

# The Future of Pediatric Surgery—Women and Part Time?

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## Abstract

### Keywords

- ▶ pediatric surgery
- ▶ working conditions
- ▶ part time
- ▶ female
- ▶ workforce

**Introduction** Working conditions are changing rapidly in medicine. We analyzed the actual work situation and future plans in the next 5 years and in the long term.

**Materials and Methods** A survey among the members of the German Society of Pediatric Surgery was performed asking how and where physicians work now and how and where they want to work in the future.

**Results** Five hundred twelve questionnaires were sent out, and 195 colleagues answered the questionnaire (99 women, 94 men, and 2 of unknown gender). Among them, 27% were trainees, 16% were fully trained pediatric surgeons, 6% were senior physicians, and 50% were consultants, while 66% worked full time, 25% worked part time, and 8% did not work in pediatric surgery. In the future, 49% of consultants and 24% of the trainees wanted to work part time. Among the 73 participants who wanted to become a department head, 33% of them also wanted to work part time.

**Conclusion** Pediatric surgery is changing toward a discipline with many female doctors and people working part time. Leaders in pediatric surgery should be aware of this development to adapt their working conditions to reality.

## Introduction

Surgery is a highly satisfying but demanding career. The surgical workforce has been changing recently, and the proportion of women increased.<sup>1</sup> Additionally, part-time work has become possible.<sup>2</sup> Although the European Working Time Directive limits surgeons' work week to 48 hours and there are similar regulations in other countries, a surgeon's workload is still high. A decreased quality of life and health-related problems for surgeons have been recently addressed in the literature.<sup>3–5</sup> Residents are leaving training programs due to a suboptimal lifestyle or to choose another specialty,<sup>6</sup> and a demand for part-time training has been documented.<sup>7</sup> Among medical students, the attractiveness of surgery has recently decreased.<sup>8</sup> All these effects have resulted in a shortage of surgeons, and head surgeons are complaining

about the decreased number of adequate applicants for surgery.<sup>9</sup>

Pediatric surgery is different from other surgical disciplines. Among surgical specialties, pediatric surgeons reported the highest rate of work satisfaction, although they had a higher workload than other specialties and a higher rate of work/home conflict.<sup>10</sup> Pediatric surgical residents have been shown to be highly motivated,<sup>11</sup> and the proportion of women is higher than other surgical disciplines. In 2013, 22% of the registered pediatric surgeons in Australasia were women,<sup>12</sup> in 2020, 27% of the pediatric surgery consultants in the Royal College of Surgeons of England,<sup>1</sup> and in 2021, 32% of the ordinary active members of the Swiss Society of Pediatric Surgery.<sup>13</sup>

The proportion of women in pediatric surgery in Germany was high, accounting for 40% of the 738 fully trained

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pediatric surgeons in 2020.<sup>14</sup> The Act on part-time work has been in place since 2001, giving employees the right to work less than full time. Despite the increasing number of pediatric surgeons, the number of vacancies in pediatric surgery in Germany remains high.<sup>15</sup> Our study aimed to analyze this contradiction to determine the type of jobs that are wanted by pediatric surgeons in Germany. The goal of our study was to address the following question: “In which place of work, in which position, and with what kind of working time do pediatric surgeons and trainees work now and want to work in 5 years and in the long-term?” We approached this question with a survey among the members of the German Society of Pediatric Surgery.

## Materials and Methods

In Germany, pediatric surgery is performed in hospitals and private practice. Hospitals can be divided into the following main four groups: university hospitals, community hospitals, church hospitals, and private hospitals. Pediatric surgery training usually takes place in a pediatric surgical department at a hospital. Trainees do not have to work in general surgery to become pediatric surgeon.<sup>16</sup> In most German hospitals, there are, from lowest to highest, four positions that a pediatric surgeon can occupy after finishing the training: Facharzt (fully trained pediatric surgeon), Funktionsoberarzt (senior physician), Oberarzt (consultant), and Chefarzt (department head). Usually, a department has one department head and several surgeons in the other positions.

The number of fully trained pediatric surgeons is provided by the German Medical Association.<sup>14</sup> Among 738 pediatric surgeons who are working in Germany, approximately 70% are members of the German Society of Pediatric Surgeons; the percentage of trainees is not known. An anonymous online survey was sent to all the members of the German Society of Pediatric Surgeons who were registered and working as a trainee or as a fully trained pediatric surgeon, but not working in a leadership position, in private practice, or retired. There were 512 questionnaires sent out as follows: 172 to trainees, 230 to pediatric surgery consultants, and 110 to other fully trained pediatric surgeons. Answers were obtained from October 2020 to January 2021. Anonymity was provided by ensuring that the link to the questionnaire was not personalized and because the software did not save any information except the answers to the questions.

The survey consisted of the following questions: What is your gender? How old are you (presented in age groups of 10 years)? Actual situation: What is your actual work schedule? What is your place of work? What is/was your last position in pediatric surgery? What academic qualification do you have? Situation in 5 years: What working schedule do you prefer? In which institution do you want to work? In which position do you want to work? What is your desired academic qualification? Long-term situation: What work schedule do you prefer? In which institution do you want to work? In which position do you want to work? What is your desired academic qualification? In our questionnaire, the work

schedule was divided between full time and part time. Part time was not defined, so it could be anything between 1 and 99% of the regular working hours.

Data were analyzed using descriptive statistics. Results were evaluated separately for men and women. This survey was performed anonymously, so Institutional Review Board approval was not required, which was confirmed by the local ethical committee.

## Results

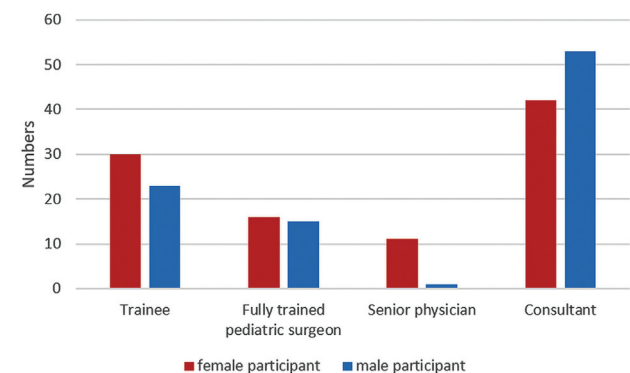
### Study Population

One hundred ninety-five of 512 (38%) respondents completed the questionnaire, among whom 99 were women (51%), 94 were men (48%), 1 was diverse, and 1 did not provide information about their gender. One hundred forty of 195 respondents (72%) were fully trained pediatric surgeons, senior physicians, and consultants (69 females [49%] and 70 males [50%]). The group of consultants and senior physicians had a response rate of 47%, while that of fully trained pediatric surgeons was 28% and trainees was 30%. For trainees, 30 of 53 (57%) were women and 23 of 53 (43%) were men. Additionally, 4% of the whole study population were younger than 30 years, 44% were between 30 and 39 years, 34% were between 40 and 49 years, 15% were between 50 and 59 years, and 3% were older than 59 years.

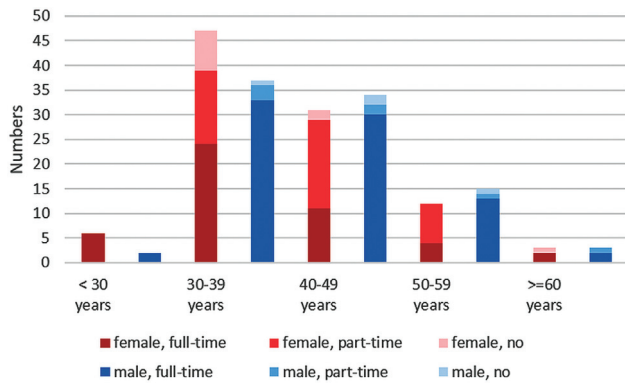
### Actual Working Situation

Among the 195 respondents, 27% worked as trainees, 16% as a fully trained pediatric surgeon, 6% as a senior physician, 50% as a consultant, and 1% did not provide an answer on their work position. The distribution between men and women is shown in **Fig. 1**. Additionally, 66% worked full time, 25% worked part time, 8% did not work in pediatric surgery at the time of the questionnaire, and 1% did not provide an answer about the amount of work. Details about the distribution of work between men and women are provided in **Fig. 2**.

Among the participants, 40% were employed at a university hospital, 26% at a community hospital, 19% at a church hospital, 11% at a private hospital, 4% in other settings, 1% was not employed, and 2% were working abroad. For 20% of the



**Fig. 1** Number of participants in a special position related to gender.  $n = 191$ .



**Fig. 2** Distribution of age, gender, and workload. *n* = 192. “No” means not working at all or not working in pediatric surgery.

respondents, no further academic qualification was acquired, while 70% had a doctorate, 8% had a postdoctoral lecture qualification, and 4% had another academic qualification.

Details about the actual working situation and the desires for their future career for both men and women are presented in **Table 1**.

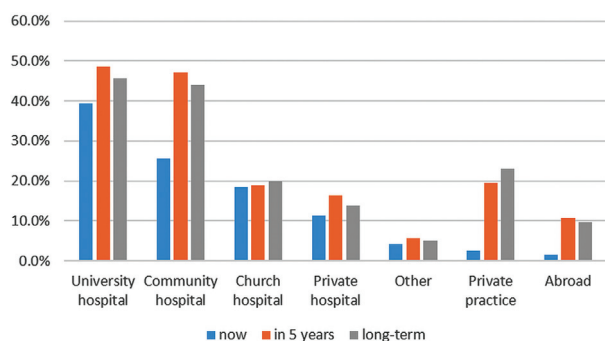
**Where Do People Want to Work in the Future?**

For their place of work in the future, participants could choose more than one options. The most popular place to work in 5 years and in the long term were university hospitals, and the least attractive place in Germany was private hospitals. About 10% could imagine working abroad in the future (**Fig. 3**).

**Table 1** Actual work situation and hopes for the future for women (*n* = 99) and men (*n* = 93)<sup>a</sup>

	Now				In 5 y				Long term			
	Women		Men		Women		Men		Women		Men	
<b>Answers</b>	<b>99</b>		<b>91</b>		<b>99</b>		<b>93</b>		<b>99</b>		<b>93</b>	
Full time	47	47.5%	80	87.9%	37	37.4%	58	62.4%	35	35.4%	54	58.1%
Part time	41	41.4%	7	7.7%	60	60.6%	29	31.2%	60	60.6%	31	33.3%
Not working					1	1.0%	2	2.2%	1	1.0%	2	2.2%
Not working in pediatric surgery	11	11.1%	4	4.4%	1	1.0%	4	4.3%	3	3.0%	6	6.5%
<b>Answers</b>	<b>99</b>		<b>91</b>		<b>97</b>		<b>87</b>		<b>94</b>		<b>85</b>	
Trainee	30	30.3%	22	24.2%	3	3.1%	1	1.1%	1	1.1%	0	0.0%
Fully trained pediatric surgeon	16	16.2%	15	16.5%	23	23.7%	13	14.9%	14	14.9%	2	2.4%
Senior physician	11	11.1%	1	1.1%	11	11.3%	9	10.3%	6	6.4%	2	2.4%
Consultant	42	42.4%	53	58.2%	72	74.2%	62	71.3%	70	74.5%	59	69.4%
Department head					15	15.5%	34	39.1%	21	22.3%	50	58.8%
Private practice					16	16.5%	10	11.5%	23	24.5%	18	21.2%
Other					3	3.1%	3	3.4%	4	4.3%	3	3.5%
<b>Answers</b>	<b>99</b>		<b>93</b>		<b>96</b>		<b>87</b>		<b>95</b>		<b>85</b>	
University hospital	43	43.4%	33	35.5%	53	55.2%	41	47.1%	50	52.6%	37	43.5%
Community hospital	19	19.2%	30	32.3%	45	46.9%	47	54.0%	42	44.2%	43	50.6%
Church hospital	20	20.2%	15	16.1%	22	22.9%	15	17.2%	23	24.2%	15	17.6%
Private hospital	13	13.1%	9	9.7%	19	19.8%	13	14.9%	15	15.8%	11	12.9%
Other	3	3.0%	5	5.4%	4	4.2%	7	8.0%	4	4.2%	6	7.1%
Private practice	1	1.0%	4	4.3%	22	22.9%	16	18.4%	28	29.5%	17	20.0%
Work abroad	3	3.0%			15	15.6%	6	6.9%	13	13.7%	5	5.9%
Not working at the moment	1	1.0%	1	1.1%								
Does not matter									5	5.3%	10	11.8%
Do not know					11	11.5%	10	11.5%	9	9.5%	8	9.4%
<b>Answers</b>	<b>99</b>		<b>93</b>		<b>97</b>		<b>85</b>		<b>94</b>		<b>83</b>	
Dissertation	68	68.7%	68	73.1%	60	61.9%	59	69.4%	52	55.3%	52	62.7%
Postdoctoral lecture qualification	7	7.1%	9	9.7%	25	25.8%	28	32.9%	30	31.9%	32	38.6%
Other	2	2.0%	5	5.4%	2	2.1%	4	4.7%	2	2.1%	5	6.0%
None	23	23.2%	15	16.1%	12	12.4%	4	4.7%	13	13.8%	4	4.8%

<sup>a</sup>For the plans for their work position, the place of work, and the academic titles, more than one answers were possible, for example, the cumulative number of answers in the detailed information exceeds the number of answers.



**Fig. 3** Participants' workplace.  $n = 195$ . Cumulative numbers exceed 100% because more than one answers could be given.

A gender-specific analysis showed that women (55%, 5 years; 53%, long term) preferred university hospitals more than men (46%, 5 years; 45%, long-term), while men (54%, 5 years; 52%, long term) preferred community hospitals more than women (47%, 5 years; 44%, long term).

### Full Time or Part Time

At the time of the study, 129 participants (66%) worked full time, 49 participants (25%) worked part time, and 15 participants (8%) did not work at all or did not work in pediatric surgery. Two participants (1%) did not provide an answer to this question. Ninety (46%) and 92 (47%) participants wanted to work part time in 5 years and in the long term, respectively. Three participants did not want to work in the long term, all of whom were older than 59 years. Nine participants (5%) did not want to work in pediatric surgery in the long term, all of whom were between 30 and 59 years of age. The detailed analysis of working time related to gender is presented in [Fig. 4](#).

The age group that had the greatest desire to work part time in the future was the 50-to-59-year-old group, which had 57% of participants who wanted to work part time in 5 years and 61% who wanted to work part time in the long term. This was followed by the under 30 years age group, where 50% wanted to work part time in 5 years and in the long term. The other results were 47% for 5 years and in the long term in the 30-to-39-year-old age group and 43 and 45%, respectively, in the 40-to-49-year-old age group.

Among those who wanted to work part time in 5 years, 27% worked as a trainee and 48% worked as a consultant. Additionally, 24% of trainees and 49% of consultants wanted to work part time in the long term. Among those working at university hospitals at the time of the questionnaire, 38% wanted to work part time in the long term, while 48% of those who worked at community hospitals, 57% of those who worked at church hospitals, and 55% of those who worked at private hospitals wanted to work part time in the long term.

### What Is the Future Career Direction?

The participants could choose more than one options for what they wanted to achieve in the future. [Table 2](#) shows their desired position in the long term. The most frequent

response was consultant (67%), followed by department head (37%) and private practice (22%).

Among the 37% of the respondents who wanted to become a department head, 62% had alternative plans, while for 38%, this was the only option. This result was nearly equivalent for 50 men (60% had alternative plans) and 21 women (67% had alternative plans). Additionally, 67% were consultants at the time of the questionnaire, 7% were senior physicians, 12% were fully trained pediatric surgeons, and 12% were trainees. Of those who wanted to become a department head in the future, 67% had finished their doctoral thesis, 16% had their postdoctoral lecture qualification, and 14% had no academic degree. Moreover, 47% worked at a university hospital at the time of the questionnaire, while 26% worked at a community hospital, 19% at a church hospital, 6% at a private hospital, 1% in another setting, and 1% worked abroad.

Thirty-three percent wanted to become a department head at a university hospital as their only choice, and 15% wanted to work at a community hospital. Additionally, 14% preferred to become a department head at any type of hospital, and 11% did not know. Only 8%, not including those who had no preference, saw an option to practice at a private hospital, and 12% saw an option at a church hospital. Only one person identified a private hospital or a church hospital as their only choice.

Sixty-seven percent wanted to both work full time and be a department head, while 33% wanted to work part time.

The career goal of a consultant was an option for 75% of the women and 69% of the men. Forty-eight percent already worked as a consultant, among whom 30% worked part time. For the future, 53% wanted to work part time as a consultant.

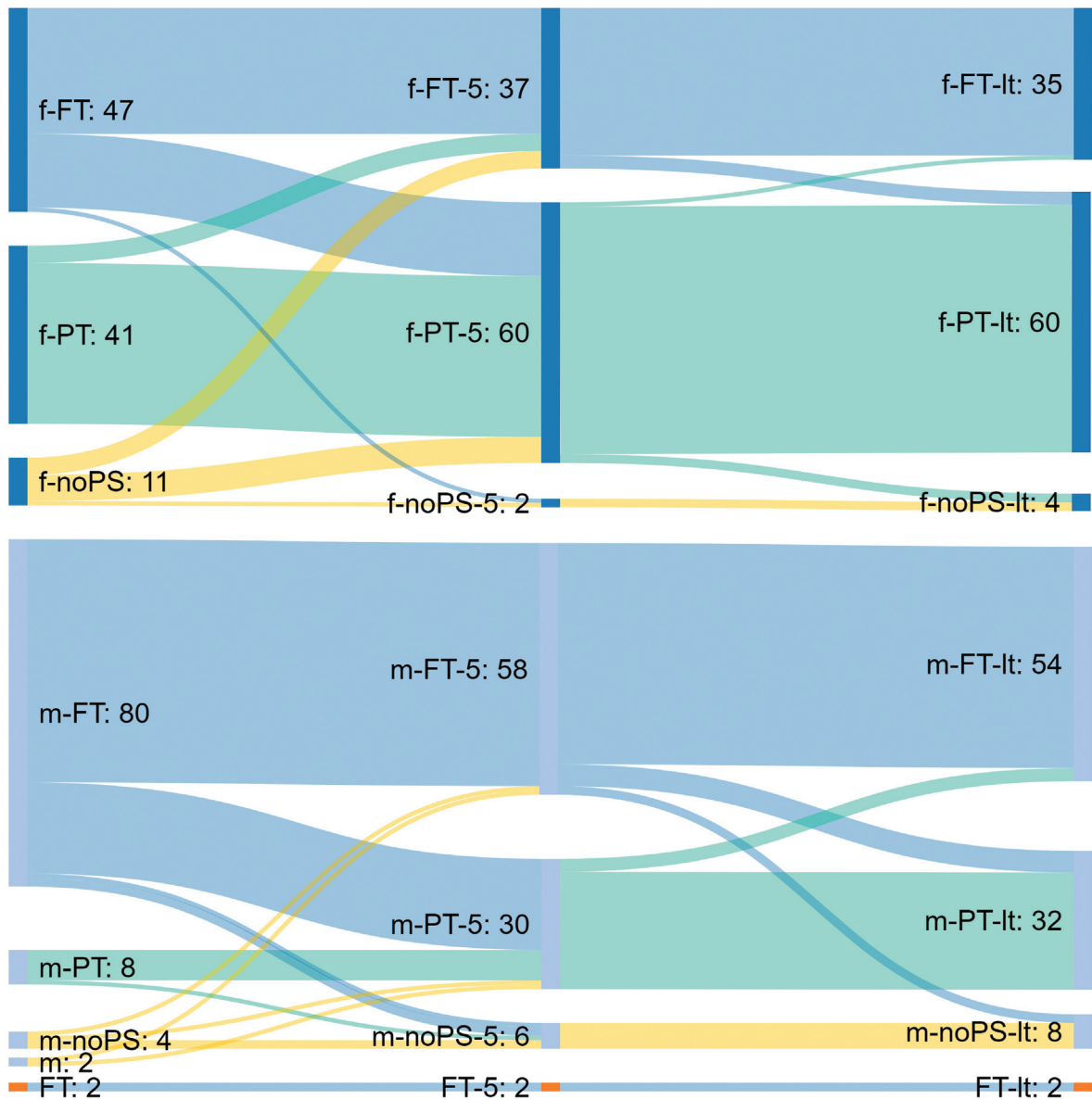
Performing pediatric surgery outside of the hospital at a private practice was a goal for 22% of the participants, among whom 53% were women. The age distribution was 12% younger than 30 years, 38% between 30 and 39 years, 36% between 40 and 49 years, and 14% between 50 and 59 years. Additionally, 40% had no academic qualifications, and only 2% had a postdoctoral lecture qualification.

## Discussion

The situation for pediatric surgery in Germany is characterized by an increasing number of pediatric surgical departments and pediatric surgeons.<sup>17</sup> This is different from other countries such as Canada, where the number of pediatric surgeons has been consistent.<sup>18</sup> In Germany in 2021, pediatric surgery was performed in 134 hospitals, 35 (26%) of which were university hospitals.<sup>19</sup> Forty percent of the respondents worked at university hospitals and wanted to work at this type of hospital in the future. The attraction to community hospitals was also high. Clerical and private hospitals did not have the same attraction for pediatric surgeons.

### Full Time or Part Time

The workload for pediatric surgeons has been reported to be higher than in other surgical specialties<sup>10</sup> or higher than what the pediatric surgeons wished it to be.<sup>20</sup> There is a



**Fig. 4** Flow chart of working time related to gender.  $n = 195$ . Working time (full time vs. part time) for men and women at the time of the questionnaire (left), in 5 years (middle), and in the long term (right). f, female; FT, full time; lt, long-term; m, male; noPS, not working/not working in pediatric surgery; PT, part time; 5, in 5 years.

danger of burn out, even in pediatric surgery.<sup>21</sup> The European Working Time Directive allows an average of 48 hours of working time per week. In Germany, full-time regular working hours are 38.5 to 42 hours per week, and overtime is common.<sup>22</sup> On-call duties are usually added to these hours. At the time of the questionnaire, 41% of the women and 9% of the men worked part time. In the future, 61% of the women and 34% of the men wanted to work part time, and most of them wanted a permanent reduction in their work hours. We did not ask for the reasons why they wanted reduced working time. In the literature, part-time work or reduced working time in surgery is often related to children, especially for female surgeons.<sup>2,20,23</sup> However, in our study group, a high number of men wanted to work part time in the future, and the highest percentage of respondents who

wanted to reduce their working time was seen in the age group between 50 and 59 years. There are no equivalent findings in the literature, so this should be analyzed further in follow-up studies.

#### Career

Internationally, career satisfaction in pediatric surgery has been reported to be high.<sup>24-27</sup> In our study, we did not directly ask about career satisfaction, but the desire to stop practicing pediatric surgery was low (5%). Career planning differed for men and women in our study. For 25% of the women and 21% of the men, working in a private practice was an option for a long-term perspective. Most respondents wanted to continue their career in the hospital setting. The option to remain in a lower position as a fully trained

**Table 2** Desired long-term career position: combination of given options<sup>a</sup>

Number of responses	Percentage	Long-term career positions						
		Department head	Consultant	Senior physician	Fully trained pediatric surgeon	Trainee	Private practice	Other
28	14.4%	x						
30	15.4%	x	x					
9	4.6%	x	x				x	
3	1.5%	x					x	
2	1.0%	x	x					x
1	0.5%	x	x		x		x	
64	32.8%		x					
16	8.2%		x				x	
3	1.5%		x	x			x	
2	1.0%		x					x
1	0.5%		x	x				
1	0.5%		x	x	x			
1	0.5%		x	x	x		x	
1	0.5%		x		x			
2	1.0%			x	x			
6	3.1%				x			
3	1.5%				x		x	
1	0.5%				x	x	x	
5	2.6%						x	
3	1.5%							x
13	6.7%							
Number of responses		73	131	8	16	1	42	7
%		37.4%	67.2%	4.1%	8.2%	0.5%	21.5%	3.6%

<sup>a</sup>Each row describes the chosen career position alternatives and the number of participants who chose the same combination.

pediatric surgeon was a perspective for 15% of the women but only 2% of the men. Eleven percent of the women and 1% of the men had the position of a senior physician at the time of the study. Often, senior physicians and consultants perform the same kind of work, but they are paid differently, with the consultant earning more money.<sup>28</sup> This explains why the position was not attractive to both genders for the future. Seventy-five percent of the women and 69% of the men wanted to become a consultant. However, 22% of the women and 59% of the men wanted to become a department head.

In our study, men showed greater ambition to strive for a higher position than women. The differences in career development between men and women have been discussed for many years in the literature,<sup>25</sup> and it has been called the glass ceiling phenomenon for women.<sup>29,30</sup> In an older study from 2004, major barriers to career success included “excessive clinical load, on-call responsibilities, lack of appropriate mentorship, and lack of support from the division director or departmental chairperson.”<sup>31</sup> The lack of role models was seen as another barrier,<sup>32</sup> which is supported by the fact that only 16% of department heads in pediatric surgery in

Germany were women in 2021.<sup>19</sup> The desire for a reduced workload, which was higher in women, could also be an explanation for the different career plans. Conversely, one-third of the participants who wanted to become a department head also wanted to work part time. The option for a department head to work part time has now been observed in Germany.<sup>33,34</sup> As we did not ask for reasons, we do not have any support for these explanations, and this area requires further research.

For the first time in Germany, there were more female trainees than male trainees in pediatric surgery in 2014 (male-to-female ratio, 49:51%), and this ratio has been increasing ever since, with a male-to-female trainee ratio of 42:58% in 2017.<sup>35</sup> In 2020, almost two-thirds of the medical students were women, so this trend is expected to continue. Actual career ambitions for pediatric surgeons in Germany are different from those of traditional career models. This fact and the great number of vacancies will probably lead to different job models for the future. Part-time work will be more common, which is supported by a legal right in Germany. Further studies should highlight the effect of this change on the quality of patient care and

determine the best practice models, which can be templates for other countries where these changes in gender and working time might occur in the future.

### Limitations

There are some limitations to our study. There might be a bias in enrollment because our study only included members of the German Society of Pediatric Surgeons. The response rate in our study was 38%, which is close to 40% recommended rate for surveys in research.<sup>36</sup> There is also the possibility of responder bias. The percentage of fully trained female pediatric surgeon respondents was higher (49%) compared with the official numbers (40%). This could lead to a bias within our study, and therefore, in our analyses that differentiated between men and women. Respondents who wanted to change their job in the near future may have been more likely to respond to the survey, and thus, they may be overrepresented in the sample. This may be supported by the fact that the group of pediatric surgeons older than 50 years was underrepresented.

In our survey, we excluded members of the German Society of Pediatric Surgery who were already working as a department head or who had a private practice because they normally do not change their working conditions except when they retire. As the job market changes rapidly, we will include these people in our next survey.

### Conclusion

Pediatric surgery is changing toward a discipline with more female surgeons, and both male and female surgeons would like to work part time. Leaders in pediatric surgery should be aware of this development and adapt the working conditions in their departments accordingly. Further research should determine the best practice models for optimal patient care under these changing circumstances.

### Conflict of Interest

Both authors are members of the board of the German Society of Pediatric Surgery (unpaid).

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