

# Academic career and part-time work in medicine: A cross-sectional study

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## Summary

The aim of this exploratory survey was to assess predictors for an academic career in a population of physicians working full time (FT) or part time (PT) in the north-western part of Switzerland. We also asked for individual attitudes, influences and motivations towards PT work.

**METHODS:** In a cross-sectional study, resident and senior physicians were asked via hyperlink to complete an anonymous 91-item questionnaire. The completed questionnaires were collected anonymously online.

**RESULTS:** Overall, 389 of 1104 (35%) questionnaires were returned for analysis. Of the respondents, 68.1% worked FT and 31.9% PT. More women than men (57.5% vs 42.5%) responded to the questionnaire and more women than men (68.2% vs 31.8%) were working as residents. Of the FT physicians, 88.9% favoured a work reduction to 60.0–90.0%; 82.9% FT and 97.0% PT physicians considered the introduction of PT work opportunities in their hospital as reasonable. A higher academic score was reached by men (mean 3.69, SD 3.39) than by women (mean 2.22, SD 2.77). Among senior physicians, PT work had a significant influence on the academic score. The possibility to do research, followed by male gender, were the two most significant factors positively influencing an academic career.

**CONCLUSION:** The possibility to perform research remains the most important predictor for a successful academic career. Working PT diminishes the chance of academic success.

**Key words:** *academic career; part-time work; medicine*

## Introduction

The increasing life expectancy of the Swiss population, the restriction of physicians' working hours to 50 hours per week, as well as the desire for balance between work and personal life through part-time (PT) instead of full-time (FT) work, have led to a predictable shortage of physicians in Switzerland [1].

Increasing numbers of clinicians would like to work PT, and many will opt out of academic medicine if the barriers to PT work are too great [2]. The changing profile of young physicians and the expectations of the younger generation regarding work-family balance require structural adaptation and systematic implementation of PT work at university hospitals [3–7]. The challenge for the medical profession is to preserve the future of academia in the next generation of physicians, in a way that is not only compatible with their personal life but also includes working conditions which enable them to pursue an academic career.

An important measure to counter the diminishing number of physicians in academic positions lies in the systematic implementation of PT work at university hospitals. In 2008, 12 interviews with the heads of different clinical departments of the University Hospital of Basel suggested that it could be possible to adopt limited working hours in certain clinics [8]. On the basis of these results, the PT project "Facilitation of academic careers for PT working men and women" was launched with the support of the Swiss Federal Programme for Equal Opportunities. This programme follows and supports the academic career of seven senior physicians who work PT.

## Study aim and research question

The aim of this exploratory survey was to assess predictors for an academic career, using a validated score, in a population of female and male physicians working FT or PT in the north-western part of Switzerland. Furthermore, we asked for individual attitudes, influences and motivations towards PT work. The following questions were addressed:

1. What sociodemographic factors correlate with employment status (FT or PT)?
2. What are the most important predictors of an academic career?
3. Are there individual patterns of attitudes and beliefs towards PT work?

## Materials and methods

From January 2011 to March 2011, a nonrandomised cross-sectional study of deliberately targeted individuals within a particular population was performed [9]. A hyperlink was sent electronically to all resident and senior physicians working at the University Hospital of Basel or at other training hospitals in the north western part of Switzerland (the cantons of Basel-Stadt, Basel-Land and Solothurn). They were asked in a short cover letter, which explained our interests, to complete an anonymous 91-item questionnaire (appendix). The completed questionnaires were collected anonymously online (SurveyMonkey®). A reminder email was sent 3 weeks before the return deadline. The URL was emailed directly to the physicians by two of the study coordinators (IH and NL), by means of email lists provided by the head of the personnel department, except in departments whose policies demanded more data security, in which case the URL was sent internally via the head of the personnel department. The questions were created and standardised on the basis of qualitative data from the mentoring programme of the medical faculty of Basel or extracted from different surveys [8, 10]. The questions were refined by the Gender Equality Commission, members of the medical faculty of the University of Basel, psychologists, sociologists and the director of the Human Resources Department. The questionnaire was tested on a pilot sample of PT and FT physicians of the University Hospital of Basel. The local ethics committee evaluated this study before its implementation and decided that ethical approval was not required. The survey included the career success scale of Buddeberg et al. [11]. Seventy-six percent of the questions (69 of 91) were 4-point Likert-type scaled items with answers from “agree completely”, “agree mostly”, “agree partially” to “do not agree”. If not specifically mentioned, PT was defined as any job percentage under 100% (measured in 10%-increments). Other types of questions included those with single or multiple answers, quantitative questions as well as a few open-ended questions for qualitative assessment.

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## Statistics

Continuous data were summarised as mean and standard deviation (SD). Categorical data were summarised in cross tables.

In order to study the effect of potentially relevant parameters on career success scores, basic predictors such as age, gender, children, percentage of employment and position were analysed using linear regression models. This analysis included only the senior physicians, as residents are too early in their careers. No multiple regression model was used because this might suppress important predictors. Furthermore, there were numerous missing values for the predictors and the number of missing values was different for each question. Each parameter was included separately in the regression model. For continuous parameters, the results are presented as differences of means increasing the predictor one unit. For categorical parameters the results

are presented as differences of means between levels of the parameters and the corresponding baseline level. Ninety-five percent confidence intervals (CI) with corresponding p-values were also calculated. A p-value <0.05 was considered significant. This study was exploratory; therefore we did not adjust p-values for multiple comparisons. All analyses were performed using R, version 2.12.0. [12]. Canonical correlation and factor analysis were used to rule out linear combinations for some questions (results not shown). A power calculation was not performed, as the study was exploratory, with no prespecified hypothesis.

## Results

### Sociodemographic factors and employment status

A total of 1104 questionnaires were sent by email and 389 (35%) returned for analysis. Although only resident and senior physicians were addressed, 16 questionnaires were answered by the heads of the department. These answers were not evaluated in this study. The characteristics of the study population (age, gender, children, academic career, position, FT and PT work) are shown in table 1. The three disciplines (ntotal = 355) with the highest participation were internal medicine (35.8%, n = 127), surgery (17.7%, n = 63), and anaesthesia (14.5%, n = 52). More women than men (57.5% vs 42.5%, ntotal = 367) responded to the questionnaire and more women than men (68.2% vs 31.8%, ntotal = 195) were working as residents. In the group of FT workers, 59.8% (17 out of 117) of the male and 33.3% (36 out of 108) of the female physicians were married, compared with the group of PT physicians in which 19.0% (11 out of 20) of the men and 81.0% (63 out of 85) of the women were married. Of the 105 PT respondents, 49.5% (52) worked 60–90%, 42.9% (45) worked 50% and 7.6% (8) worked less than 50%.

Of the nonrespondents who declared their gender (n = 663), 64% (427) were men and 36% (236) were women. Of the 680 nonrespondents who declared their position, 67% (454) were residents and 33% (226) were senior physicians.

### Desire for PT work

Among the FT working physicians, 28.6% of the women and 43.4% of the men wished to continue working FT, whereas 71.4% of women and 56.6% of men indicated a desire to switch to PT (table 2). The ideal percentage of employment averaged 77.2% (SD 13.15%) for men and 69.4% (SD 14.16%) for female doctors. Overall, 88.9% of the FT working doctors favoured a work reduction to 60–90%.

There was no notable difference in the workload of male and female physicians who worked FT: 59.7% of the male FT physicians worked up to 60 hours/week and 40.3% averaged more than 60 hours/week; 61.6% of the female FT physicians worked up to 60 hours/week and 38.7% worked more than 60 hours/week.

Most working time was spent on clinical work and much less on education or scientific work. The amount of scientific working time differed between FT and PT doctors. One-third (39.7%, n = 88) of the FT male and female doctors spent 1–5 hours/week for scientific work in contrast to

50.0% (n = 10) of the male PT and 45.7% (n = 37) of the female PT doctors.

### Predictors for an academic career

To assess academic career success we used the career success score from Buddeberg *et al.* adapted [7] to the regulation of the medical faculty of Basel (table 3). This career success score assesses relevant and objective career performance factors related to scientific activities. For the combined group of residents and senior physicians, a higher academic score was reached by men (mean 3.69; SD 3.39) than by women (mean 2.22; SD 2.77). PT work less than 60% had a significant influence on the academic score (table 4). There was no significant difference in the academic success score between a job percentage of 60–90% and 100%.

The linear regression analysis to find predictors for an academic career included only the senior physicians, as residents are too early in their careers for this to be meaningful (table 5). The two most significant factors influencing an academic career were the possibility to do research (4.67; CI 3.73, 5.61; p <0.001) followed by gender (−1.46; CI−2.24, −0.69; p <0.001).

### Contemporary patterns of individual attitudes and beliefs towards part time work

The second part of the questionnaire included questions regarding the advantages and disadvantages of PT work, personal experiences with PT, potential solutions for introducing PT in the hospital and organisation of child care. Attitudes towards PT work were generally positive.

Overall, 82.9% of FT and 97.0% of PT working doctors considered the introduction of PT work opportunities in their hospital as reasonable. This applied to men (PT 94.7%, FT 82.7%) and women (PT 97.6%, FT 88.0%).

Many FT and PT working women and men agreed that PT jobs increase the attractiveness of an institution on the job market (FT 79.3%, PT 88.1%), productivity (FT 69.5%, PT 92.1%), consideration of alternative values and needs of coworkers (FT 91%, PT 94.1%; ntotal = 312), and overall motivation (FT 86.0%, PT 93.1%; ntotal = 315).

Drawbacks were mentioned by 79.7% of the FT and 64.7% of the PT study participants (ntotal = 319). These drawbacks included the increased need for better coordination and for more complex communication and personnel planning (FT 64.1%, PT 48.5%; ntotal = 318). Negative effects on possibilities for training and promotion were reported by more than 59.7% of FT and 65.3% of PT physicians (ntotal = 317). Fifty percent of the PT working doctors mentioned that the dual burden of family and work influenced their career negatively, compared with 23.2% of the

Characteristic	Sub-category	Count (%)
Age (year) (n = 369)	Mean	37.6
	SD	5.9
	Min.–max.	27–61
Sex (n = 367)	Female	211 (57.5%)
	Male	156 (42.5%)
Children (n = 360)	Yes	188 (52.2%)
	No	172 (47.8%)
Habilitation* (n = 369)	Yes	20 (5.4%)
	No	349 (94.6%)
Position (n = 369)	Senior physician	174 (47.2%)
	Resident	195 (52.8%)
Work (n = 332)	Full-time	226 (68.1%)
	Part-time	106 (31.9%)

\*In Switzerland, "Habilitation" is a qualification for recognised scientists that gives the title of "Privatdozent/in" (private lecturer) and *venia docendi* (authority to teach).

Total (n = 226)	Yes	No
Female (n = 114)	85 (71.4%)	34 (28.6%)
Male (n = 112)	69 (56.6%)	53 (43.4%)

Activity	Maximum possible score
≥6 months of research abroad (min 80% principal activity)	1
≥6 months of research in Switzerland (min 80% principal activity)	1
Research award	1
Competitively awarded third-party funds	1
Scholarship awarded	1
Project conducted	1
Collaboration	1
Publications (none = 0, one = 1, two = 2, three or more = 3)	3
Lectures, talks at conferences	1
<b>TOTAL</b>	<b>11</b>

FT doctors, and with no noticeable difference between men and women (ntotal = 170).

PT workers were asked about the benefits of PT work. In more than 50% of the cases it was agreed that PT work results in more time-autonomy (63.6%; ntotal = 162), a better work / personal-life balance (96.0%; ntotal = 162), higher concentration and fewer mistakes (79.8%; ntotal = 162) and better health (84.8%; ntotal = 162).

PT and FT working doctors with children were asked about child care: 71.6% of PT working doctors used additional external child care facilities and 43.7% relied on other family members for help with childcare (ntotal = 175); of the FT doctors, 49.4% depended on additional facilities and 58.5% on family members (ntotal = 169). Opening hours of day care centres were not seen as compatible with working hours of doctors by 63.2% of PT and 59.6% of FT physicians (ntotal = 104).

More than 97% of the PT and 93% of FT working doctors recommended onsite child care available for hospital employees (ntotal = 303).

Doctors criticised the lack of PT working superiors as role models (FT 85.5%, PT 89.1%; ntotal = 308) and proposed implementation of PT opportunities on the university level (FT 68.2%, PT 86.7%; ntotal = 299). They agreed that awards should be distributed according to research activity and not to age (FT 84.7%, PT 91.7%; ntotal = 293).

## Discussion

We found a clear association between academic career score and the possibility to do research. Gender takes second place in influencing the choice of an academic career. That these are the two most important factors for an academic career has been confirmed in the literature: Buddeberg et al. also found that there is an association between higher academic career score and both the possibility to do research and gender, but not with having children [11].

More physicians of either sex working PT (50.0% male, 45.7% female) spent 1–5 hours/week on scientific work, compared with 38.8% of male and 40.6% of female FT doctors. For residents and senior physicians together, there was no significant difference in the academic success scores with a job percentage of 60–90% or of 100%. When we restricted the analysis to senior physicians, PT work was less suitable for an academic career.

We found that 88.9% of female and male doctors would prefer to reduce their working time to 60–90%. The proportion of physicians choosing to work PT is growing for both sexes, a movement confirmed by our results. PT work should not be a barrier to career progression and those on appointment and promotion committees must do more to promote different modes of working, and should refuse to allow discrimination against PT workers [13].

Our survey also examined individual attitudes toward PT work in medicine. In disciplines such as internal medicine, surgery and anaesthesia a great number of PT doctors took part in our study. Attitudes regarding PT work were generally positive. Drawbacks of PT work were seen by both FT and PT working doctors and included the higher demand for good communication and planning, as well as difficulties in obtaining further qualifications. Adapting or shortening speciality training requirements and increasing the number of PT jobs, particularly within job sharing systems, might address these critical points.

Doctors with children asked for onsite child care facilities for hospital employees, a request that has been noted by others [3].

Forty percent of PT doctors, but none of the FT working doctors, mentioned that the dual burden of work and children influenced their academic career negatively. Paradoxically, this outcome does not seem to have significantly influenced their career choices.

**Table 4:** Academic score and percentage of employment.

Percentage of employment	n	Academic score	
		Mean	SD
All	237	2.90	3.17
0–50	36	2.08	2.52
60–90	40	2.60	2.92
100	161	3.16	3.27

**Table 5:** Results of linear regression predicting academic score, senior physicians only.

	Difference of Means (95%CI)	p value (t-test)
Possibility to do research: reasonable vs not reasonable	4.67 (3.73, 5.61)	<0.001
Age	0 (–0.12, 0.11)	0.949
Gender: female vs male	–1.46 (–2.24, –0.69)	0.008
Children: yes vs no	0.23 (–1.1, 1.56)	0.74
Percentage of employment: ref. = 60–90		
ref. = 0–50	–0.02 (–2.11, 2.07)	0.99
ref. = 100	1.58 (0.18, 2.98) 0.028	0.028
Possibility to work part time		
ref. = already working part time		
Yes	1.52 (0.14, 2.91)	0.032
No	1.34 (–0.13, 2.82)	0.074
Would prefer to increase percentage of employment: no vs yes	–1.39 (–3.54, 0.75)	0.20
Ideal percentage of employment: ref. = 0–50		
ref. = 60–90	2.04 (–0.22, 4.3)	0.122
ref. = 100	2 (–2.02, 6.02)	0.32

### Limitations

Limitations of our study are the response rate of only 35% and the incompleteness of the answers provided. The response rate for this type of cross-sectional survey is usually low (about 20%), depending on the content and length of the questionnaire [9]. A reason for the low response rate might be the long list of questions (91 in all), which could have been too many for a busy physician. Hence, for future research a shorter questionnaire might improve the response rate. Recruitment by email might have also lowered the response rate [9], but personal recruitment surpassed our financial and personnel capacities.

Fourteen percent of male and 42% of female physicians work PT in hospitals, according to the Swiss Federal Statistical Office in 2011 [14]. The 31% response rate of PT workers in our study might underrepresent the population. On the other hand our study may represent the particular population of PT physicians with higher motivation for academic careers or satisfaction with their career. For these reasons our results may not be generalisable. The survey was voluntary and anonymous; thus, there is a lack of information about the nonrespondents.

The length of residency training is associated with an academic career. Our study did not collect information on duration of training and we therefore assumed that a mean age of 38 years implied an advanced career level. We concentrated on PT work and academic career, and did not evaluate the impact of PT work on resident experience and knowledge acquisition, and the link between these and patient outcome [15].

One of the largest prospective surveys of a cohort of graduates from the three medical schools in German-speaking Switzerland, the SwissMedCareer Study, revealed that distinct career paths are already seen in trainees in their third to fourth year of residency [5].

### Conclusions

According to our findings, promoting PT work is a measure that can boost physicians' work / personal-life balance and the attractiveness of Switzerland's hospitals, while simultaneously counteracting the problem of decreasing numbers of physicians. Our results suggest that working PT diminishes the chance of academic career success. Thus, to preserve the future of academia in the next generation of physicians, more support from academic peers and more opportunities for 80% employment should be provided in hospitals. The possibility to perform research remains the most important predictor for successful academic careers.

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