



# Altered patient perceptions and preferences regarding male and female gynecologists: a comparison between 1997 and 2018

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## Abstract

**Purpose** The purpose of this investigation was to explore changes in patient preference regarding gynecologist's gender.

**Methods** Using a standardized questionnaire, distributed in 1997 and 2018, a total of 1000 women were interviewed about preferences in terms of their choice of gynecologist and perceptions regarding gender-dependency of gynecologist's qualifications, strengths and weaknesses. Data was correlated with sociodemographics and possible influencing factors.

**Results** Based on their own experience, an increasing majority did not express a preference for their gynecologist's gender (58–71%). However, the minority that still favors one gender demonstrated a significant decrease in preference of male gynecologists (14–5%), while about a quarter still generally prefer treatment by female physicians. Sub-analyses of emotional and technical treatment aspects generally confirm these trends in that more of today's patients are indifferent to their gynecologist's sex and that the remaining minority shifts towards favoring female doctors. If asked to definitely choose between female and male physicians based solely on the aspect of trust a significant change can be noted (69–30%) in favor of female doctors in 2018 as opposed to 1997 when patients were split in this regard (52%/48%). Overall bad personal experience regarding gynecological treatment has significantly decreased (36% reduction).

**Conclusion** Over the last decades, patient preference and perception of the importance of their gynecologist's gender has changed. While an increasing majority attributes equal competence in emotional, professional and interpersonal aspects to both genders, the remaining proportion of patients demonstrates a significant shift towards favoring female doctors.

**Keywords** Patient preference · Gender · Gynecologist · Physician

## Abbreviations

DGGG	German Society of Gynecology and Obstetrics, Deutsche Gesellschaft für Gynäkologie und Geburtshilfe
gyn.	Gynecological
RG	Respective gender
m	Male
f	Female
UHW	University Hospital Würzburg
UMM	University Medical Centre Mannheim

## Introduction

Over centuries, the overwhelming majority of physicians throughout the world have been male. However, over the last decades this constellation has undergone a rapid change particularly in developed countries. While the proportion of female doctors was still only around one third in 1991, it is now approaching 50% of all registered physicians in Germany. Paralleling this development, there is an even more pronounced increase in the number of female physicians in the field of gynecology and obstetrics. Reflecting this change, 80% of today's members of the German Society of Gynecology and Obstetrics (DGGG) under 35 years of age are female. Moreover, recent data from 2013 shows parity between genders in terms of private practice doctors, contrasting data from 1993, when not even every fifth gynecological and obstetric practice was run by a woman [1, 2].

At the same time, patient perceptions, attitudes and preferences have steadily gained attention [3–6] as modern medicine has developed into a patient-centered shared

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decision-making process. However, a review of the literature only offers an incongruent picture of patient preferences with respect to the influence of treating physician's gender. Moreover, longitudinal data on changes over time are very scarce and underlying reasons for patient preferences have only been understood very incompletely.

Therefore, the purpose of this investigation was to explore changes in patient preference regarding the gender of treating gynecologists over the last two decades. Furthermore, this study aims to elucidate sociodemographic as well as emotional, professional and interpersonal aspects that might drive patients to favor male or female doctors or to be indifferent in this regard.

## Methods

After approval by the Ethics Committee II of Heidelberg University, Medical Faculty Mannheim (2018-572N-MA) and obtaining informed consent, a 33-item survey was distributed to 600 patients at the Department of Gynecology and Obstetrics of the University Medical Centre Mannheim (UMM) in 2018. The questionnaire was handed out routinely during registration. All surveys were completed in the waiting room, while patients were waiting to be seen by a doctor. Participants received questions on sociodemographic factors such as age, place of residence, relationship status, level of education and employment, number of children, number of gynecological interventions and doctor changes as well as their general mindset. Moreover, the self-administered questionnaire contained 24 questions on personal experience and preferences regarding choice of doctor as well as on their individual assessment of gender-dependency of different medical and personal characteristics of gynecologists.

Between 1996 and 1997, the same 33-item survey had been handed out to 600 patients at the Department of Gynecology and Obstetrics of the University Hospital Würzburg (UHW), another tertiary center in central Germany. The results of this questionnaire have not been published at any point in the past, as they were archived for this trial.

Data collection at each timepoint was completed once 500 full data sets were available.

## Statistics

For qualitative factors absolute and relative frequencies are given. Quantitative variables (i.e., age) are presented by their mean values. To compare two groups regarding a qualitative factor Chi-square test or Fisher's exact test has been used, as appropriate. In general the result of a statistical test has been considered as significant for  $p < 0.05$ . For all statistical calculations SAS software, release 9.4 (SAS Institute, [www.sas.com](http://www.sas.com)) has been used.

## Results

Both in 1997 and 2018, 600 questionnaires had been distributed and data acquisition was considered complete after 500 full data sets were available for each respective timepoint.

### Patient characteristics: lifestyle, sociodemographic and -economic factors

During the studies' first enrollment period at the Department of Gynecology and Obstetrics at UHW in 1997, age of the 500 recruited women ranged from 18 to 76 years (mean 37 years), in 2018 age of the 500 included women at UMM was similar with a range between 16 and 82 years (mean 39 years).

In 1997, 33% of women were single, 58% married, 6% divorced and 3% widowed. The number of children ranged from 0 to 9, the mean was 1.1. 51% lived in urban areas, 49% in rural areas. In the 2018 collective, 37% of women were single, 51% married, 9% divorced and 3% widowed. The number of children ranged from 0 to 8, with the mean at 1.0. In 2018, 76% of patients lived in urban areas, 24% in rural areas ( $p < 0.0001$ ).

In 1997, 94% of women were in regular gynecological care. In terms of occupation, most women (54%) worked as non-academic employees. Data from 2018 did not differ significantly in this respect as 58% of patients were working in non-academic professions and 93% of women stated to be in regular gynecological care at least once a year ( $p = 0.5213$  and  $p = 0.2026$ , respectively). In 1997, annually primary gynecological care was conducted by a male gynecologist in 42% of patients, by a female gynecologist in 26% of cases and by an ambulatory with changing physicians in 32% of patients. Data from 2018 show primary gynecological care to be provided primarily by female gynecologists (65% of cases), with only 30% of patients primarily seen by male gynecologists ( $p < 0.0001$ ). By 2018, the number of patients visiting a polyclinic with changing physicians for primary care had become negligible (4%). Detailed patient characteristics and sociodemographic factors are presented in Table 1.

### Associations of individual patients' characteristics and gender-dependent preference

In 1997, place of residence, marital status and profession were identified as factors that influenced the gender of choice in terms of treating gynecologists (each  $p < 0.05$ ). Women from an urban residential area, trainees and

**Table 1** Patient characteristics

Characteristics	1997 <i>n</i> (%) or mean	2018 <i>n</i> (%) or mean
Age in years (mean)	37	39
Marital status		
Single	33%	37%
Married	58%	51%
Divorced	6%	9%
Widowed	3%	3%
Number of children (mean)	1.1	1.0
Place of residence		
Urban	51%	76%
Rural	49%	24%
Job		
Non-academic	54%	58%
Training	17%	11%
Housewife	16%	9%
Academic	10%	16%
Pensioner	3%	6%
Regular primary care by gynecologist		
Yes	94%	93%
No	6%	7%
Changes of gynecologist in the past (mean)	2.3	1.8
Number of gynecological interventions (mean)	1.4	1.0
Primary Care Gynecologist		
Female doctor	26%	65%
Male doctor	42%	30%
Mixed (outpatient clinic)	32%	4%

academics as well as single women showed a significantly more pronounced preference of female gynecologists. The same was true for women without regular gynecological care.

However, these observations could not be confirmed in 2018, when no single factor could be detected to significantly influence the preference of a specific gender in regard to treating gynecologists.

### Comparison of patient perceptions regarding gender of gynecologist

Generally, the majority of patients did not perceive a gender-dependent difference for any of the evaluated gynecological treatment aspects and thus did not state a preference for a specific gender of their treating gynecologist due to any of the analyzed factors, both in 1997 and 2018. The only exception in this regard pertains to the aspect of comforting patients in terms of psychological health issues, for which the data from 1997 shows less than half of the patients to attribute equal competence to both genders (46%). However, by 2018 this observation did not hold true anymore, since by

that time 57% of patients estimated both sexes to be equally competent in this regard.

Both in 1997 and in 2018, overall professional competence was judged to be indifferent of treating physician's gender by an overwhelming majority (86% in 1997 and 88% in 2018). The remainder of patients was split in 1997 (7% favoring male vs. 7% favoring female gender), while in 2018, this minority trended towards female gender (4% male vs. 8% female, comparison 1997–2018 with  $p=0.0510$ ).

All other changes in patient perception regarding gender-dependent skills and competences of gynecologists yielded significant results when data from 1997 and 2018 were compared head-to-head—see Table 2 and Fig. 1.

Despite the observation that the majority did not perceive a specific gender to be superior based solely on their own personal experience (58% in 1997, 71% in 2018), the remaining patients voiced a marked preference for female gynecologists (28%) over male physicians (14%) in 1997, which was even more pronounced in 2018 (24% vs. 5%,  $p<0.0001$ ).

The same held true for temporal changes regarding greater acceptance by patients (each 1997 vs. 2018: no

**Table 2** Patient-perceived gender-dependence of various gynecological treatment aspects over time (1997 vs. 2018)

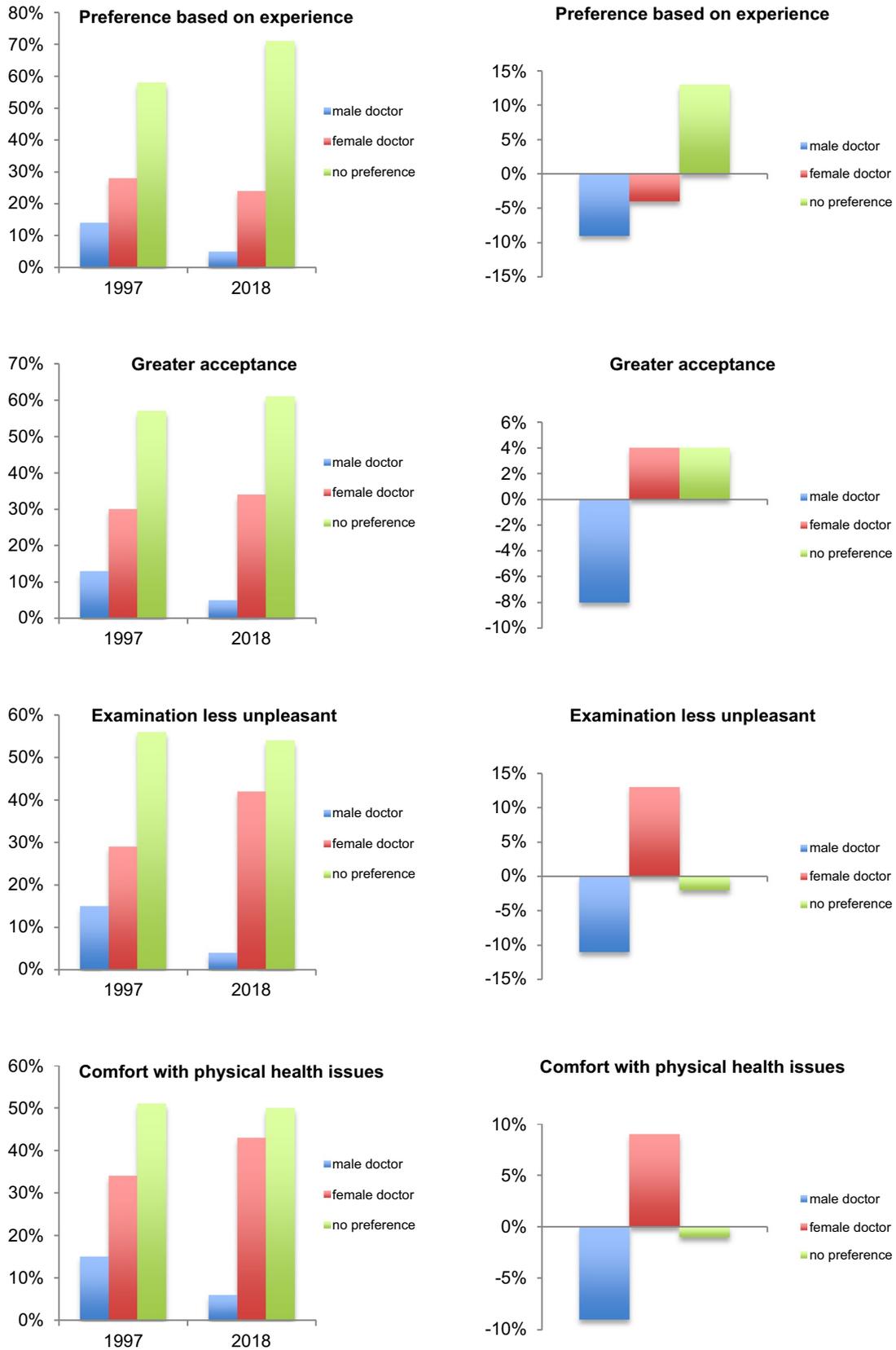
Patient perceptions and preferences		Female doctors (%)	Male doctors (%)	No difference (%)	<i>p</i> value* 1997/2018 <i>p</i> =
Preference based on my experience	1997	28	14	58	0.0001
	2018	24	5	71	
Greater acceptance	1997	30	13	57	0.0001
	2018	34	5	61	
More trustworthy	1997	52	48	0	0.0001
	2018	69	30	1	
More empathetic	1997	29	16	55	0.0134
	2018	24	12	64	
Investing more time	1997	22	14	64	0.0041
	2018	20	8	72	
Examination less unpleasant	1997	29	15	56	0.0001
	2018	42	4	54	
More considerate of shame/privacy	1997	31	15	54	0.0001
	2018	22	11	67	
Talking about gyn. problems easier	1997	39	7	54	0.0060
	2018	46	3	51	
Confers more comfort with physical health issues	1997	34	15	51	0.0001
	2018	43	6	50	
Confers more comfort with psychological health issues	1997	43	11	46	0.0004
	2018	37	6	57	
Greater manual skill	1997	11	15	74	0.0015
	2018	14	7	78	
More careful examination	1997	17	20	63	0.0031
	2018	25	15	60	
Attributed greater professional competence	1997	7	7	86	0.1034
	2018	8	4	88	

\*Comparison of the respective distribution “female/male” gynecologists between 1997 and 2018

difference 57% vs. 61%, male doctors 13% vs. 5% and female doctors 30% vs. 34%,  $p < 0.0001$ ).

Generally over the two decades, both an increase in the fraction that does not attribute gender-dependent superiority and a shift in the minority fraction in favor of female physicians can be observed for most of the aspects included in our questionnaire. For instance, gender-dependent superiority in terms of treating physician’s empathy significantly changed from a distribution of 55%/16%/29% (both/male/female) in 1997 to 64%/12%/24% in 2018 ( $p = 0.0134$  for comparison 1997–2018). Paralleling this observation, significant alterations between 1997 and 2018 were observed for the statements “respective gender (RG) offers more time to me” (64%/14%/22% vs. 72%/8%/20%,  $p = 0.0041$ ), “RG is more considerate of my privacy and feelings of shame” (54%/15%/31% vs. 67%/11%/22%,  $p = 0.0041$ ) and “RG confers more comfort with issues of psychological health” (46%/11%/43% vs. 57%/6%/37%,  $p = 0.0004$ ).

However, the trend of a growing majority of patients with no gender-dependent attribution and perception of superiority does not seem to expand to all aspects inquired about in our questionnaire. Equal competence for both genders has consistently been attributed by about half of the study populations in 1997 and 2018 for the statements “examination by RG is less unpleasant” (56% vs. 54%), “talking about gynecological problems is easier with RG” (54% vs. 51%) and “RG confers more comfort with issues of physical health” (51% vs. 50%). Parallel to this unaltered fraction of gender-indifferent study participants, the share of patients attributing greater competence in these aspects of gynecological diagnostics and treatment to female physicians has significantly increased over the last two decades (despite already high values in 1997). For instance, the distributions favoring female over male gender for the aspect “examination” significantly changed from a female-male ratio of 29% vs. 15% in 1997 to 42% vs. 4% in 2018 ( $p < 0.0001$ ) and for the “talking about gynecological problems” aspect from 39%



**Fig. 1** Patient-perceived gender-dependence of gynecologists regarding various treatment aspects. Left panel: number of patients in percent ( $n = 500$ , 1997 and  $n = 500$ , 2018), right panel: delta-change illustration over time (delta 1997–2018,  $n = 500$  each)

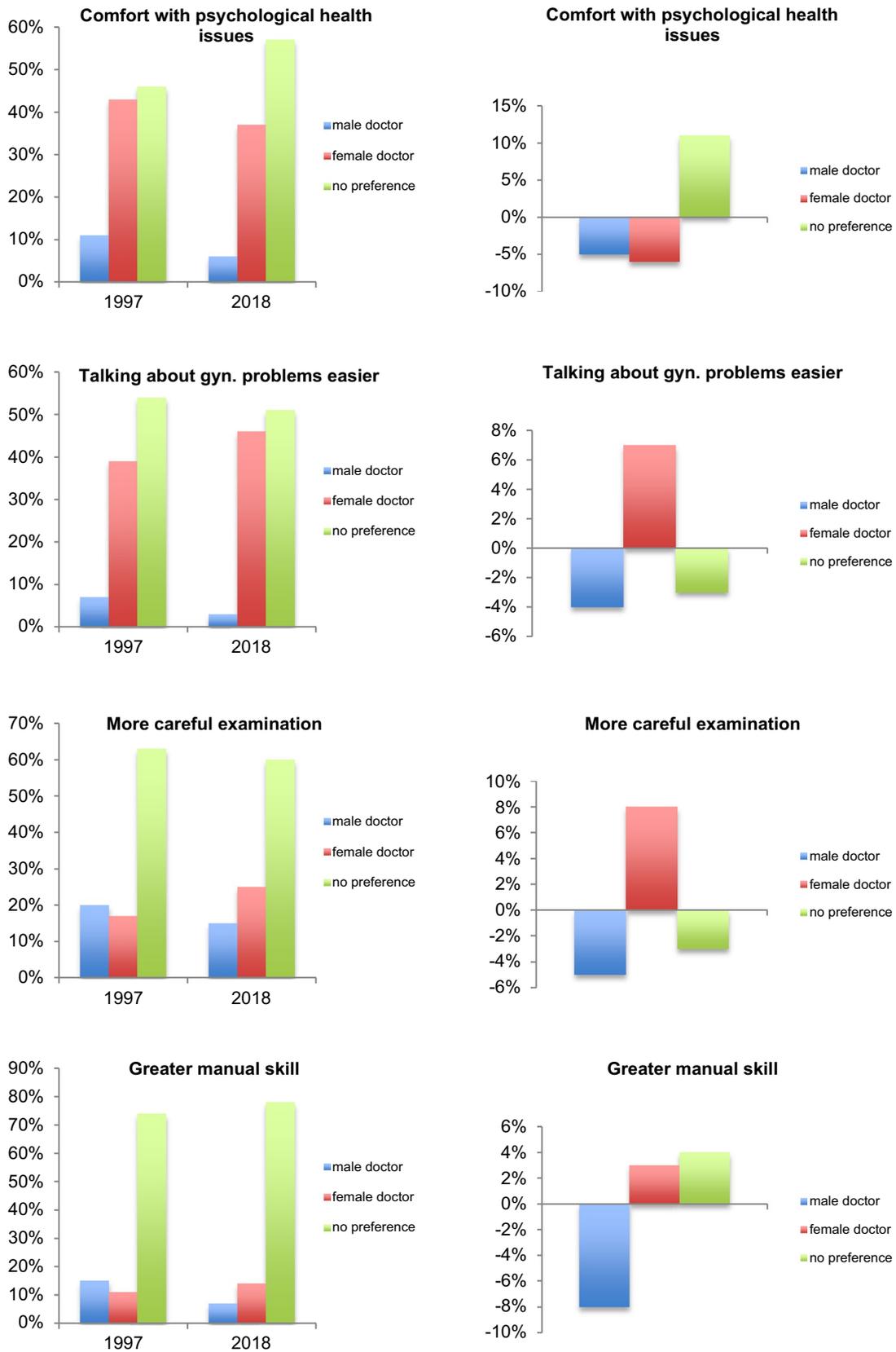


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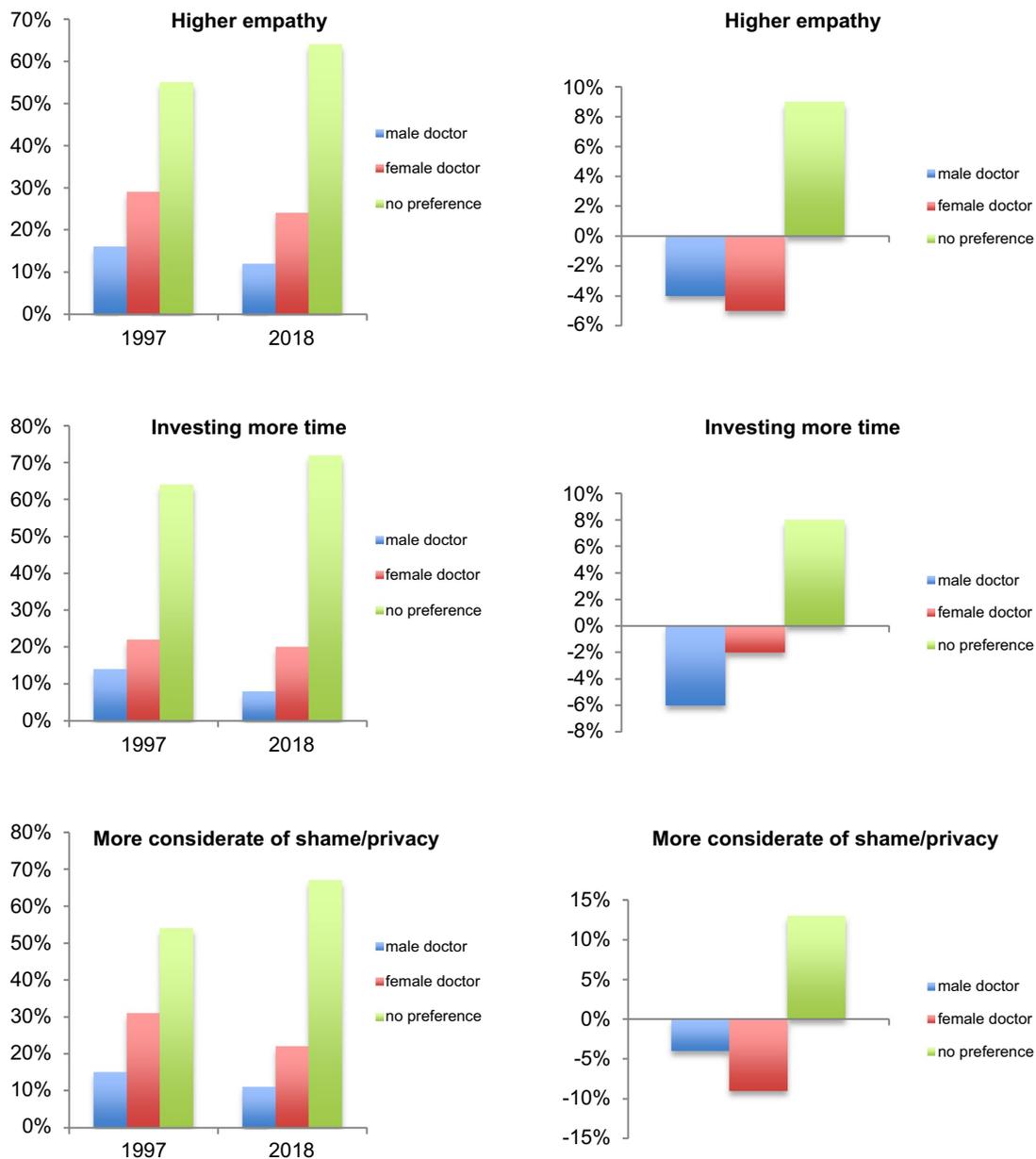


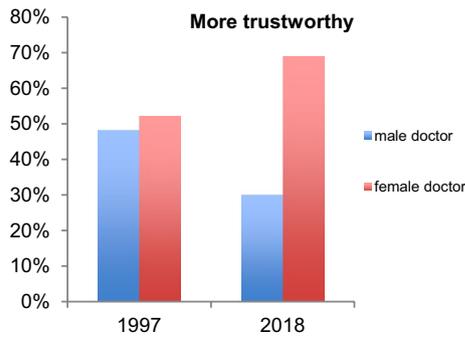
Fig. 1 (continued)

vs. 7% in 1997 to 46% to 3% in 2018 ( $p=0.0060$ ). Congruently, the “physical health issue” aspect significantly shifted from 34% (f) vs. 15% (m) in 1997 to 43% (f) vs. 6% (m) in 2018 ( $p < 0.0001$ ).

In contrast to the analyses above, the aspects “greater manual skill” and “RG conducts examination more carefully” had been more frequently attributed in favor of male gynecologists in 1997 (“greater manual skill”: 11% female vs. 15% male, “more careful examination” (17% female vs. 20% male). However, by 2018 both aspects had changed significantly in favor of female gender with “greater manual skill” being attributed to female gynecologists in 14% of

patients as compared to 7% male gynecologists and “more careful conduct of gynecological examination” being rated in favor of women by 25% to 15% ( $p=0.0015$  and  $p=0.0031$ , respectively). Nevertheless, at both timepoints most patients did not perceive one gender to be superior over the other regarding both aspects. Please refer to Table 2 and Fig. 1 for details.

Finally, the merely emotional statement “Gender of gynecologist in whom I personally place my trust” was analyzed in a dichotome fashion, in that patients had to definitely choose one gender. While the study collective of 1997 had been split down the middle (52% female vs. 48%



**Fig. 2** Patient-perceived gender-dependence of trustworthiness (*n* = 500, 1997 and *n* = 500, 2018)

male), a significant change occurred in our 2018 analysis with 7 in 10 women now placing more trust in a female gynecologist (female 70% vs. male 30%, *p* < 0.0001 for comparison 1997–2018)—see Fig. 2.

Over the last two decades, overall bad personal experience regarding gynecological diagnostics and treatment per se has decreased significantly (50% in 1997 to 32% in 2018, relative risk reduction of 36%). This reduction is mainly driven by a decrease in the fraction of patients that

reported bad experience with male gynecologists (19% in 1997, 9% in 2018)—refer to Fig. 3.

### Discussion

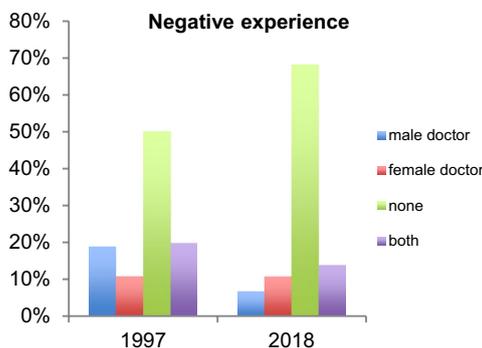
The primary aim of this study was to elucidate changes in patient preference regarding the gender of treating gynecologists over time with special focus on sociodemographic as well as emotional, professional and interpersonal aspects that might drive patients to favor male or female doctors or to be indifferent in this regard.

Unsurprisingly, the changes in the proportion of male and female physicians over the last decades in medicine in general and gynecology and obstetrics in particular have led to a significant increase in the fraction of patients who are primarily treated by female gynecologists (from 26% in 1997 to 65% in 2018), with only 30% of today’s patients reporting their primary gynecologist to be male in 2018. However, when interpreting data of our study in this light it remains unclear, whether demographic changes of the medical community influence patient decisions and attitudes, or—vice versa—patient expectations and preferences bring about changes in demographics of certain subspecialties of medicine.

#### A

Patient perceptions and preferences		Female doctors	Male doctors	None	Both
Negative experience **	1997	11%	19%	50%	20%
	2018	11%	9%	68%	14%

#### B



**Fig. 3** Patient-reported negative experience with regard to treating gynecologists (*n* = 500, 1997 and *n* = 500, 2018). \*\*The percentages differ significantly between 1997 and 2018; \*\**p* < 0.001

When analyzing patient preferences with respect to their treating physician's gender some authors have reported a significant association between the patient's gender and that of the physician [7, 8], from which the theory of general preference of a same-gender physician has traditionally been derived [9]. This seems especially true for studies on genital examination, where men have been shown to voice a strong preference of a same-gender doctor [10]. Some previously published studies have suggested that certain subgroups of women might prefer female doctors, especially when it comes to obstetric and gynecological problems [11–14], yet, data in regard to female patients and their gender preferences remain scarce and conflicting studies exist as to the fractions that do really favor one gender over the other (especially since most of the aforementioned studies derive from Middle-Eastern nations and may, therefore, not be applicable for Western countries).

Based on their own experience, an increasing majority of women in our study did not express a preference in terms of their gynecologist's gender (from 58% of patients in 1997 to 71% in 2018). This finding is congruent with other more recent studies that have already shown a majority of patients to be indifferent with respect to their treating gynecologist's gender [15–18]. However, the minority that—based on their own experience—still favors one gender over the other has demonstrated a significant decrease in preference of male gynecologists (14% in 1997 to 5% in 2018), while about a steady quarter of patients still generally prefer being treated by a female gynecologist (28% in 1997, 24% in 2018). This finding also fits data from other recent studies that show this minority (that does indeed favor one gender) to prefer female gynecologists [15, 16, 19]. Interestingly this fraction has not grown despite the tremendous increase in female gynecologists, potentially underscoring the development towards gender-independent perception of professionals in many fields of modern society [20–22].

A review of the literature yields that the influence of demographic factors as examined in our study has been discussed controversially in the past and has not been elucidated yet. While Patton and van den Brink-Muinen described a clear preference for female gynecologists in patients with longer formal education and in younger and unmarried women, as well as women without children [23, 24], Haar and Fennema did not find a significant relationship with respect to age, marital status, number of children, education, occupation or income [25, 26]. Macam et al. [15] on the other hand, could show that women who are less educated with lower income and non-white patients are more likely to prefer a female doctor.

Data from our study may shed some light on this controversial issue as it demonstrates changes over time. In 1997, women from an urban residential area, trainees, and academics as well as single women showed a significantly more

pronounced preference of female gynecologists. The same was true for women without regular gynecological care in our 1997 study collective. In congruence with data from other studies [26], past negative experience had also been identified as a significant factor that predicted preference of physician's gender in 1997.

While these factors (place of residence, marital status and profession as well as prior bad experience with RG) had demonstrated significant influence on patient preference in 1997, this observation could not be confirmed in 2018. Interestingly, no significant sociodemographic or personal factor was predictive of patient preference in terms of choice of a RG anymore in 2018. It is tempting to speculate that these changes may also be reflective of general societal changes in terms of gender equality that have taken place over the past decades.

The present study also sheds light on how various gynecological treatment aspects are perceived with respect to the gender of treating physicians. When asked specifically about single aspects of gynecological diagnostics and therapy, more than 50% of patients did not perceive a gender-dependent difference for the evaluated factors both in 1997 and 2018 underscoring the preference elicitation based on overall personal experience as elaborated on above. The remaining minority that states superiority of a RG for the attributes analyzed in our study demonstrates a longitudinal shift over the last decades.

In the past, classic stereotypes of our cultural and media landscape characterized female physicians as warmer and more idealistic than male physicians on the one hand, but less self-controlled and technically competent on the other hand [27]. In congruence with these traditional stereotypes, analyses of our study data from 1997 show that certain characteristics were attributed significantly more often to a female gynecologist and others more to a male gynecologist: at that time, female gynecologists were granted more respect for patient's privacy and sense of shame as well as higher empathy by study participants. Male gynecologists were perceived to have greater manual skill and to perform examinations more carefully. In 2018, classic stereotypes are not so clear anymore and appear to lose importance: now respondents attribute greater manual skill and more careful examinations to female gynecologists for example. When interpreting this data, it is, therefore, tempting to speculate that traditional views on gender-dependent strengths and weaknesses may be in decline and may have lost their former impact on personal judgments in today's society. However, our study cannot answer the underlying question, whether these observations indeed reflect a shift in culture in terms of gender equality, or whether they rather mirror the change in demographics of treating gynecologists.

It is likely that both factors contribute significantly to these aforementioned trial results as the dichotomized

question on the aspect of trustworthiness nicely parallels the demographic development of gynecology and obstetrics, in that the attribute “RG is more trustworthy” changes from parity in 1997 towards favoring women with a fraction of 70% (which roughly reflects the share of female gynecologists today).

Lastly, another important finding of our study can be derived from trial data on “bad personal experience”. Apart from any gender-specific aspects, the number of patients that reported bad experience with female and/or male gynecologists has significantly decreased over the last decades. This is an encouraging observation on our long road to individualized and patient-centered medicine.

## Study limitations

While this study contributes important data on the longitudinal development of women’s perception of their treating gynecologists with special focus on the respective gender of treating physicians, it cannot solve the conundrum, whether altered demographics of the medical community or changes in general mindset of society in regard to gender aspects truly drive shifts in patient preference. Further studies should address this question.

As our data derives from two neighboring university hospitals within a distance of about 100 km, it is unlikely that observed changes derive from local/regional differences of the population. Yet, we cannot exclude that this has affected trial results to some degree. Future multi-center trials might be helpful to elucidate regional differences and altered demographics of the population over time.

## Conclusion

Over the last two decades patient preference and perception of the importance of their treating gynecologist’s gender has changed. While an increasing majority of women feels indifferent towards the sex of their treating physicians and attributes equal competence in emotional, professional and interpersonal aspects to both genders, the remaining proportion of patients demonstrates a significant shift towards favoring female doctors.

As a positive side note, the number of women who report bad experience with any gender has shown a significant decrease over the past decades.

**Author contributions** SS: project development, data collection, data management, data analysis, provision of study patients, Manuscript writing, final approval of manuscript. CW: data analysis, final approval of manuscript. MS: data collection, project development, data analysis,

administrative support, provision of study patients, final approval of manuscript, supervision.

## Compliance with ethical standards

**Conflict of interest** The authors declare that they have no competing interests.

**Ethical approval** The ethical approval for this study was obtained through Ethics Committee II, Heidelberg University, Medical Faculty Mannheim (2018-572N-MA).

## References

- Lukesch B (2015) Frauenärzte—Plötzlich ein Exot. DIE ZEIT vol Nr. 3/2015, 15.01.2015 edn. <https://www.zeit.de/2015/03/gynakologie-schweiz-frauen-aerzte/komplettansicht>
- Bundesärztekammer (2017) Census of medical professionals in Germany 2017. <https://www.bundesaerztekammer.de/ueber-uns/aerztestatistik/aerztestatistik-2017/>. Accessed 6 Sep 2019
- Say RE, Thomson R (2003) The importance of patient preferences in treatment decisions—challenges for doctors. *BMJ* 327(7414):542–545. <https://doi.org/10.1136/bmj.327.7414.542>
- O’Connor AM, Rostom A, Fiset V, Tetroe J, Entwistle V, Llewellyn-Thomas H, Holmes-Rovner M, Barry M, Jones J (1999) Decision aids for patients facing health treatment or screening decisions: systematic review. *BMJ* 319(7212):731–734
- Bekker H, Thornton JG, Airey CM, Connelly JB, Hewison J, Robinson MB, Lilleyman J, MacIntosh M, Maule AJ, Michie S, Pearman AD (1999) Informed decision making: an annotated bibliography and systematic review. *Health Technol Assess* 3(1):1–156
- Ballinger TJ, Kassem N, Shen F, Jiang G, Smith ML, Railey E, Howell J, White CB, Schneider BP (2017) Discerning the clinical relevance of biomarkers in early stage breast cancer. *Breast Cancer Res Treat* 164(1):89–97. <https://doi.org/10.1007/s10549-017-4238-0>
- Preston-Whyte ME, Fraser RC, Beckett JL (1983) Effect of a principal’s gender on consultation patterns. *J R Coll General Pract* 33(255):654–658
- Kelly JM (1980) Sex preference in patient selection of a family physician. *J Family Pract* 11(3):427–433
- Young JW (1979) Symptom disclosure to male and female physicians: effects of sex, physical attractiveness, and symptom type. *J Behav Med* 2(2):159–169
- Heaton CJ, Marquez JT (1990) Patient preferences for physician gender in the male genital/rectal exam. *Family Pract Res J* 10(2):105–115
- Amir H, Tibi Y, Groutz A, Amit A, Azem F (2012) Unpredicted gender preference of obstetricians and gynecologists by Muslim Israeli-Arab women. *Patient Educ Couns* 86(2):259–263. <https://doi.org/10.1016/j.pec.2011.05.016>
- Amir H, Gophen R, Amir Levy Y, Hasson J, Gordon D, Amit A, Azem F (2015) Obstetricians and gynecologists: which characteristics do Israeli lesbians prefer? *J Obstet Gynaecol Res* 41(2):283–293. <https://doi.org/10.1111/jog.12512>
- Amer-Alshiek J, Alshiek T, Amir Levy Y, Azem F, Amit A, Amir H (2015) Israeli Druze women’s sex preferences when choosing obstetricians and gynecologists. *Israel J Health Policy Res* 4:13. <https://doi.org/10.1186/s13584-015-0013-z>
- Janssen SM, Lagro-Janssen AL (2012) Physician’s gender, communication style, patient preferences and patient satisfaction in

- gynecology and obstetrics: a systematic review. *Patient Educ Couns* 89(2):221–226. <https://doi.org/10.1016/j.pec.2012.06.034>
15. Makam A, Mallappa Saroja CS, Edwards G (2010) Do women seeking care from obstetrician-gynaecologists prefer to see a female or a male doctor? *Arch Gynecol Obstet* 281(3):443–447. <https://doi.org/10.1007/s00404-009-1199-5>
  16. Lund JD, Rohrer JE, Goldfarb S (2005) Patient gender preferences in a large military teaching hospital. *Obstet Gynecol* 105(4):747–750. <https://doi.org/10.1097/01.AOG.0000156297.25395.e4>
  17. Johnson AM, Schnatz PF, Kelsey AM, Ohannessian CM (2005) Do women prefer care from female or male obstetrician-gynecologists? A study of patient gender preference. *J Am Osteopath Assoc* 105(8):369–379
  18. Fisher WA, Bryan A, Dervaitis KL, Silcox J, Kohn H (2002) It ain't necessarily so: most women do not strongly prefer female obstetrician-gynaecologists. *J Obstetr Gynaecol Canada* 24(11):885–888
  19. Howell EA, Gardiner B, Concato J (2002) Do women prefer female obstetricians? *Obstet Gynecol* 99(6):1031–1035
  20. Sharma RR, Sharma NP (2015) Opening the gender diversity black box: causality of perceived gender equity and locus of control and mediation of work engagement in employee well-being. *Front Psychol* 6:1371. <https://doi.org/10.3389/fpsyg.2015.01371>
  21. Meyer M, Cimpian A, Leslie SJ (2015) Women are underrepresented in fields where success is believed to require brilliance. *Front Psychol* 6:235. <https://doi.org/10.3389/fpsyg.2015.00235>
  22. Hardacre SL, Subasic E (2018) Whose issue is it anyway? The effects of leader gender and equality message framing on men's and women's mobilization toward workplace gender equality. *Front Psychol* 9:2497. <https://doi.org/10.3389/fpsyg.2018.02497>
  23. van den Brink-Muinen A, de Bakker DH, Bensing JM (1994) Consultations for women's health problems: factors influencing women's choice of sex of general practitioner. *Br J Gen Pract* 44(382):205–210
  24. Patton DD, Bodtke S, Horner RD (1990) Patient perceptions of the need for chaperones during pelvic exams. *Fam Med* 22(3):215–218
  25. Haar E, Halitsky V, Stricker G (1975) Factors related to the preference for a female gynecologist. *Med Care* 13(9):782–790
  26. Fennema K, Meyer DL, Owen N (1990) Sex of physician: patients' preferences and stereotypes. *J Family Pract* 30(4):441–446
  27. Hall JA, Irish JT, Roter DL, Ehrlich CM, Miller LH (1994) Gender in medical encounters: an analysis of physician and patient communication in a primary care setting. *Health Psychol* 13(5):384–392

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