 (3.4%) men,  $p=0.002$ ) and equal opportunities in career progression with, amongst others, appointment of more women in leading positions (63/359 (17.5%) women, 13/146 (8.9%) men,  $p=0.01$ ). 5/359 (1.4%) women – but no men – referred to the notion of “glass ceiling”. Men highlighted mostly the importance of respect, communication and exchange between genders (37/359 (10.3%) women, 24/146 (16.4%) men,  $p=0.9$ ) and the need to promote equality in a broad sense (55/359 (15.3%) women, 23/146 (15.8%) men,  $p=0.9$ ). Women and men reported the need to improve paternal leave laws equally (27/359 (7.5%) women, 10/146 (6.8%) men,  $p=0.8$ ).

**Discussion**

To our knowledge, this study is the first to assess the extent of gender-related discrimination in the medical community of French-speaking Switzerland. Our study shows that discrimination, sexism and gender inequality in medicine affects one third of women (31.8%) and a small portion of men (6.8%). Interestingly, gender-discrimination and sexual harassment was witnessed by women and men equally, thus demonstrating the general awareness of the issue. Recent studies conducted among research-clinicians and emergency physicians in the United States, in turn, reported higher rates of gender discrimination than in our study reaching 66.3% (research-clinicians) and 62.7% (emergency physicians) in women and 9.8% and 12.5% in men.(4,18) The over-representation of medical students in our study (40.9%), reporting less gender discrimination (22.5% in female and 9.8% in male students) compared with senior attending physicians (55.2% for female versus 6.9% for male responders) could partly explain these differences. Cumulative work experience only partly explains why female senior attendings report the highest incidence of gender discrimination. In fact, women working in an independent medical practice with a seniority comparable to junior or senior attending physicians, reported only 27.3% of gender-related discrimination. These findings suggest that female attending physicians working in Hospitals in French-speaking Switzerland are the most affected by gender discrimination and sexism. Addressing this issue is crucial as gender discrimination was shown to have long-lasting consequences on victims’ well-being, from



decreased self-confidence and burnouts, to prompting professional reorientation or a change in medical specialisation.(14-17)

Recent studies carried out in Germany found an alarming rate of physicians (76.1% of women and 61.6% of men) and medical students (59.8%) that reported having experienced acts of sexual harassment.(19,20) In the present survey, participants were not asked if they had experienced acts of sexual harassment, but rather if they had witnessed this kind of acts; the reported rates were much lower (19.7 % of women and 16.7% of men) compared to that of the German studies. The higher incidence might be explained by the wider definition of forms of sexual harassment used in the German studies, ranging from degrading speech to sexual assault. Since our survey did not clearly define what could be classed as sexual harassment, milder forms (e.g. verbal misconduct) might have been underreported by participants. Considering the disparity to the findings in Germany, further studies are urgently needed to assess the true extent of sexual harassment in the Swiss context.

When asked about the problems they faced, female participants reported problems in career progression, in the enforcement of maternity laws, as well as discrimination in hiring more frequently. This could explain at least in part the scarcity of women in senior positions in our study demographics. In the “open-ended question” section of the survey, a few women used the metaphor of the “glass ceiling” to describe the invisible barrier hindering women from accessing high responsibility positions despite having skills similar to their male peers.(21) The “sticky floor” in turn, is an analogous hindrance encountered at an earlier career stage. The needs more frequently expressed by female respondents (i.e., support, mentoring, sponsorship in professional development, networking, knowledge and respect of their rights) also reflect the problems reported.

It is noteworthy that a majority of both female and male participants expressed the need to promote equality and inclusion in the medical field as well as their support for initiatives that contribute to these goals. The feminisation of the medical profession in Switzerland, with a 50% increase in female physicians in the last 10 years has clearly not been sufficient to stop gender discrimination, even if the importance of diversified teams in terms of gender and the equivalent-to-superior competence of women physicians has been demonstrated.(14,22–24) A recent publication of the New England Journal of Medicine suggested that re-framing gender bias and harassment as ethical issues in academics could help passive bystanders become active

upstanders that have a professional and ethical duty to speak up and intervene when such acts occur.(25)

**Limitations**

Due to the use of distribution via social media, the response rate could not be precisely estimated and the generalizability of the results should be considered with caution. The number of answers (1071) obtained is, nevertheless, important and we have a large panel of healthcare professionals and medical students who participated. A second limitation is the potential selection bias since the respondents might be those who were sensitive to the theme beforehand. This survey did not address other discrimination factors such as ethnicity, sexual orientation, or religion. Nor did it assess who the perpetrators of gender discrimination or of sexual harassment were. A recent German study showed that the more severe forms of sexual harassment like forced physical contact were carried out by patients while sexual assault came mainly from staff and supervisors.(20) Understanding this factor is essential to develop effective measures targeted at different groups of perpetrators.

**Conclusion**

Gender discrimination in medicine in French-speaking Switzerland affects one third of women, in particular those working in hospital settings and senior positions. Women report difficulties in career development, discrimination in hiring and working conditions and a non-respect of maternity laws more frequently. On the other hand, women and men reported having witnessed acts of sexism and sexual harassment at similar rates, demonstrating an awareness of the issue by both genders. Nearly 50% of men and 2/3 of women would support initiatives aimed at reducing gender discrimination and sexual harassment.

The findings of this survey prompt action on gender equality tailored to the medical field and serve as a foundation for further, more robust and detailed studies that should include an intersectional approach. Female and male medical doctors together should collect and assess data on gender discrimination and sexual harassment in a bottom-up manner and develop targeted interventions that reverberate at the structural and systemic levels. Finally, and most importantly, a change in medical culture that establishes an environment of zero tolerance against discriminatory behaviours and sexual harassment at all hierarchy levels is paramount.

**List of abbreviations**

SGDs	Sustainable Development Goals
UK-NHS	United Kingdom National Health Services
FMH	Fédération des Médecins Helvétiques
N	Number
P	P-value

**Author's contributions:** IN analysed and interpreted the data and was a major contributor in writing the manuscript. JS made substantial contributions to the design of the work and was a major contributor in writing the manuscript. AGA made substantial contribution in analysing the data and critically reviewing the manuscript. BR was a major contributor in the conception of the study and substantively revised the manuscript. JL, AR, JA, CS, ET, CG, JH, GF made substantial contributions to the conception and design of the study and the acquisition of the data and critically reviewed the manuscript. JA was a major contributor in the conception of the work and substantively revised the manuscript. MC made substantial contribution in the conception of the work, the interpretation of the data and the revision of the manuscript. EN made substantial contribution to the conception and design of the study and critically reviewed the manuscript.

All authors have approved the submitted version and have agreed both to be personally accountable for their own contributions and to ensure that questions related to the accuracy or integrity of any part of the work, even ones in which they were not personally involved, are appropriately investigated, resolved, and the resolution documented in the literature.

**Acknowledgements:** We thank all the members of the association MedFem for their support and useful discussions.

## Legends

**Figure 1:** Distribution of participants according to gender and work-experience. %: percentage.

\*:  $p < 0.05$ , \*\*\*:  $p < 0.001$ .

**Figure 2:** Participants victim of discrimination, sexism or gender-inequalities according to gender. %: percentage. \*\*\*:  $p < 0.001$ .

**Figure 3:** Victims of discrimination, sexism, gender-inequality according to professional position and gender. %: percentage. \*\*\*:  $p < 0.001$ .

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

**Figure 4:** Witnesses of discrimination, sexism, gender-inequality according to professional position and gender. %: percentage. \*:  $p<0.05$ . \*\*:  $p<0.01$ .

**Figure 5:** Problems observed by participants according to gender. %: percentage. \*:  $p<0.05$ . \*\*:  $p<0.01$ . \*\*\*:  $p<0.001$ .

**Figure 6:** Needs of participants according to gender. %: percentage. \*:  $p<0.05$ . \*\*:  $p<0.01$ . \*\*\*:  $p<0.001$ .

For peer review only

## References

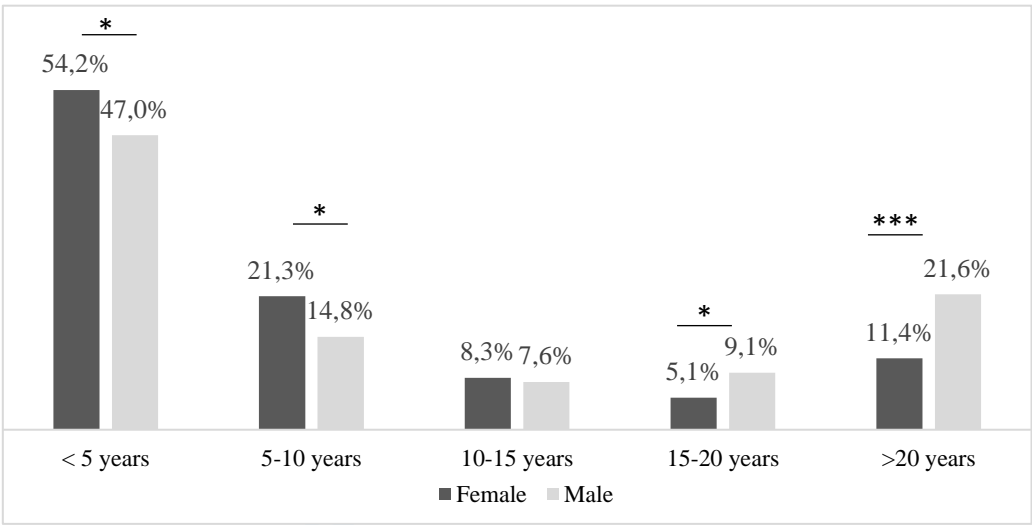
1. International Labour Organization. Gender diversity journey: Company good practices. *ILO* 2017. Available: [http://www.ilo.org/actemp/publications/WCMS\\_578768](http://www.ilo.org/actemp/publications/WCMS_578768) [Accessed 25 June 2021].
2. Leading Women in Medicine Launch “Time’s Up Healthcare”. Available: [https://www.medscape.com/viewarticle/909777#vp\\_1](https://www.medscape.com/viewarticle/909777#vp_1) [Accessed 11 July 2020].
3. World Health Organization. Definition of sexual harassment. *WHO* 2001. Available: <http://www.un.org/womenwatch/osagi/pdf/who.pdf> [Accessed 13 June 2021].
4. Jaggi R, Griffith KA, Jones R, et al. Sexual harassment and discrimination experiences of academic medical faculty. *JAMA* 2016;315(19):2120–2121.
5. Larsson C, Hensing G, Allebeck P. Sexual and gender-related harassment in medical education and research training: Results from a Swedish survey. *Med Educ* 2003;37(1):39–50.
6. Fnaiss N, Soobiah C, Chen MH, et al. Harassment and discrimination in medical training: a systematic review and meta-analysis. *Acad Med* 2014;89(5):817–27.
7. Dzau VJ, Johnson PA. Ending Sexual Harassment in Academic Medicine. *N Engl J Med* 2018;379(17):1589–91.
8. National Academies of Sciences, Engineering, and Medicine; Policy and Global Affairs; Committee on Women in Science, Engineering, and Medicine; Committee on the Impacts of Sexual Harassment in Academia. Sexual Harassment of Women: Climate, Culture, and Consequences in Academic Sciences, Engineering, and Medicine. *National Academies Press (US)* 2018. Available: <https://www.nap.edu/catalog/24994>
9. World Health Organization. Delivered by Women, Led by Men: A Gender and Equity Analysis of the Global Health and Social Workforce. *WHO* 2019. Available: <http://www.who.int/hrh/resources/health-observer24/en/> [Accessed 19 December 2020].
10. Government United Kingdom. New data on gender pay gap in medicine. *GOV.UK*.

Available: <https://www.gov.uk/government/news/new-data-on-gender-pay-gap-in-medicine> [Accessed 10 July 2020].

11. Yong CM, Abnoui F, Rzeszut AK, et al. Sex Differences in the Pursuit of Interventional Cardiology as a Subspecialty Among Cardiovascular Fellows-in-Training. *JACC Cardiovasc Interv* 2019;12(3):219–28.
12. Rampersad PP, Capdeville M. Who Decided Cardiology Was a Man’s Job? The Future of Cardiovascular Medicine and Why Women Are Key. *J Cardiothorac Vasc Anesth* 2020; 34(3):575-581.
13. Berlin G, Darino L, Greenfield M, et al. Women in the healthcare industry. *Mc Kinsey and Company* 2019. Available: <https://www.mckinsey.com/industries/healthcare-systems-and-services/our-insights/women-in-the-healthcare-industry#> [Accessed 19 December 2020].
14. Hostettler S, Kraft E. Statistique médicale 2019 de la FMH: forte dépendance de l’étranger. *Bull des Médecins Suisses* 2020;101(13):450–5.
15. Association MedFem. Available: <https://www.medfem.org/> [Accessed 11 July 2020].
16. SurveyMonkey - Free online survey software and questionnaire tool. Available: <https://www.surveymonkey.com/>.
17. Casillas A, Paroz S, Green AR, et. al. Cultural competency of health-care providers in a Swiss University Hospital: Self-assessed cross-cultural skillfulness in a cross-sectional study. *BMC Med Educ.* 2014;14:19.
18. Lu DW, Lall MD, Mitzman J, et al. #MeToo in EM: A Multicenter Survey of Academic Emergency Medicine Faculty on Their Experiences with Gender Discrimination and Sexual Harassment. *West J Emerg Med* 2020;21(2):252-260.
19. Oertelt-Prigione S, Jenner S, Djermeester P, et al. Prevalence of Sexual Harassment in Academic Medicine. *JAMA Intern Med* 2019;179(1):108-111.
20. Schoenefeld E, Marschall B, Paul B, et al. Medical education too: sexual harassment within the educational context of medicine – insights of undergraduates. *BMC Med Educ* 2021;21(1):1–6.

21. Hingle S, Barrett E. Gender Differences in Resident Assessment: The Glass Ceiling and Sticky Floor for Women in Medicine Begin Early. *JAMA Netw open* 2020;3(7):e2010985.
22. Tsugawa Y, Jena AB, Figueroa JF, et al. Comparison of hospital mortality and readmission rates for medicare patients treated by male vs female physicians. *JAMA Intern Med* 2017;177(2):206–13.
23. Greenwood BN, Carnahan S, Huang L. Patient–physician gender concordance and increased mortality among female heart attack patients. *Proc Natl Acad Sci U S A* 2018;115(34):8569–74.
24. Wang TY, Grines C, Ortega R, et al. Women in interventional cardiology: Update in percutaneous coronary intervention practice patterns and outcomes of female operators from the National Cardiovascular Data Registry®. *Catheter Cardiovasc Interv* 2016;87(4):663–8.
25. Mello MM, Jagsi R. Standing Up against Gender Bias and Harassment — A Matter of Professional Ethics. *N Engl J Med* 2020;382(15):1385–7.

Figure 1





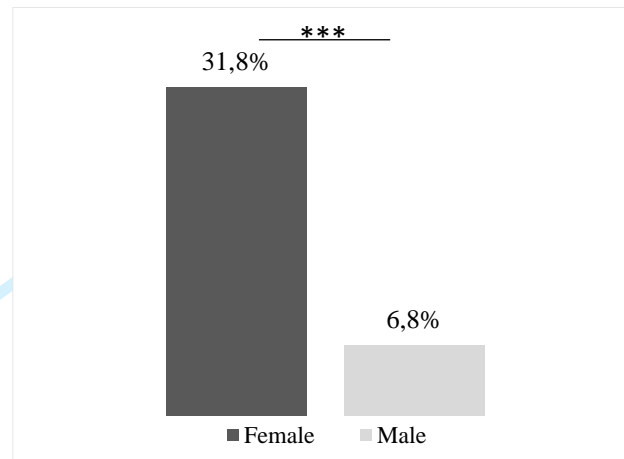
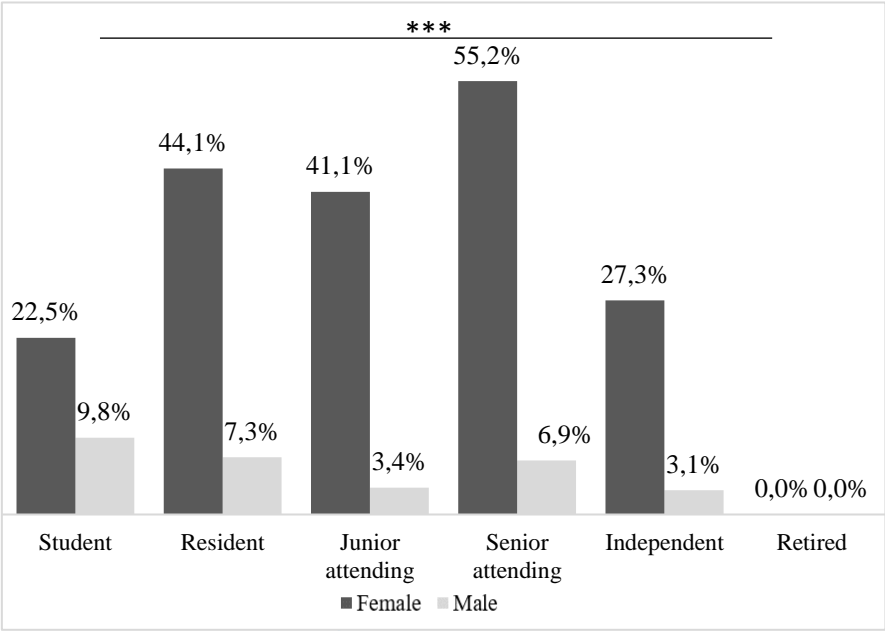
**Figure 2**

Figure 3



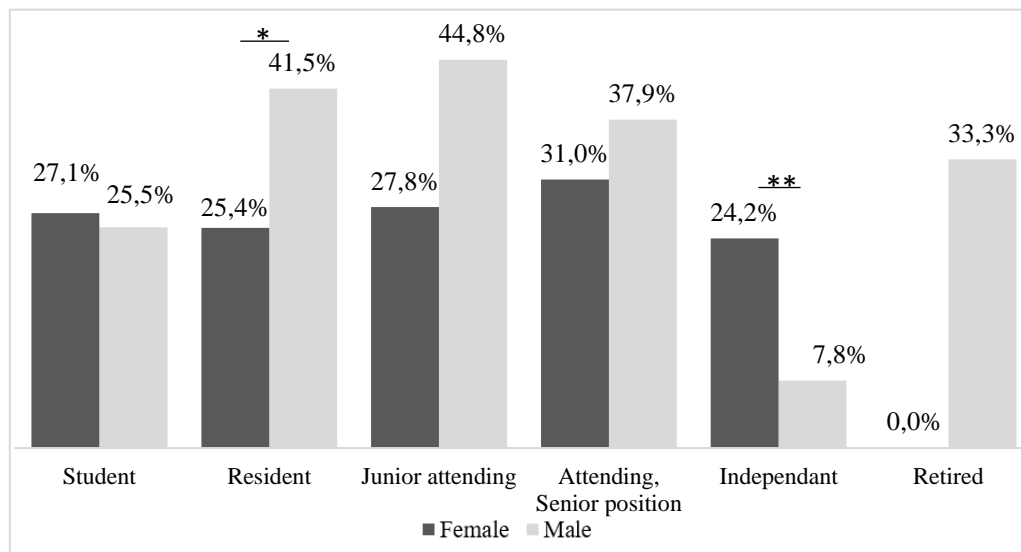
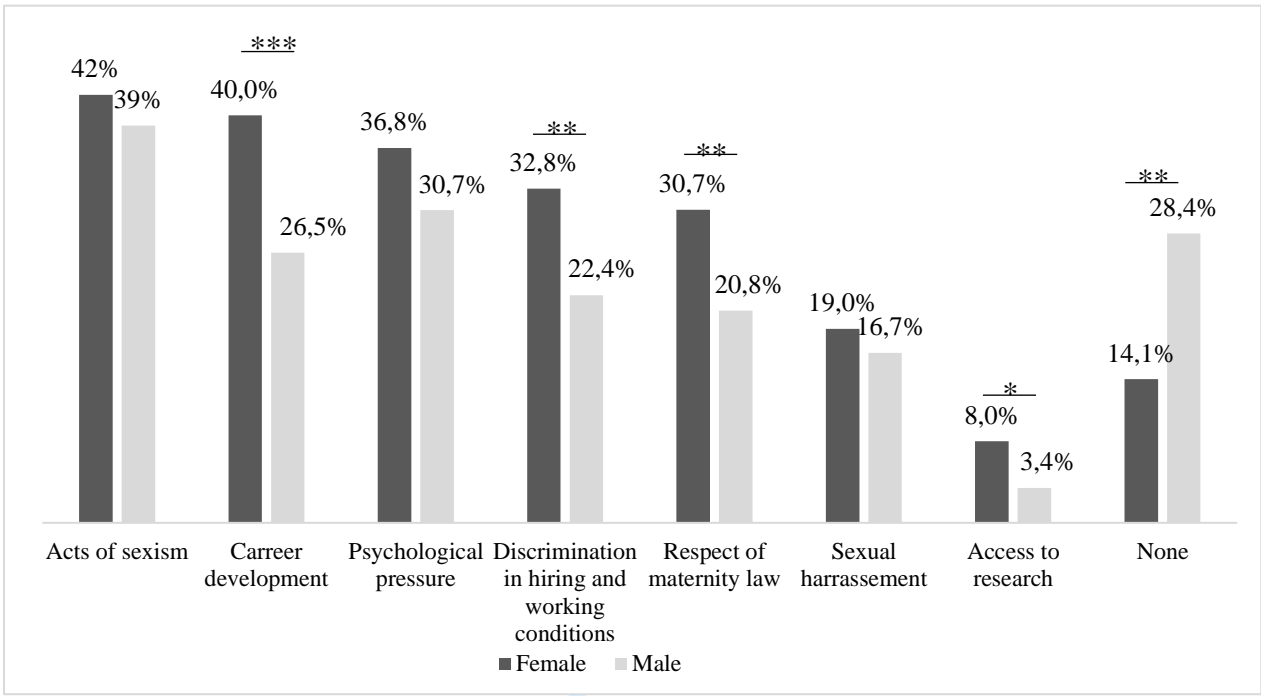
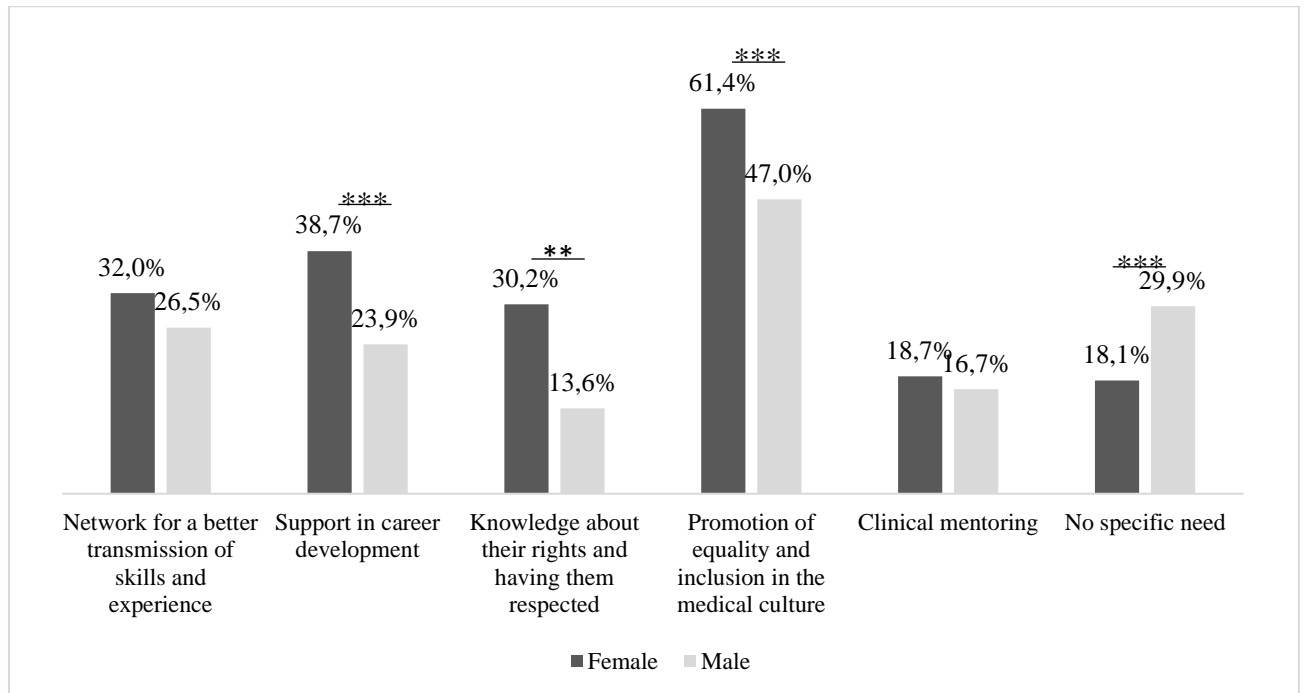
**Figure 4**

Figure 5



**Figure 6**

Appendix 1

Questionnaire:

1. You are
  - A man
  - A woman
  - Other
  
2. Currently you are
  - Student
  - Resident
  - Physician without speciality title
  - Physician with speciality title
  - Senior attending
  - Independent
  - Retired
  - Other occupation (please specify)
  
3. You have:
  - < 5 years experience
  - 5-10 years experience
  - 10-15 years experience
  - 15-20 years experience
  - > 20 years experience
  - Other (please specify)
  
4. You work in:
  - A public hospital
  - A private hospital
  - Medical practice
  - Other
  
5. Workplace
  - Switzerland
  - Europe
  - Outside Europe
  
6. Which of these sentences best represents your current stance :
  - You were the victim of discrimination, acts of sexism or gender-inequality.
  - You witnessed discrimination, acts of sexism or gender-inequality.
  - I have an ethical concern. I support initiatives that help the medical culture evolve.
  - I don't feel concerned.

- 1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60
7. According to your experience what problems have you observed?
- Discrimination in hiring, and working conditions
  - Career development
  - Access to research
  - Respect of maternity laws
  - Acts of sexism
  - Psychological pressure
  - Sexual harassment
  - None
  - Other
8. At the present time, what are your needs?
- Network for a better transmission of skills and competence
  - Support in career development
  - Knowledge about my rights and have them respected
  - Promotion of equality and inclusivity in the medical culture
  - Clinical mentoring
  - No specific need
  - Other
9. What needs to be done in the future to achieve an ideal professional world and what are the remaining challenges?
10. I am interested in MedFem. I would like to contribute by :
- Talking about Medfem to people around me
  - Participating in MedFem events
  - Helping organizing events
  - Developing a communication strategy via social media
  - Fund raising
  - Participating in mentoring
  - Supporting us without being concretely involved
  - I don't want to contribute
  - Other
11. With respect to anonymity, I would like to add:

1 STROBE Statement—Checklist of items that should be included in reports of *cohort studies*  
2  
3  
4 Checklist for the article “Sexism and sexual harassment in medicine in French-speaking  
5 Switzerland”:  
6

- |  |  |
|--|--|
| 7 1. (a-b) completed                   | 12. (a-b) completed (c-e) not applicable |
| 8 2. completed                         | 13. not applicable                       |
| 9 3. completed                         | 14. (a) completed (b-c) not applicable   |
| 10 4. completed                        | 15. not applicable                       |
| 11 5. completed                        | 16. not applicable                       |
| 12 6. (a) completed (b) not applicable | 17. completed                            |
| 13 7. completed                        | 18. completed                            |
| 14 8. completed                        | 19. completed                            |
| 15 9. completed                        | 20. completed                            |
| 16 10. completed                       | 21. completed                            |
| 17 11. completed                       | 22. completed                            |

	Item No	Recommendation
Title and abstract	1	(a) Indicate the study’s design with a commonly used term in the title or the abstract (b) Provide in the abstract an informative and balanced summary of what was done and what was found
Introduction		
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported
Objectives	3	State specific objectives, including any prespecified hypotheses
Methods		
Study design	4	Present key elements of study design early in the paper
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection
Participants	6	(a) Give the eligibility criteria, and the sources and methods of selection of participants. Describe methods of follow-up (b) For matched studies, give matching criteria and number of exposed and unexposed
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable
Data sources/measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group
Bias	9	Describe any efforts to address potential sources of bias
Study size	10	Explain how the study size was arrived at
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why
Statistical methods	12	(a) Describe all statistical methods, including those used to control for confounding (b) Describe any methods used to examine subgroups and interactions (c) Explain how missing data were addressed (d) If applicable, explain how loss to follow-up was addressed (e) Describe any sensitivity analyses

Results



Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed (b) Give reasons for non-participation at each stage (c) Consider use of a flow diagram
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders (b) Indicate number of participants with missing data for each variable of interest (c) Summarise follow-up time (eg, average and total amount)
Outcome data	15*	Report numbers of outcome events or summary measures over time
Main results	16	(a) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included (b) Report category boundaries when continuous variables were categorized (c) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses
<b>Discussion</b>		
Key results	18	Summarise key results with reference to study objectives
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence
Generalisability	21	Discuss the generalisability (external validity) of the study results
<b>Other information</b>		
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based

\*Give information separately for exposed and unexposed groups.

**Note:** An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at <http://www.plosmedicine.org/>, Annals of Internal Medicine at <http://www.annals.org/>, and Epidemiology at <http://www.epidem.com/>). Information on the STROBE Initiative is available at <http://www.strobe-statement.org>.