



Vetenskapsrådet

CAREER DEVELOPMENT AND SUCCESS



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from the Swedish Research Council, Medicine

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from the Swedish Research Council, Medicine**

Jenny Nordquist, Karin Forsberg Nilsson and Håkan Billig

CAREER DEVELOPMENT AND SUCCESS: FOLLOW-UP AND EVALUATION OF JUNIOR
RESEARCH POSITIONS FROM THE SWEDISH RESEARCH COUNCIL, MEDICINE

Jenny Nordquist, Karin Forsberg Nilsson, and Håkan Billig

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PREFACE

The mission of the Scientific Council for Medicine, within the Swedish Research Council, is to support Swedish medical research of the highest quality. Other assignments include to support junior scientists, strive for equal opportunities for men and women, and to promote mobility of researchers. As a means to promote junior scientists, the Scientific Council for Medicine sets aside funds for junior research positions. The positions are awarded through peer review to the most competent applicants with the best proposals, and they are intended to give junior scientists the resources to establish themselves as independent researchers.

This evaluation aims to follow up junior research positions as a funding instrument and review whether or not the junior researcher programme at the Scientific Council for Medicine has been successful in supporting scientists during their early career stage. The report is based on a survey sent to researchers who applied for junior research positions within medicine in the mid and late 1990s, examining their careers retrospectively.

The conclusions of the report are that those appointed a junior research position from the Scientific Council for Medicine are frequently found to pursue successful scientific careers. Hence, the resources allocated for junior research positions to boost development of future scientific leaders in medical research have been well-invested. However, there are differences for men and women, most likely reflecting a combination of factors including professional and private life. It will be of great importance to repeat this study among applicants for junior research positions in more recent years to see the extent to which the conclusions in this report are still valid, as well as to study senior research positions funded by the Scientific Council for Medicine.

Stockholm in December 2009

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MAIN OBJECTIVE

The appropriation directions for the Swedish Research Council (SRC) specify that the council shall support basic research of highest scientific quality and potential for innovation. They also specify that the SRC shall support junior scientists, strive for equal opportunities for men and women, and promote mobility of researchers within its mandate.

To identify research of highest scientific quality, the SRC adheres to a peer review process where experts on evaluation panels evaluate grant proposals according to defined quality aspects, including competence of the applicant, feasibility of the proposed project, and relevance of the proposed methodology. As a means to promote junior scientists, the SRC Scientific Council for Medicine (SRC-M) sets aside funds (SEK 90 million in 2007, or approximately 15% of the total budget) for junior research positions (JRPs). According to the principles of peer review, these positions should be awarded to the most competent applicants with the best proposals, and they are intended to give junior scientists the resources to become established as independent researchers.

This evaluation aims to follow up and evaluate JRPs as a funding instrument and review whether or not the junior researcher programme has been successful in supporting scientists during their early career stage. The data collected are also an integral part of the analyses by the SRC-M to underpin its budgetary and strategic decisions. We investigated how the SRC-M fulfils its obligations to distribute research funds for JRPs in an unbiased way. In other words, do the funds designated for junior research positions provide optimum returns in the form of successful senior researchers in Sweden, and is the peer review system impartial in awarding the positions? The major issues we address are the following:

- Does the SRC-M spend its funds optimally by selecting junior researchers and setting aside funds for junior research positions? *What is the impact of a junior research position for a future career in science? Does this kind of position help as an intermediate step in an academic career? Does the peer review process at the SRC identify those who are more likely to become established as independent researchers?*
- Is the peer review process neutral to gender? *Can the SRC guarantee that men and women have equal opportunity to obtain junior research positions through the peer review process used? Have factors that are likely to influence*

a researcher's productivity, such as the research environment and their family situation, been largely similar or different for male and female researchers?

- *Does the applicant's educational background affect a career in medical research? Researchers who are awarded junior research positions by the SRC-M have undergraduate training in different fields, e.g. medicine, biomedicine, natural sciences, and technology. Are the approval rates similar for medical doctors (MDs) and researchers from any other educational background, and what are their prospects for a career in medical research?*
- *Does an international post doc influence the applicant's career? The evaluation of applicants for junior research positions includes an assessment of whether the researcher has successfully developed an independent line of research. Experience from an international post doc is commonly considered a merit, but does a post doc abroad influence the career of medical researchers?*

SUMMARY

This evaluation aims to follow up junior research positions (JRPs) as a funding instrument and review whether or not the junior researcher programme has been successful in supporting scientists during their early career stage. We investigated how the SRC Scientific Council for Medicine (SRC-M) fulfils its obligations to distribute research funds for JRPs in an unbiased way. In other words, do the funds designated for junior research positions provide optimum returns in the form of successful senior researchers in Sweden?

The results from this retrospective study show that a junior research position from the SRC-M has a noticeable impact on an academic career in medical research in Sweden. Those who received junior research positions from the SRC-M in the mid and late 1990s have, to a larger extent than other groups examined, become group leaders in medical research and have more frequently obtained positions as senior lecturers and professors. Additionally, their success rate has been higher in obtaining project grants as a principal investigator (PI), and they report to be more content with their current professional situation at the universities. Hence, we can conclude that the funds allocated for junior research positions through the SRC-M in the 1990s were well-invested, and that the peer review process used to award the positions was successful in appointing individuals with the potential to become research leaders.

In preparing this report we also analysed other factors that could potentially influence a career in medical research. Of those who responded to the questionnaire, it appears that their educational background has been the single most important parameter for an academic career in medical research, followed by the applicant's gender and receiving a junior research position from the Swedish Research Council (SRC). In contrast, regarding the three application years covered by this study, completion of an international post doc appears to have little or no effect on the success rate for receiving a junior research position.

Approval rates for several funding instruments at the SRC-M have been, and to some extent still are, higher for men than for women¹. With regard to junior research positions, the differences in approval rates have decreased over time and are now similar for men and women. For the three years of junior research position applications investigated in this survey, the approval rates were: 25.6% for men and 5.5% for women in 1994, 6.5% for men and 7.4% for women in 1996, and 17.7% for men and 9.2% for women in 1998. Regarding women's situation at work, they appeared to be less satisfied with their time as junior researchers, and their careers had not progressed to the same extent as for men. We also found differences with regard to parental leave (which was longer for women) and estimated weekly working hours (which were longer for men). In addition, women were found to more commonly have adjusted their careers to that of their partners. Most likely, a combination of factors in professional and private life led to the differences in career development that we present in this study. Funding agencies, such as the SRC, must continually monitor and analyse the evaluation of research proposals with regard to many different parameters, including gender. In such analyses, it must also be kept in mind that a multitude of environmental factors related to the workplace and private life influence career development.

It will be important to repeat this study in a population of applicants who have received junior research positions in more recent years to see the extent to which the above conclusions influence the formation of more recent scientific careers. It will also be of importance to repeat the study for senior research positions funded by the SRC-M and to further investigate the working conditions for junior and senior researchers at the universities. In conclusion, this study shows that those appointed to a junior research position from the SRC-M are frequently found to pursue successful scientific careers. Hence, the resources allocated for junior research positions as a funding instrument to boost development of future scientific leaders in medical research have been well-invested.

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- 1 *Vetenskapsrådet och jämställdheten*. Carolyn Glynn, Per Hyenstrand, Carl Jacobsson, Margareta Larsson, Elizabeth Lundberg, and Daniel Wadskog. *Vetenskapsrådets rapportserie* 17:2006.
 - 1 Equality between men and women in Swedish research funding? – An analysis of the Swedish Research Council's first years (2003-2005). Carl Jacobsson, Carolyn Glynn, and Elizabeth Lundberg (2007)
 - 1 Jämställdheten i Vetenskapsrådets forskningsstöd 2003-2007. Carl Jacobsson and Elizabeth Lundberg (2008)

METHOD

A survey examining the careers of scientists with a background in medical research in Sweden was developed (www.surveymonkey.com) and sent to a selected cohort who had applied for junior research positions (JRPs) at the former Swedish Medical Research Council, presently the Swedish Research Council, Scientific Council for Medicine (SRC-M), in the years 1994, 1996, and 1998. The survey was sent out on April 25, 2007 and closed on June 14, 2007. Its aim was to examine the applicants' careers and prospects in a 9- to 13-year follow-up, with respect to professional development, personal choices and interests, undergraduate education, gender, family support, workload etc.

We identified 410 persons in the SRC database who had applied for junior research positions in the years 1994, 1996, or 1998. Of these, we managed to find e-mail addresses for 317 (138 women, 179 men) by searching the Internet. By looking at the e-mail addresses, a rough estimate indicated that approximately 70% to 75% of the former applicants were still in academia. We received 229 answers (72%): 197 full answers (62%), 12 who did not complete the survey, and 20 who claimed not to have applied for a junior research position from the SRC.

Of the 197 (95 women and 102 men) full responses, 38 (19%) were no longer working in academia, whereas 159 (81%) were. In total, 130 (66%) respondents had held a junior research position (84 from the SRC), and 180 (91%) were still working with research at universities or elsewhere.

We chose to categorise the scientists participating in the survey into three different groups:

1. Those who had received a junior research position from the SRC
2. Those who applied for a junior research position at the SRC, but never held one
3. Those who applied for a junior research position from the SRC, but instead received one from a university or another funding agency.

Most of the scientists in the third group received their positions from university funds (29 researchers), whereas 7 received theirs from other large funding bodies practicing peer review, including the Swedish Cancer Society, the Swedish Heart-Lung Foundation, the National Institutes of Health

(NIH), and RALF (Rådet för Arbetslivsforskning). The remaining 10 in this group had received their positions from smaller external funds, or had not specified how their position had been funded (Table 1).

TABLE 1: JRP from funding source other than the SRC.

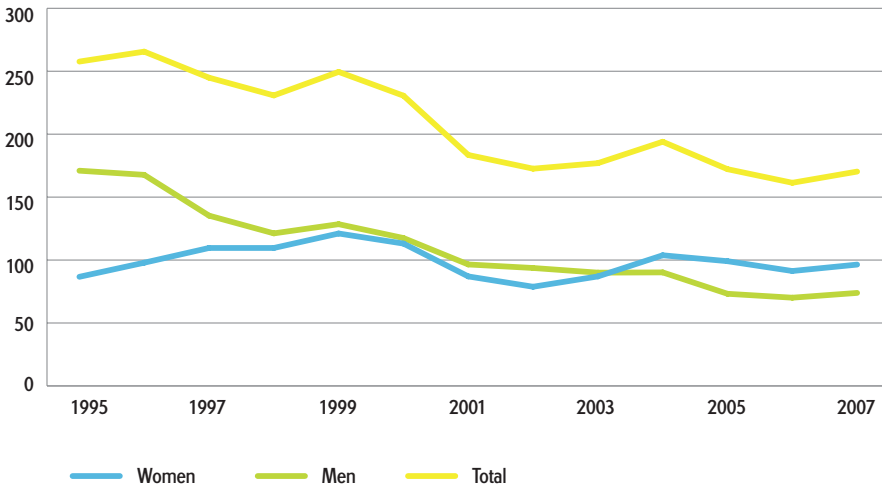
	Women	Men	Total
University	68.2%	58.3%	63.0%
Larger funds with peer review (other than the SRC)	13.6%	16.7%	15.2%
Various smaller external funds	4.5%	20.8%	13.0%
Not specified	13.6%	4.2%	8.7%
Total	(n=22)	(n=24)	(n=46)

JUNIOR RESEARCH POSITIONS IN MEDICINE – AN OVERVIEW

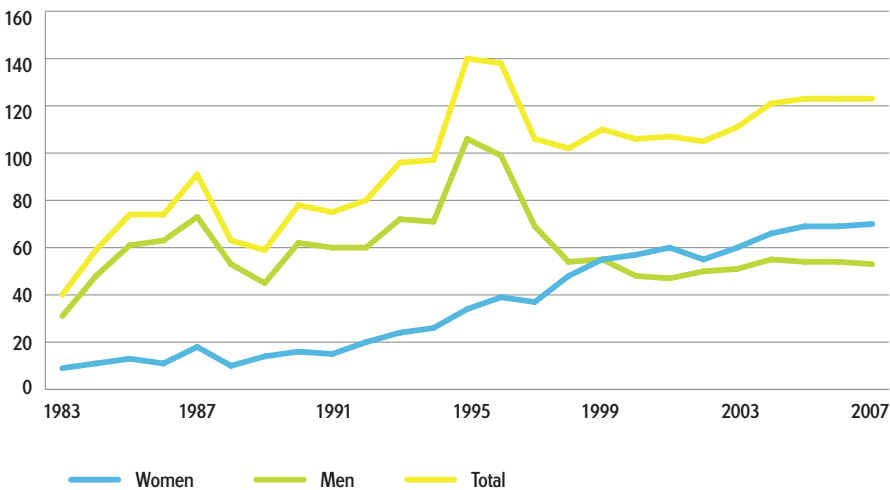
The SRC-M (and formerly the Swedish Medical Research Council) has distributed junior research positions for many years (database since 1983). Although the amount has varied over the years – with a peak in the mid 1990s – the tendency has been to gradually increase the number of positions within medicine, from 40 positions funded in 1983 to 123 in 2007. Meanwhile, the total number of people employed in junior research positions reflects an overall downward trend at the medical faculties in Sweden (Fig.1). In the mid and late 1990s, when the researchers in this investigation applied for their positions, the number of positions financed by the SRC-M represented approximately 50% of all junior research positions at the medical faculties, whereas the corresponding figure in 2006 had increased to approximately 75% (as compared to the NU database, www.hsv.se). The situation and trends have differed extensively between universities, with the Karolinska Institutet and Lund University as the two major contributors to the downward trend over the last decade (Appendix 1). Nevertheless, it may be argued that the SRC-M has increased its share in the rejuvenation of medical scientists at Swedish universities. This, in turn, means that a larger proportion of the scientists becoming established in academia have been awarded their positions through peer review at a national level.

Considering this development over the last decades, there is a need to evaluate the impact of junior research positions, both with regard to their importance for the researchers' personal scientific development and with regard to their relevance in securing the regeneration of scientific knowledge and expertise in Sweden. In relation to the appropriation directions for the SRC, it is also necessary to evaluate junior research positions in terms of investments made. Are these investments the optimal way to promote rejuvenation and development in medical research?

FIGURE 1 A: Junior research positions at the medical faculties in Sweden as full-time equivalents (NU database, www.hsv.se). N.B. 1995 and 1996 in the figure were (in the database) reported as junior researchers with a PhD in 94/95 and 95/96, respectively.



b: Junior research positions financed by the SRC-Medicine. Please note that some of the researchers holding positions financed by the SRC-M (b) may have been placed at non-medical faculties, and would thus not be visible in the data from the NU database (a). Comparing these data may therefore cause a slight overestimation of the proportion funded by the SRC-M. N.B. the scales on the y-axis differ in a) and b).



RELEVANCE OF A JUNIOR RESEARCH POSITION FOR A CAREER IN MEDICAL RESEARCH

Current employers and positions

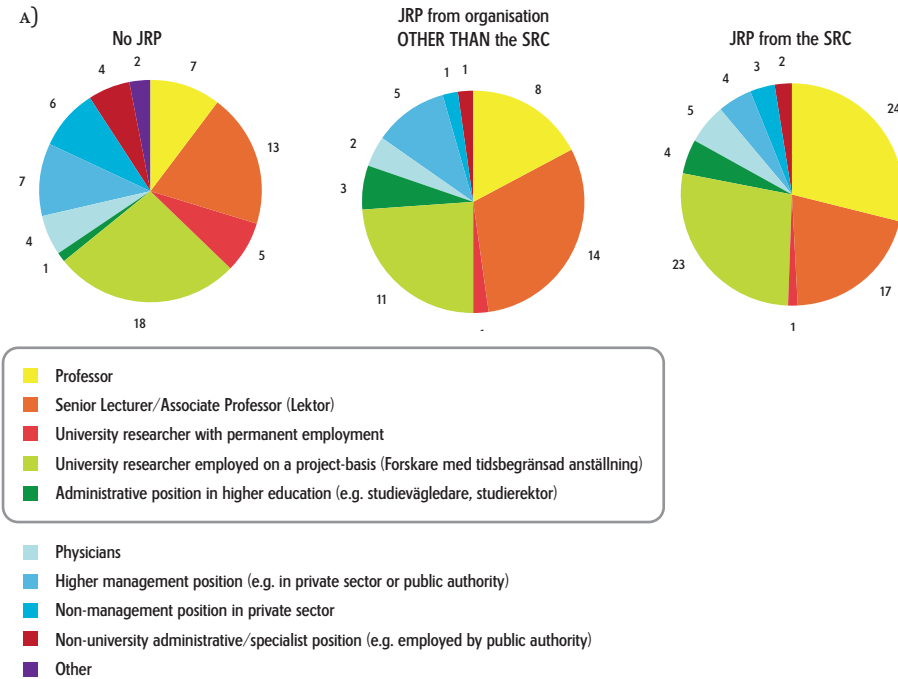
The career tracks at Swedish universities could be described as ‘inconsistent’ or ‘patchy’ in that there are many openings for PhD students, but very few positions available between completing the dissertation and finding employment as full professor. Junior research positions at medical faculties are in high demand and thus highly desirable for those who wish to pursue an academic career. Most often, junior scientists are restricted to temporary employment as a ‘researcher’. Commonly, this is the only type of employment situation the universities offer in the period following a junior research position and until a position as senior lecturer/associate professor (lektor) becomes available.

We aimed to find out where – in what organisations and in what positions – the former applicants for junior research positions are currently found. Have their opportunities and career tracks been different, depending on whether or not they received a junior research position from the SRC-M? The results, as shown in Figure 2, indicate that those who have held junior research positions have a proportionally higher representation at universities (78% and 80%, respectively, depending on the funding source) compared to those who have never held this type of position (66%). We also found that junior research positions are associated with a scientific career in academia. With the highest proportion of professors, the group of researchers who have received support from the SRC would appear to be the ones who have climbed the scientific career ladder the fastest within the universities. In contrast, in this 9- to 13-year follow-up, researchers who have never held a junior research position or received their position from funds other than the SRC were found to have the lowest proportion of professors and were more frequently found to be employed in administrative positions at the universities (Fig. 2a).

These data would suggest that a junior research position is beneficial for an academic career in medical research. Considering that the effect of SRC positions is distinguishable from positions via other funding sources, it could be argued that the effect is not a result of merely the time and re-

search funding that comes with the position. In this context, it should be pointed out that some universities allocate extra financial support to junior scientists who have received funding for their positions in national competition, schemes that would enhance the financial benefit of a position from the SRC-M. However, to our knowledge, such rewards were introduced systematically for the first time only in 2001 (in Lund followed by Uppsala University in 2005, and Linköping University in 2006) and should not have affected the results in this evaluation. Hence, we conclude that junior research positions from the SRC indeed are highly relevant in relation to academic career perspectives. We hasten to add, however, that it is not possible to determine whether the effect is more influenced by the peer review process being successful in identifying those more fit to lead academic research, or whether the merit of being awarded a position by the SRC is an equally contributory cause.

FIGURE 2: Current positions as related to the respondents' answers to the questions "Have you ever held a junior research position?" in relation to A) "What best describes your current position?" (The figures indicate the number of individuals in each category. The categories listed in the grey rectangle are university employees) and B) "How would you describe your current main employer?".



B)

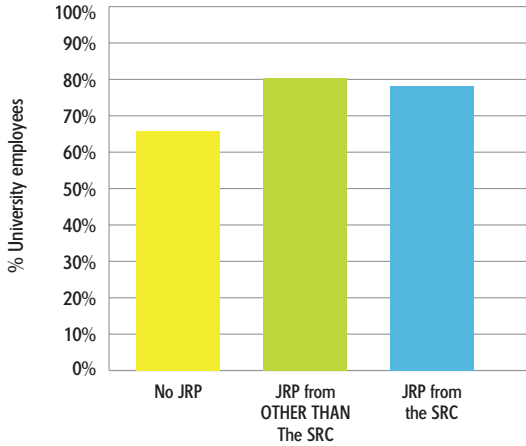


TABLE 2: % Higher positions in different sectors.

"Success rates" totally	University	Non-university	Private
	(Professor)	(Professor/Higher management)	(Higher management)
No junior research position	17.5% (n=40)	25.9% (n=27)	41.7% (n=12)
Yes from OTHER THAN the SRC	20.0% (n=35)	54.5% (n=11)	66.7% (n=3)
Yes from the SRC	38.7% (n=62)	23.8% (n=21)	42.9% (n=7)
Total	27.7% (n=137)	30.0% (n=59)	45.5% (n=22)

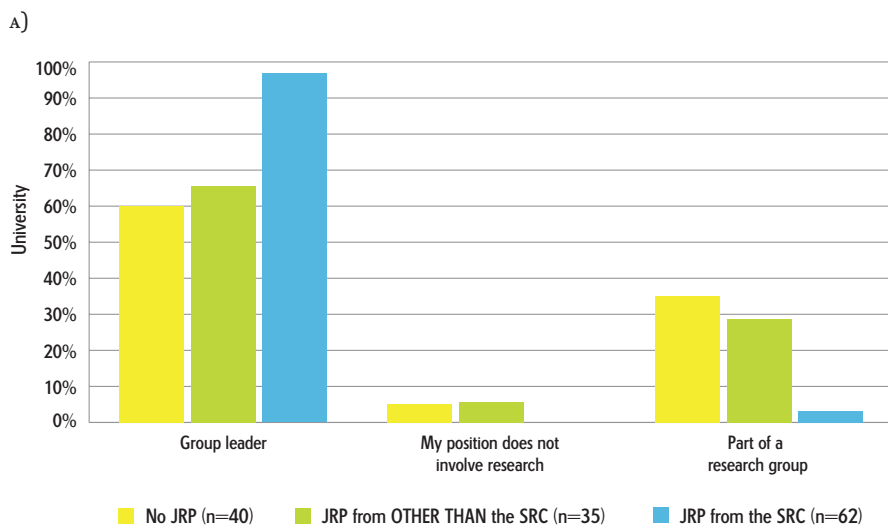
As would be expected, however, the above pattern is not discernible in other sectors. Above all, this is shown by the distribution of higher management positions among those who have not remained in academia (Table 2). In sectors outside academia, and in contrast to the situation at universities, these data do not support any beneficial effects from being awarded a junior research position by the SRC-M (Fig. 2a, Table 2). However, the number of respondents in this sector is low, and the results should be interpreted with caution.

Research group leaders

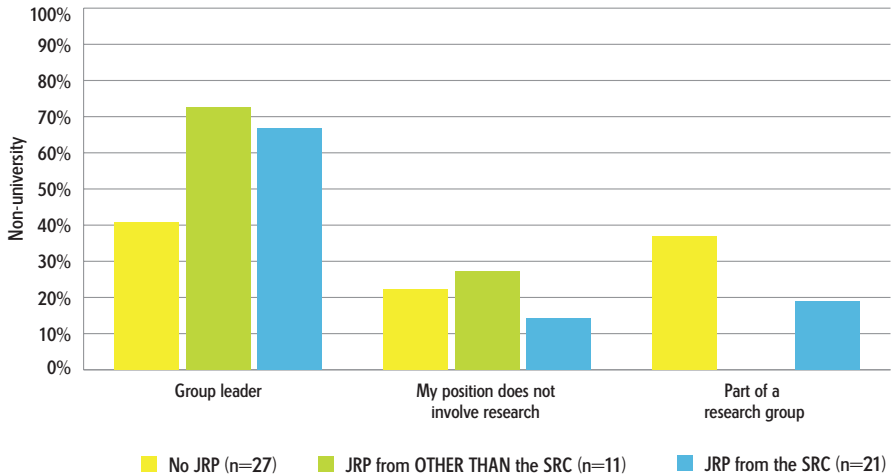
In academia, the term ‘group leader’ can be considered an indicator of independence in science. In sectors outside academia, however, the term does not necessarily involve this factor of independence, but may rather reflect a more senior position (managing or supervising) involving research. In analysing how a junior research position influences the possibilities of obtaining such roles in medical research, it is therefore justified to analyse these environments separately. Again, the results indicate that a junior research position from the SRC-M would be highly beneficial in academia, thus further emphasising the relevance of these positions for an academic career and in promoting the establishment of an independent line of research within medical science (Fig. 3a).

In non-academic environments, the number of respondents is low and the results should therefore be interpreted with caution. There is an indication that more research group leaders are among those who have held junior research positions in general, but that this is not related to funding source, i.e. cannot be specifically related to the SRC (Fig. 3b).

FIGURE 3: Distribution of how current professional roles in research relate to a junior research position earlier in the career.



B)



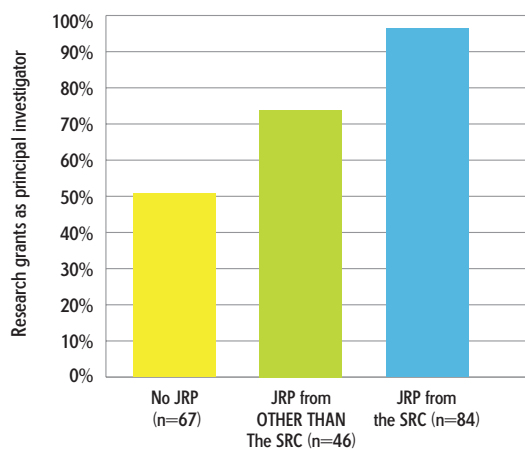
Principal investigator

In addition to the higher occurrence of higher academic positions among researchers who had been awarded an SRC position, we also found that the same category more commonly had received research grants as principal investigator, which can be considered an indicator of independence as a scientist (Fig. 4). In summary, we conclude that academic ‘success factors’ are generally more common among those who have held a junior research position from the SRC.

Job satisfaction

Climbing the career ladder is not the only quality measure in professional life, so we asked the former applicants for junior research positions whether they agreed with several statements, as an indicator of their satisfaction with their current professions. Here too, we analysed university employees separately.

FIGURE 4: Percentage who responded 'yes' to the question "Have you ever received research grants as principal investigator from any of the following funding agencies: The Swedish research council, VINNOVA, FAS, SSF, KVA, Cancerfonden, Hjärt-lungfonden, ALF/TUA, KA Wallenbergstiftelsen, Barncancerfonden, International funds?" (n=197).



By compiling the "agree completely" answers from all these statements², it appears as if the group of researchers who received a junior research position from university funds or funding agencies other than the SRC are the least satisfied with their current professional situation in academia. For example, they are the least satisfied with their salary, they do not feel that they have the same opportunities to perform research and creative work or that they get full use of their education and skills, they view their prospects for advancement to be smaller, and they do not enjoy their work as much or feel that their efforts lead to worthwhile accomplishments. Compiling the "do not agree at all" answers confirms this image (Table 3). In contrast to this group, we also find that the researchers who have received support from the SRC, especially those who have received funding both from the SRC and at least one more funding source (Appendix 2a), are those who are most satisfied with their situation at work according to the criteria in this survey (Table 3).

² The options were: "Agree completely", "Agree to some extent", "Do not agree at all", and "Don't know/not applicable".

TABLE 3: Job satisfaction among university employees.

“Agree completely”	No position	Non-SRC position	SRC-position	Total
It provides a very comfortable salary	20.0%	14.3%	25.8%	21.2%
It provides many opportunities for research and creative work	42.5%	28.6%	56.5%	45.3%
It uses all my education and skills	47.5%	28.6%	45.2%	41.6%
It is a very secure job	7.5%	5.7%	22.6%	13.9%
It provides good opportunities for advancement	20.0%	8.6%	16.1%	15.3%
It allows me to increase my visibility within the profession	35.0%	20.0%	41.9%	34.3%
My colleagues are first-rate professionals in their field	42.5%	28.6%	35.5%	35.8%
It leaves me relatively free of supervision by others	45.0%	42.9%	61.3%	51.8%
It gives me a chance to exercise leadership	32.5%	28.6%	56.5%	42.3%
It provides many opportunities to be helpful to others	75.0%	48.6%	58.1%	60.6%
Most days I enjoy it	55.0%	37.1%	56.5%	51.1%
It gives me a feeling of worthwhile accomplishment	40.0%	28.6%	50.0%	41.6%
	(n=40)	(n=35)	(n=62)	(n=137)
“Do not agree at all”	No position	Non-SRC position	SRC-position	Total
It provides a very comfortable salary	25.0%	20.0%	21.0%	21.9%
It provides many opportunities for research and creative work	10.0%	5.7%	6.5%	7.3%
It uses all my education and skills	2.5%	14.3%	9.7%	8.8%
It is a very secure job	57.5%	57.1%	45.2%	51.8%
It provides good opportunities for advancement	37.5%	37.1%	21.0%	29.9%
It allows me to increase my visibility within the profession	7.5%	22.9%	3.2%	9.5%
My colleagues are first-rate professionals in their field	7.5%	17.1%	1.6%	7.3%
It leaves me relatively free of supervision by others	2.5%	14.3%	3.2%	5.8%
It gives me a chance to exercise leadership	15.0%	14.3%	1.6%	8.8%
It provides many opportunities to be helpful to others	0.0%	0.0%	3.2%	1.5%
Most days I enjoy it	2.5%	17.1%	0.0%	5.1%
It gives me a feeling of worthwhile accomplishment	2.5%	14.3%	11.3%	9.5%
	(n=40)	(n=35)	(n=62)	(n=137)

Green: At least 5% more than any other group. Blue: At least 5% less than any other group.

These findings would suggest that the researchers receiving funding for their junior research position directly from the universities or from a funding body other than the SRC feel neglected at the universities and do not, to the same extent as the other groups, have opportunities for growth in their professions. This notion is further strengthened when analysing all non-university employees. The number of respondents in this category is low, but the results should not be over-interpreted. In this category, however, the answers show a more random pattern, possibly even opposite to what was found at the universities (Table 4).

We can only speculate about the reasons for these results, but it could be that the scientists receiving their positions from university funds have been awarded their positions in a less-competitive process, and that the stringent use of quality criteria applied by the SRC might not have been used to the same extent in recruitment. This may become more evident later in their careers when recognition through external funding, awarded in national competition, becomes more or less fundamental for advancing to higher positions (and probably also for their sense of appreciation at work).

TABLE 4: Job satisfaction among non-university employees.

“Agree completely”	No position	Non-SRC position	SRC-position	Total
It provides a very comfortable salary	29.6%	54.5%	33.3%	35.6%
It provides many opportunities for research and creative work	40.7%	27.3%	33.3%	35.6%
It uses all my education and skills	33.3%	54.5%	33.3%	37.3%
It is a very secure job	25.9%	27.3%	23.8%	25.4%
It provides good opportunities for advancement	22.2%	9.1%	33.3%	23.7%
It allows me to increase my visibility within the profession	29.6%	54.5%	42.9%	39.0%
My colleagues are first-rate professionals in their field	37.0%	54.5%	42.9%	42.4%
It leaves me relatively free of supervision by others	44.4%	54.5%	28.6%	40.7%
It gives me a chance to exercise leadership	44.4%	63.6%	38.1%	45.8%
It provides many opportunities to be helpful to others	59.3%	63.6%	52.4%	57.6%
Most days I enjoy it	66.7%	45.5%	42.9%	54.2%
It gives me a feeling of worthwhile accomplishment	55.6%	63.6%	38.1%	50.8%
	(n=27)	(n=11)	(n=21)	(n=59)

“Do not agree at all”	No position	Non-SRC position	SRC-position	Total
It provides a very comfortable salary	22.2%	9.1%	23.8%	20.3%
It provides many opportunities for research and creative work	7.4%	0.0%	9.5%	6.8%
It uses all my education and skills	11.1%	18.2%	9.5%	11.9%
It is a very secure job	22.2%	18.2%	42.9%	28.8%
It provides good opportunities for advancement	22.2%	18.2%	38.1%	27.1%
It allows me to increase my visibility within the profession	18.5%	0.0%	19.0%	15.3%
My colleagues are first-rate professionals in their field	7.4%	18.2%	4.8%	8.5%
It leaves me relatively free of supervision by others	7.4%	0.0%	14.3%	8.5%
It gives me a chance to exercise leadership	11.1%	18.2%	19.0%	15.3%
It provides many opportunities to be helpful to others	3.7%	0.0%	4.8%	3.4%
Most days I enjoy it	3.7%	0.0%	4.8%	3.4%
It gives me a feeling of worthwhile accomplishment	7.4%	9.1%	0.0%	5.1%
	(n=27)	(n=11)	(n=21)	(n=59)

Differences between the groups have not been colour-enhanced due to the low number of respondents.

It might be that they do not have the same degree freedom (compared to those receiving funding from, e.g. the SRC) to formulate research questions and thereby establish their own line of research, i.e. a niche where their independence towards their more senior colleagues is not questioned in the peer review process. Such a notion would be supported by their low self-assessed opportunities for advancement and opportunities to exercise leadership, and also by not being as free from supervision as the other two groups are.

Period as a junior researcher

The situation for the different categories described above may also have been formed during the period as a junior researcher, which is an important period for a future academic career in medical research. Hence, we asked those who had previously held a junior research position to grade their level of satisfaction with their working environment as junior researchers, not only regarding the actual premises, but also regarding, e.g. infrastructure, research conditions, advice, and collegial collaboration. Overall, the level of satisfaction was rather high concerning laboratory space and equipment,

office space, and amount of teaching. The possibilities to affect decisions made at the department, and receive information regarding university organisation and policies, however, were apparently the least satisfying aspects of the period as junior researcher. When separating the group into categories based on funding source, we again found that the group of researchers that held a junior research position from funds other than the SRC seemed to be the least satisfied. This is especially pronounced regarding their possibilities to affect decisions made at the department (Table 5).

Career choices

We asked those who had left the universities: “What were the main reasons why you left academia?” as a means to determine whether the choice of leaving academia was an active one, or whether it was somehow forced under the circumstances. Their responses suggest that a lack of positions at an intermediate level and unclear career perspectives were the most frequent reasons, along with having been offered another career (Table 6).

When categorised according to their background as junior researchers, the number of individuals in each group is low, so we must be careful not to over-interpret the findings. However, the answers may suggest that those who had once held an SRC position were somewhat less negative in their reasons for leaving academia. They do not, to the same extent as respondents in other groups, indicate a lack of intermediate-level positions or unsatisfactory salary level as reasons for leaving academia, and none of them mentioned failure to attract funding. On the other hand, being offered another career seemed to be an approximately equally contributing reason in all categories (Table 6). We also asked the question: “If you had the option, would you prefer to work in academia?” The answers were similar, whether or not the scientists had held a junior research position (40-45% said yes) (n, see Table 6).

We asked those scientists still working in academia the question: “What has contributed to your choice to stay in academia?” The most frequent answers were; focus on scientific research, academic freedom, and flexible hours. Based on the open answers to this question, it is obvious that dedication and a passionate interest in their research cannot be overemphasised. But again, the group of researchers that had received junior research positions from university funds or a funding agency other than the SRC was more negative in its answers. Also, to a greater extent, these researchers applied for positions outside academia (data not shown). The positive aspects of academic research topping all the lists did not contribute as much to their choice of staying in academia. Rather, the lack of positions elsewhere was a more common answer. Another notable answer for this group – and

TABLE 5: Level of satisfaction regarding some aspects of the period as a junior researcher.

	MD	Non-MD	No international post doc	International post doc	Female	Male	Non-SRC position	SRC position
"Satisfied or very satisfied"								
Support from the department	68.8%	58.5%	66.7%	62.0%	57.9%	65.8%	54.3%	66.7%
Office space	87.5%	76.8%	85.5%	80.3%	73.7%	86.3%	73.9%	84.5%
Laboratory space and equipment	87.5%	82.9%	90.9%	84.5%	80.7%	87.7%	82.6%	85.7%
Possibility to influence decisions made at the department	52.1%	42.7%	50.9%	43.7%	42.1%	49.3%	28.3%	56.0%
Amount of teaching	77.1%	79.3%	76.4%	83.1%	75.4%	80.8%	67.4%	84.5%
Scientific input from colleagues	72.9%	73.2%	76.4%	73.2%	66.7%	78.1%	63.0%	78.6%
Information regarding university organisation and policies	52.1%	40.2%	47.3%	43.7%	33.3%	53.4%	39.1%	47.6%
	(n=48)	(n=82)	(n=55)	(n=71)	(n=57)	(n=73)	(n=46)	(n=84)

Green: At least 5% more than the corresponding group. Blue: At least 10% more than the corresponding group.

"Dissatisfied or very dissatisfied"	MD	Non-MD	No international post doc	International post doc	Female	Male	Non-SRC position	SRC position
Support from the department	22.9%	37.8%	29.6%	36.6%	36.8%	28.8%	32.6%	32.1%
Office space	6.3%	22.0%	14.5%	18.3%	21.1%	12.3%	19.6%	14.3%
Laboratory space and equipment	4.2%	14.6%	5.5%	15.5%	12.3%	9.6%	10.9%	10.7%
Possibility to influence decisions made at the department	39.6%	54.9%	49.1%	52.1%	52.6%	46.6%	63.0%	41.7%
Amount of teaching	16.7%	15.9%	21.8%	12.7%	17.5%	15.1%	21.7%	13.1%
Scientific input from colleagues	20.8%	26.8%	23.6%	26.8%	29.8%	20.5%	30.4%	21.4%
Information regarding university organisation and policies	41.7%	56.1%	52.7%	52.1%	57.9%	45.2%	50.0%	51.2%
	(n=48)	(n=82)	(n=55)	(n=71)	(n=57)	(n=73)	(n=46)	(n=84)

Green: At least 5% more than the corresponding group. Blue: At least 10% more than the corresponding group.

TABLE 6: Reasons for leaving academia.

What were the main reasons why you left academia?	No position	SRC position	Non-SRC position	Total
Lack of positions at an intermediate level	77.3%	27.3%	80.0%	63.2%
Another career was offered	54.5%	54.5%	40.0%	52.6%
Career perspectives were unclear	45.5%	63.6%	60.0%	52.6%
Lack of job security	54.5%	36.4%	40.0%	47.4%
Salary level unsatisfactory	45.5%	18.2%	40.0%	36.8%
Return for effort was unsatisfactory	27.3%	27.3%	20.0%	26.3%
Lack of support by supervisor	18.2%	9.1%	60.0%	21.1%
Failure to attract funding	22.7%	0.0%	60.0%	21.1%
Too many non-scientific duties (e.g. teaching, bureaucracy, grant application)	9.1%	9.1%	60.0%	15.8%
Research demanded excessive focus on just one topic	9.1%	9.1%	20.0%	10.5%
Too competitive	9.1%	9.1%	0.0%	7.9%
Lost interest	9.1%	0.0%	20.0%	7.9%
Care responsibilities	4.5%	18.2%	0.0%	7.9%
Not compatible with my partner's career	0.0%	9.1%	0.0%	2.6%
Further education	4.5%	0.0%	0.0%	2.6%
Other	9.1%	18.2%	20.0%	13.2%
Total	(n=22)	(n=11)	(n=5)	(n=38)

Differences between the groups have not been colour-enhanced due to the low number of respondents.

also for the researchers who never held a junior research position – is their somewhat more positive attitude towards teaching (Table 7).

Cause and effect

The results presented in this report show that individuals who received their junior research positions from the SRC have advanced more quickly in their careers at universities, and that they are generally more content with their professional situation as compared to those who received their JRP from a

TABLE 7: Reasons for staying in academia.

What has contributed to your choice to stay in academia?	No position	SRC position	Non-SRC-position	Total
Focus on scientific research	84.4%	90.4%	75.6%	84.9%
Academic freedom	71.1%	78.1%	58.5%	71.1%
Flexible hours	51.1%	52.1%	34.1%	47.2%
Good working conditions	11.1%	21.9%	14.6%	17.0%
Lack of positions elsewhere	22.2%	6.8%	29.3%	17.0%
Teaching	20.0%	12.3%	17.1%	15.7%
Good prospects for career progression	6.7%	12.3%	7.3%	9.4%
Job security	4.4%	5.5%	2.4%	4.4%
Other	6.7%	5.5%	12.2%	7.5%
Total	(n=45)	(n=73)	(n=41)	(n=159)

Green: At least 5% more than any other group. Blue: At least 5 % less than any other group. Multiple choices were allowed with this question.

university. This can be interpreted to indicate a successful peer review process, but it could also contain an element of a 'quality-label', which in itself could be beneficial for a career in a peer-review-driven environment. A combination of both these effects is another possible explanation for the results presented. The impact and the importance of receiving a junior research position is unquestionable, but the factors influencing the grounds on which the researchers are evaluated, and the future career of the recipients, should be further analysed both in terms of productivity (before, during, and after a JRP) and in terms of the performance of the peer review system.

IS SELECTION BY PEER REVIEW NEUTRAL TO GENDER?

Gender equality

In following the careers of the present sample of researchers who applied for junior research positions in the mid and late 1990s, clear differences emerge between men and women. Men are in the majority in the category of research group leaders, whereas women have a higher representation as part of a research group, or at positions that do not involve research (data not shown). Men have been more successful in obtaining positions as professors and senior lecturers at universities, whereas women are more frequently researchers employed on a project basis (Fig. 5a). Women report, to a lesser degree than men, that they have been satisfied with their situation as a junior researcher (Table 5), although no clear differences can be observed for how satisfied they are with their current work situation (Appendix 2h-i) or how frequently they have been awarded research grants as a principal investigator (Appendix 3a). Men generally have higher approval rates for grant proposals submitted to the SRC-M³.

Comparing how men and women self-assess their research activities in their current positions, it would appear that men are represented to a higher degree in the 25% to 75% range, whereas women have a higher representation both in the lower and in the higher ends of the spectrum (Fig. 6). Looking closer at these groups, including both men and women, we find that among those who state that they spend 90% to 100% of their time at work on research, the majority are researchers employed on a project basis at universities, or are employed as researchers in private companies or research institutes. Two are employed as professors. At the opposite end of the spectrum, we mainly find people who have left the field of research for positions in the private sector or public agencies, but also some senior lecturers, junior physicians, and one department head (prefekt). The groups in the

3 *Vetenskapsrådet och jämställdheten*. Carolyn Glynn, Per Hyenstrand, Carl Jacobsson, Margareta Larsson, Elizabeth Lundberg, and Daniel Wadskog. *Vetenskapsrådets rapportserie 17:2006*.

3 Equality between men and women in Swedish research funding? – An analysis of the Swedish Research Council's first years (2003-2005). Carl Jacobsson, Carolyn Glynn, and Elizabeth Lundberg (2007)

3 *Jämställdheten i Vetenskapsrådets forskningsstöd 2003-2007*. Carl Jacobsson, and Elizabeth Lundberg (2008)

FIGURE 5: Positions among the university employees in this evaluation according to: a) men and women, b) medical doctors and other educational backgrounds, and c) international post doc and no international post doc.

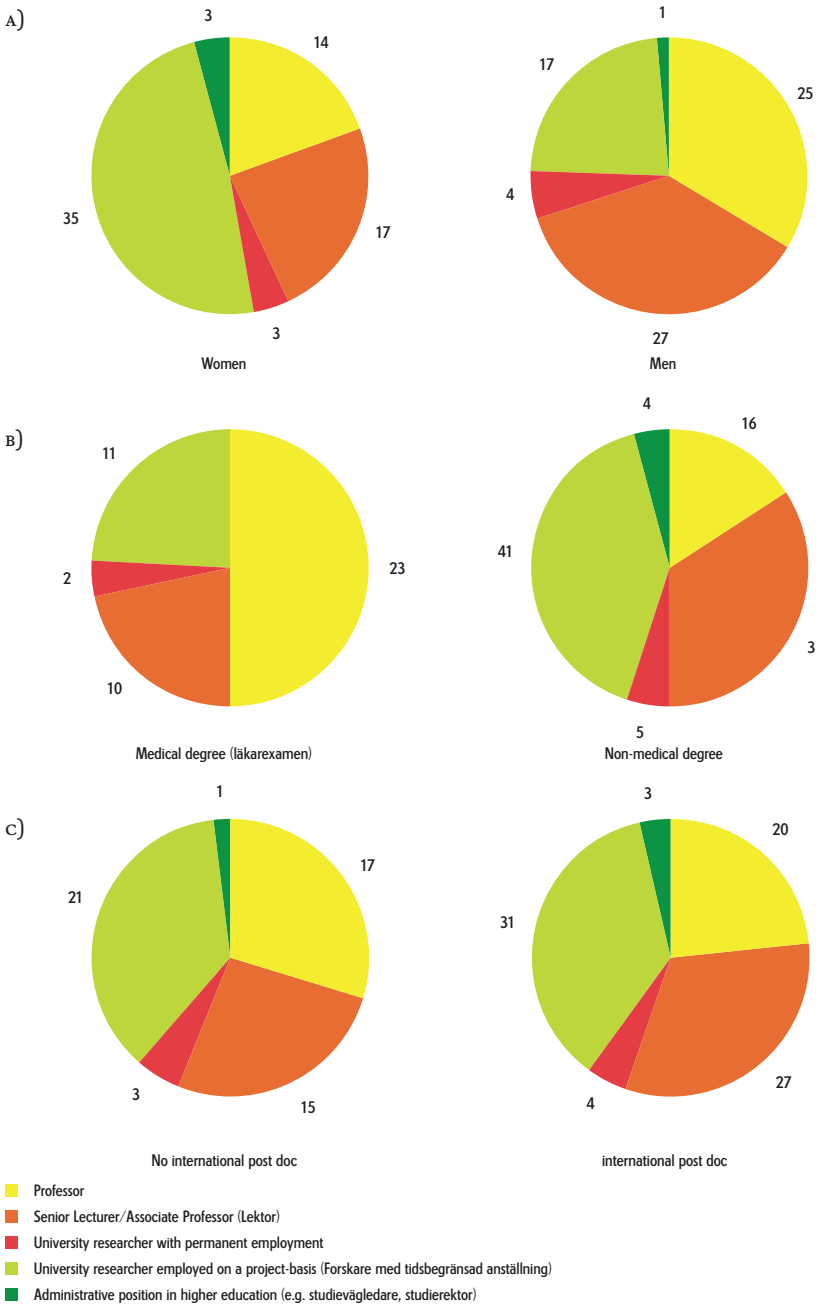
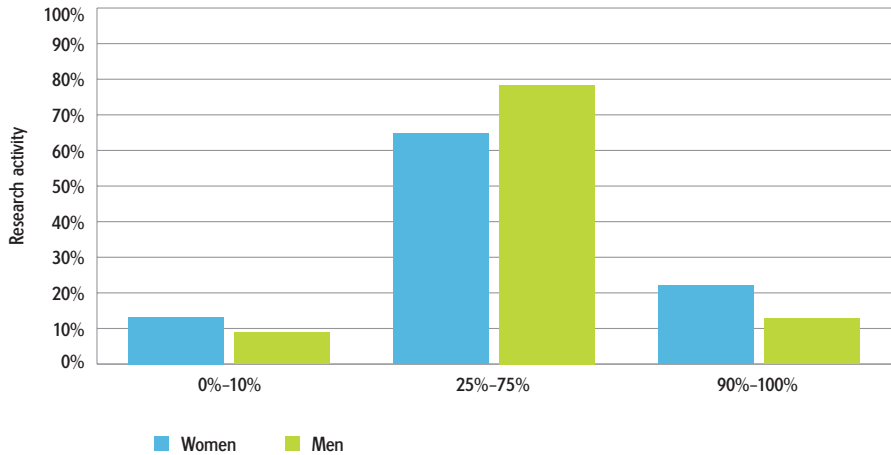


FIGURE 6: Research activity out of time at work as self-assessed by men (n=102) and women (n=94).



middle include a mix of all the categories above, but also the vast majority of professors. Hence, it would appear that men are more successful in obtaining positions combining research with other tasks, presumably another indicator of more senior positions.

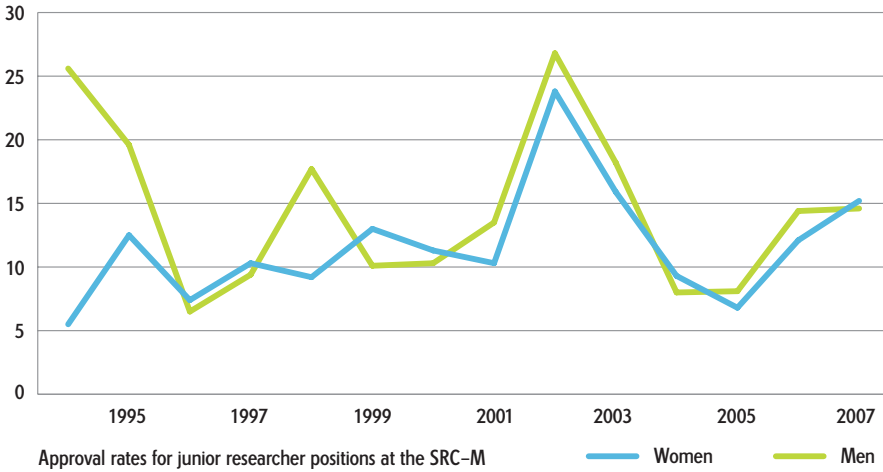
Among the differences discussed above, the SRC is most likely to influence the approval rates for research applications. Some of the differences in approval rates between men and women can be explained by adjusting for 'career age' (time since doctoral degree), but this does not fully explain the difference⁴. To take a wider approach in understanding the differences in career progression for men and women, we identified several factors that could influence career development and compliance with the quality criteria used in the SRC-M peer review system.

Selection for junior research positions

Peer review is generally considered the best method available for distributing research funds. While it is acknowledged that peer review has the potential to identify truly innovative research and creative researchers, there is also a risk that the system may favour already-established researchers and research areas. Hence, it may have a conserving effect if too much weight is given to past performance. To some extent, this notion is supported when analysing the scoring parameters at the SRC-M, where the applicants' competence score

⁴ *Kvinnors och mäns framgång med projektansökningar inom medicin*, Per Janson and Adam Jonsson, unpublished report from the Swedish Research Council.

FIGURE 7: Approval rates for men and women applying for junior research positions from the SRC-M, 1994-2006 (n=number of applicants).



– which is largely based on publication records – has been shown to have a greater impact than, e.g. the hypothesis addressed in a grant proposal⁵.

How peer review ensures impartial evaluation has been closely monitored and discussed. With regard to funding in medical research, as recently discussed in a report from the EU⁶, men often have higher approval rates than women⁷, and it has been debated whether these are ‘valid’ differences or a result of some form of bias in the evaluation. Therefore, we wanted to compare the outcome of this and other selection processes that took place in the mid and late 1990s. Were researchers regarded differently in the peer review performed by the SRC as compared to other non-specified processes (in this sample represented mainly by universities employing junior researchers)?

The approval rates for applications for junior research positions differed in favour of males in 2 of the 3 years investigated in this report (1994 and 1998, but not in 1996; Fig. 7). Considering that applicants for these kinds of positions generally are rather homogeneous in relation to ‘career age’ (time since doctoral degree), the factor of seniority is reduced as a possible explanation for the differences observed.

In analysing the sample included in the survey, we found that an equal proportion of men and women had received their junior research positions from

5 Unpublished data in a gender equality report to be published by the Swedish Research Council.

6 The gender challenge in research funding. Assessing the European national scenes. 2009, ISBN 978-92-79-10599-9

7 Vetenskapsrådet och jämställdheten. Carolyn Glynn, Per Hyenstrand, Carl Jacobsson, Margareta Larsson, Elizabeth Lundberg, and Daniel Wadskog. Vetenskapsrådets rapportserie 17:2006

7 Equality between men and women in Swedish research funding? – An analysis of the Swedish Research Council’s first years (2003-2005). Carl Jacobsson, Carolyn Glynn, and Elizabeth Lundberg (2007)

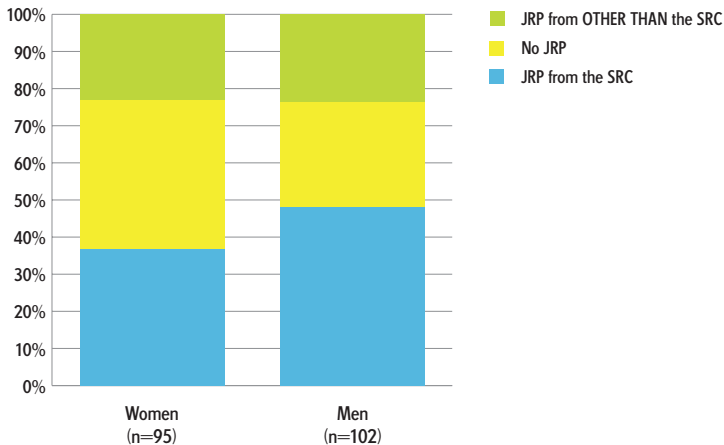
7 Jämställdheten i Vetenskapsrådets forskningsstöd 2003-2007. Carl Jacobsson, and Elizabeth Lundberg (2008)

sources other than the SRC, i.e. most commonly a university, but that men have a much stronger representation among applicants.

In analysing the sample included in the survey, we found that an equal proportion of men and women had received their junior research positions from sources other than the SRC, i.e. most commonly a university, but that men have a much stronger representation among applicants who received their positions from the SRC-M (Fig. 8). Since the proportion of female applicants for the SRC positions in the years investigated was close to 50% (43% in 1994, 46% in 1997, and 51% in 1999), thus providing substantial material for the analysis, these differences cannot be neglected. However, the reason for the different approval rates is difficult to assess.

A recent study by the SRC analysed reviewers' evaluations of grant proposals from men and women. The results indicate that women were given somewhat lower scores especially for the 'competence' criterion, which includes the record of previous publications⁸. Combining these observations with bibliometric data indicated that men in general have a stronger publication record than women⁹. Also, a study by the European Molecular Biology Organisation (EMBO) in 2007¹⁰ showed that women had a lower publication rate after their PhD period. The EMBO report related the findings to a negative bias against women in academia (conscious or unconscious) in combination with their family situation and the expectations on women by society at large.

FIGURE 8: Distribution of junior research positions among men and women.



⁸ Unpublished data in a gender equality report to be published by the Swedish Research Council

⁹ Kvinnors och mäns framgång med projektansökningar inom medicin, Per Janson and Adam Jonsson unpublished report from the Swedish Research Council

¹⁰ A persistent problem. Anna Ledin, Lutz Bornmann, Frank Gannon and Gerlind Wallon, EMBO reports vol 8, no 11, 2007.

Environmental factors

To investigate the reasons why women report less favourable working conditions, we identified several factors that could influence career development. We asked the respondents questions relating both to their personal life and their educational and professional background. In summary, the results imply that women generally have more unfavourable conditions for a scientific career, which consequently may reduce their prospects of being awarded high scores for the ‘competence’ criterion in peer review (Table 8).

These conditions are likely to affect a career in any environment. Our results from non-academic environments are limited and should therefore be interpreted cautiously. In this sample, however, we find no support for differences between men and women in obtaining higher management positions outside academia. Physicians in this sample, however, are more commonly male (Fig. 9). However limited the data, it raises the question if an academic career track is more difficult for women to pursue, i.e. perhaps the peer-review-driven academic environment is less ‘forgiving’ towards periods of lower productivity, which could be a possible consequence of all the reasons listed in Table 8. Another possible interpretation could be that the results are indicative of differences between ‘specialist’ and ‘generalist’ careers, and that ‘generalist’ careers (higher management position as opposed to academic researcher or physician) are more available to women who, according to our results, are more likely to adjust their career to that of their partner than men are. However, these are mere hypotheses and would need to be substantiated in a larger sample.

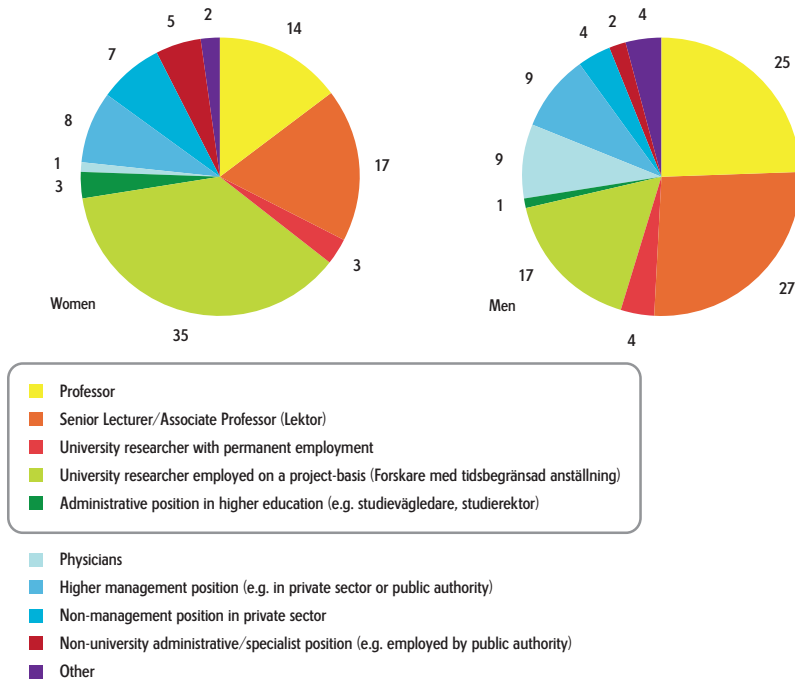
TABLE 8. Factors possibly influencing career development – men and women.

Support at universities	Mentor – women and men have felt support from a mentor (including informal mentor) approximately to an equal extent (Table 9). When asked: “Please grade your level of satisfaction regarding the following aspects of your period as a junior researcher (forskarassistent)”, men were generally slightly more satisfied than women (Table 5).
Parental leave	Women stay on parental leave more frequently (89% compared to 63%) and for a longer time than men do.
Moving for work	Women more frequently than men move with their partners for the partner’s work (22% women, 7% men), and similarly, 35% of the women and 52% of the men say that their partner has moved with them for work.
Working hours	The average of women’s estimates of their own working hours per week is slightly lower than men’s estimated working hours (50.3 compared to 52.2). Women’s estimate of their partner’s working hours is higher (52.1 hours) compared to the average that men estimate that their partners work (40.9 hours) (Appendix 4a).
Partner’s education and profession	Women with a PhD more frequently have a partner with a PhD. 65% of the women and 38% of the men have a partner with a PhD. 60% of the women have a partner working within science versus 40% of the men.
Support at home	8% of the men have a partner that does not work. None of the women do. Women in general make a smaller contribution to the total family income (Appendix 4b).

As mentioned above, women are generally less satisfied with their time as a junior researcher (Table 5). Factors that stand out include office space and scientific input from colleagues, but above all, information regarding university organisation and policies. In this context, the factor of mentors becomes interesting. Mentorship is a factor that commonly arises in discussions on gender equality, and it is often assumed that women do not receive as much advice and information from more senior colleagues as men do – a notion which may be supported by women’s relatively lower level of satisfaction concerning information about university organisation and policies.

In this survey, 12% of the respondents who had held a junior research position reported having a formally appointed mentor, whereas 52% had felt support from a mentor (including informal). Since so few mentors had been formally appointed we will refrain from drawing any conclusions from differences on these levels. Regarding informal mentors, however, we conclude that our results do not support any differences in collegial advice for men and women (Table 9). It would appear, however, that those with a medical degree slightly more often than those with a non-medical degree received this kind of support, as did those receiving their junior research positions from the SRC compared to non-SRC positions.

FIGURE 9: Distribution of current positions for men and women in all sectors. The categories in the grey rectangle are university employees.



It would have been interesting to analyse whether mentor support had any effect on a career in medical science, i.e. if those who felt support from senior colleagues had better chances of becoming group leaders in research and remaining in academia. However, the number of respondents to the survey and the distribution of their answers did not allow such analyses.

TABLE 9: Mentorship during the period as a junior researcher.

	Formal mentor	Support from a mentor (including informal)	Total
Medical degree (läkarexamen)	14.6%	58.3%	(n=48)
Non-medical degree	9.8%	48.8%	(n=82)
	51.10%	52.10%	34.10%
International post doc	13.9%	54.9%	(n=72)
No international post doc	9.1%	52.8%	(n=55)
Female	8.8%	52.6%	(n=57)
Male	13.7%	52.1%	(n=73)
Junior research position from OTHER THAN the SRC	21.7%*	45.7%	(n=46)
Junior research position from the SRC	6.0%	56.0%	(n=84)
Group leader	11.4%	54.3%	(n=105)
My position does not involve research	12.5%	50.0%	(n=8)
Part of a research group	12.5%	43.8%	(n=16)
Left academia	18.8%	50.0%	(n=16)
Still in academia	10.5%	52.6%	(n=114)

*Mainly from the University of Lund

Career choices

We next asked what had influenced the decision to stay in academia or move to other professional sectors. Men and women answered these questions rather similarly. Again, the low number of respondents restrains analyses of the differences observed (Table 10).

We also asked: “If you had the option, would you prefer to work in academia?” The answers to this question would suggest that women, compared to men, would seem less prone to return if they had the option (35% women as compared to 50% men answered yes) (n, see Table 10).

TABLE 10: Reasons for leaving academia – men and women.

What were the main reasons why you left academia?	Women (n=20)	Men (n=18)	Total (n=38)
Lack of positions at an intermediate level	65.0%	61.1%	63.2%
Another career was offered	55.0%	50.0%	52.6%
Career perspectives were unclear	45.0%	61.1%	52.6%
Lack of job security	45.0%	50.0%	47.4%
Salary level unsatisfactory	30.0%	44.4%	36.8%
Return for effort was unsatisfactory	25.0%	27.8%	26.3%
Lack of support by supervisor	20.0%	22.2%	21.1%
Failure to attract funding	15.0%	27.8%	21.1%
Too many non-scientific duties (e.g. teaching, bureaucracy, grant application)	20.0%	11.1%	15.8%
Research demanded excessive focus on just one topic	15.0%	5.6%	10.5%
Too competitive	0.0%	16.7%	7.9%
Lost interest	10.0%	5.6%	7.9%
Care responsibilities	10.0%	5.6%	7.9%
Not compatible with my partners career	5.0%	0.0%	2.6%
Further education	5.0%	0.0%	2.6%
Other	15.0%	11.1%	13.2%
Total	(n=20)	(n=18)	(n=38)

Differences between the groups have not been colour-enhanced due to the low number of respondents. Multiple choices were allowed with this question.

TABLE II: Reasons for staying in academia – men and women.

What were the main reasons why you left academia?	Women (n=75)	Men (n=84)	Total (n=159)
Focus on scientific research	85.3%	84.5%	84.9%
Academic freedom	72.0%	71.4%	71.7%
Flexible hours	45.3%	50.0%	47.8%
Good working conditions	10.7%	22.6%	17.0%
Lack of positions elsewhere	21.3%	13.1%	17.0%
Teaching	16.0%	16.7%	16.4%
Good prospects for career progression	6.7%	11.9%	9.4%
Job security	1.3%	7.1%	4.4%
Other	10.7%	4.8%	7.5%
Total	(n=75)	(n=84)	(n=159)

Green: At least 5% more than any other group. Multiple choices were allowed with this question.

Of those who stayed in academia, we found that men and women indicated similar factors that contributed to their decision to stay – the focus on scientific research, academic freedom, and flexible hours. However, further down on the list, women would seem less positive in their answers. Men, to a higher degree than women, stated that good working conditions, prospects for a career, and job security contributed to their choice of staying in academia, whereas women, to a higher degree, gave lack of positions elsewhere as a contributing factor (Table II).

DOES EDUCATIONAL BACKGROUND AFFECT A CAREER IN MEDICAL RESEARCH?

Educational backgrounds in medical science

Researchers in the field of medicine have educational backgrounds in many different disciplines. Many have basic training as medical doctors (MD, läkar-examen), but in later years the proportion of PhD students in medical research with a non-medical background (non-MD) has increased, most commonly from the area of natural sciences. Our investigation found that proportionally more MDs than non-MDs have become established in medical research.

In our sample, non-MDs had felt less support from informal mentors and were less satisfied overall with their period as junior researchers in medical research (Tables 9 and 5). Furthermore, they had received funding as a principal investigator less frequently (Appendix 3b), and their career progression in academia had been slower (Fig. 5b). In this latter context it should be noted that an MD degree is required for some of the positions that are combined with clinical practice, and that this may have affected the result. We also find that non-MDs are less satisfied with their current situation at work, especially regarding their possibilities for advancement and of exercising leadership, but also regarding their possibilities of increasing their visibility within the profession. Additionally, non-MDs do not to the same extent as the MDs feel that they have a secure job (Appendix 2f-g). To some extent this would be a natural consequence of research being performed in a clinical environment where the medical profession retains options for employment as physicians. The questionnaire, however, was not designed to allow for distinctions with regard to hospital-related employment while continuing a line of research. Nonetheless, our results would indicate a higher level of dissatisfaction among non-MDs in academia, possibly indicative of more difficult career paths and working conditions for this group of medical researchers.

Selection for junior research positions

In analysing different selection processes, as above, for men and women, we found that MDs in this survey had been awarded junior research positions from the SRC-M to a higher extent than applicants with non-medical degrees. Such a difference was not observed to the same extent from other

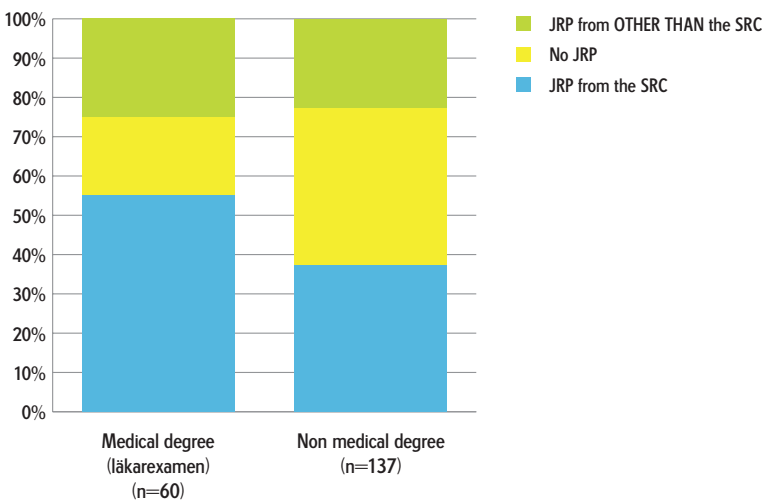
funding-sources, i.e. mainly universities (Fig. 10). Furthermore, we found a larger proportion of clinically related tasks among those who had held junior research positions from the SRC-M, possibly indicating that clinicians are more commonly present in this selection (data not shown).

Since this study does not include a bibliometric analysis, we lack a measure of the relative quality of research contributions from the groups. Consequently, we cannot determine whether the differences observed for MDs and non-MDs are based on quality assessments.

Environmental factors

Given the large, career-related differences between MDs and non-MDs in this sample, we also analysed their prerequisites for performing research in a larger perspective. Looking at the same factors as above for men and women, we found it difficult to determine any conclusive differences between these two groups relating to their family situation or tendency to adjust their professional life to their partners. Work-related factors, on the other hand, display a larger divergence. As discussed above, there are differences between the groups regarding mentor support and the overall level of satisfaction during the period as a junior researcher. In addition, we found that MDs estimated their current working hours to be longer (Table 12). However, it would seem that MDs estimated both their own, and their partners', working hours to be much longer than non-MDs do.

FIGURE 10: Distribution of junior research positions among people with a medical or non-medical degree.

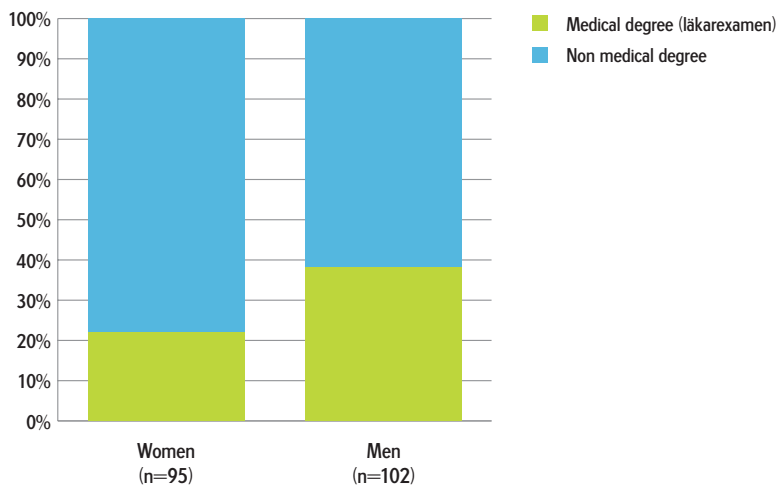


In summary, MDs seem to have somewhat better work-related conditions for research during their time as junior researchers, but their current working hours also suggest that combining research and clinical work is highly time-consuming. Indeed, those who do have clinically related tasks (regardless of basic training) estimate their working hours to be longer than those who do not have such tasks (data not shown). However, it should be noted that almost 50% of the MDs in the current sample do not work clinically at all. Considering that men are represented to a higher degree among the MDs, and women among the non-MDs (Fig. 11), this factor needs to be considered when discussing gender equality. Do the greatest differences in the conditions for male and female researchers arise from the fact that more men are medical doctors? Does the problem of gender inequality in medical research lie in the conditions for female medical doctors, attempting to combine clinical work, family life, and research?

TABLE 12: Factors possibly influencing career development – educational background.

Support at universities	Mentor – more MDs than non-MDs had felt support from a mentor (including informal mentor) (Table 9). When asked: “Please grade your level of satisfaction regarding the following aspects of your period as a junior researcher (forskarassistent)”, MDs were generally more satisfied than non-MDs (Table 5).
Parental leave	Non-MDs more frequently than MDs have taken parental leave (79% and 71%, respectively), but for approximately the same number of months.
Moving for work	MDs and non-MDs have moved with their partners for their partner’s work to an approximately equal extent (17% and 16%, respectively). The partners of non-MDs have moved with them more frequently (46% as compared to 40%).
Working hours	MDs’ average estimate of their own working hours per week is higher than that of non-MDs (55.0 hours as compared to 49.6 hours). Also the MDs’ estimate of their partners’ working hours is higher (47.6 hours) as compared to the average that non-MDs estimate that their partners work (45.9 hours) (Appendix 4a).
Partner’s education and profession	48% of the MDs and 52% of the non-MDs have a partner with a PhD. 52% of the MDs and 49% of the non-MDs have a partner working in science.
Support at home	2% of the MDs and 5% of the non-MDs have a partner that does not work. MDs make a somewhat greater contribution to the family income (Appendix 4b).

FIGURE II: Educational background for men and women.



DOES AN INTERNATIONAL POST DOC INFLUENCE A CAREER IN MEDICAL RESEARCH?

International post doc and career perspectives

Mobility is a factor considered to be highly important for scientists in their development and in forming a creative research environment. Moving abroad for a few years on a post doc is therefore generally considered to be a merit in the peer review process, and over half (59%) of the researchers in this investigation had such experience.

Looking at three years of applications for junior research positions, in terms of career follow-up, our results indicate that international post doc experience was not a decisive factor when the SRC-M granted junior research positions in the mid 1990s (Fig. 12). In contrast to our sample, it would appear that an international post doc was somewhat unfavourable in terms of receiving junior research positions – whether from the SRC or from a university. The differences were not large, however, and perhaps should be interpreted as showing a lack of positive effect from an international post doc. Similarly, this sample shows no clear beneficial effects in a longer term. We observed no major differences between the groups concerning career progression (Fig. 5) or in obtaining positions as research group leaders (data not shown), with one exception. Researchers with experience as an international post doc were slightly more common among those who had received funding as PI (Fig. 13).

We can only speculate about the reasons behind the observed absence of a career boost from an international post doc period. One explanation could be that an international post doc might be accompanied by a period of lower productivity due to the change in research environment, and often a change in research area. The peer review system in its present design, with a heavy focus on scientific productivity, is rather ‘unforgiving’ towards periods of lower publication frequency. Consequently, moving abroad for a post doc could have a somewhat unfavourable result in the short term. This, however, evens out in the long term, where grants held as a PI (clearly a success factor) are higher in the group that reported a post doc abroad.

Environmental factors

Analysing factors that could influence the productivity of the scientists, as related to whether or not they had experience as an international post doc, we find no major differences between the groups in terms of their family situation – with the (unsurprising) exception of “moving for work” (Table 13). However, those who had not been on an international post doc were generally more satisfied with their period as a junior researcher (Table 5), especially regarding the research facilities and equipment and their possibilities to influence decisions made at the department. The teaching load was the only factor about which they were less satisfied.

FIGURE 12: International post doc as related to junior research positions.

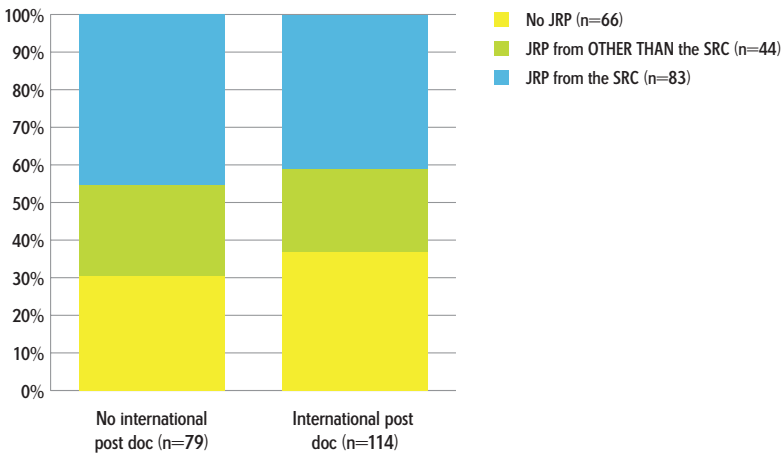


FIGURE 13: International post doc experience in relation to research grants as principal investigator (PI).

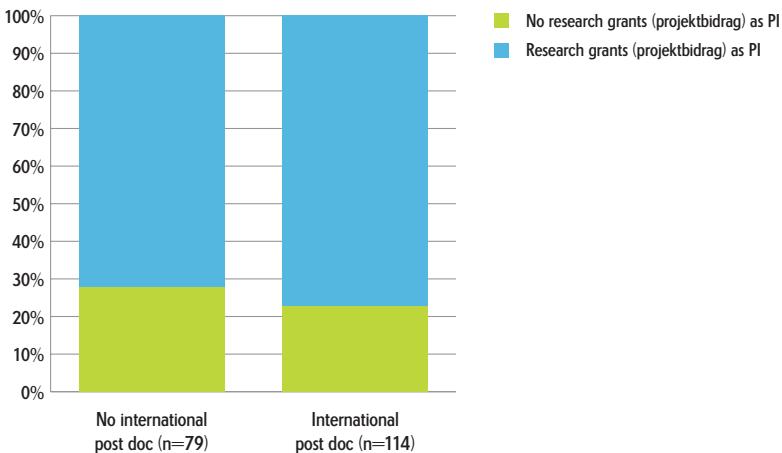


TABLE 13: Factors possibly influencing career development – international post doc.

Support at universities	<p>Mentor –There were no major differences between the groups concerning support from a mentor (including informal mentor) (Table 9).</p> <p>When asked: “Please grade your level of satisfaction regarding the following aspects of your period as a junior researcher (forskarassistent)”, those who had not been on an international post doc were generally more satisfied than those who had (Table 5).</p>
Parental leave	<p>Researchers who have been on an international post doc have taken parental leave less frequently (72% as compared to 80%), but for approximately the same number of months.</p>
Moving for work	<p>International post doc – 55% of their partners had moved with them for work, 19% of the international post docs had moved with their partners for their work.</p> <p>No international post doc – 28% of the partners had moved with them for work, 11% had moved with their partners for their work.</p>
Working hours	<p>Researchers who have been on an international post doc estimate their own working hours per week to be slightly fewer than those who have not been on a post doc do (50.4 as compared to 52.3 hours per week). They also estimate their partners’ working hours to be fewer (44.1 hours) as compared to those who have not been on a post doc (48.9 hours) (Appendix 4a).</p>
Partner’s education and profession	<p>48% of those who have been on an international post doc have a partner with a PhD, 45% have a partner working within science. The corresponding figures for those who have not been on a post doc were 52% and 55%, respectively.</p>
Support at home	<p>1% of the researchers in both post doc categories reported having a partner who does not work. Those who have been on an international post doc contribute somewhat more to the family income (Appendix 4b).</p>

SVENSK SAMMANFATTNING

Det främsta syftet med denna utvärdering är att följa upp bidragsformen anställning som forskarassistent, hur den har fungerat som finansieringsinstrument och om den inneburit ett bra sätt att stödja forskare i ett tidigt skede av deras karriär. Vi vill dessutom undersöka hur Vetenskapsrådet uppfyllt kravet om en opartisk fördelning av forskningsmedlen. Med andra ord, ger de medel som avsätts för anställningar som forskarassistent optimal återbäring i form av framstående seniora forskare i Sverige?

Resultaten från denna retrospektiva studie visar att en anställning som forskarassistent från Vetenskapsrådet haft märkbar betydelse för en akademisk karriär inom medicinsk forskning i Sverige. Jämfört med andra undersökta grupper har de som erhöll en anställning som forskarassistent från ämnesrådet för medicin i mitten eller slutet av 1990-talet i större utsträckning blivit gruppleddare inom medicinsk forskning och har oftare uppnått positioner som lektor och professor. Även i fråga om att erhålla projektbidrag som huvudsökande har deras utdelning varit bättre, och de anger en högre grad av tillfredsställelse med sin nuvarande arbetsituation vid universiteten. Vi drar därmed slutsatsen att de medel som avsattes för bidragsformen anställning som forskarassistent genom ämnesrådet för medicin under 1990-talet var välinvesterade satsningar, och att den sakkunniggranskning som användes för att fördela medlen verkligen lyckades identifiera individer med potential att bli forskningsledare inom universitet och högskolor.

I denna rapport har vi också analyserat andra faktorer som skulle kunna inverka på en karriär inom medicinsk forskning. Från enkätsvaren framstår utbildningsbakgrund som den i särklass viktigaste parametern för en akademisk karriär inom medicinsk forskning, följt av sökandens kön och att erhålla en anställning som forskarassistent. Att ha genomfört en internationell post doc visar däremot ingen positiv effekt för att erhålla en anställning som forskarassistent under de tre år som undersökts i denna studie.

Beviljandegraderna för ett antal bidragsformer vid ämnesrådet för medicin har varit, och är till viss del fortfarande, högre för män än för kvinnor¹¹. Vad gäller bidragsformen anställning som forskarassistent har skillnaderna

¹¹ Vetenskapsrådet och jämställdheten. Carolyn Glynn, Per Hyenstrand, Carl Jacobsson, Margareta Larsson, Elizabeth Lundberg, and Daniel Wadskog. Vetenskapsrådets rapportserie 17:2006.

¹¹ Equality between men and women in Swedish research funding? – An analysis of the Swedish Research Council's first years (2003-2005). Carl Jacobsson, Carolyn Glynn, and Elizabeth Lundberg (2007)

¹¹ Jämställdheten i Vetenskapsrådets forskningsstöd 2003-2007. Carl Jacobsson, and Elizabeth Lundberg (2008)

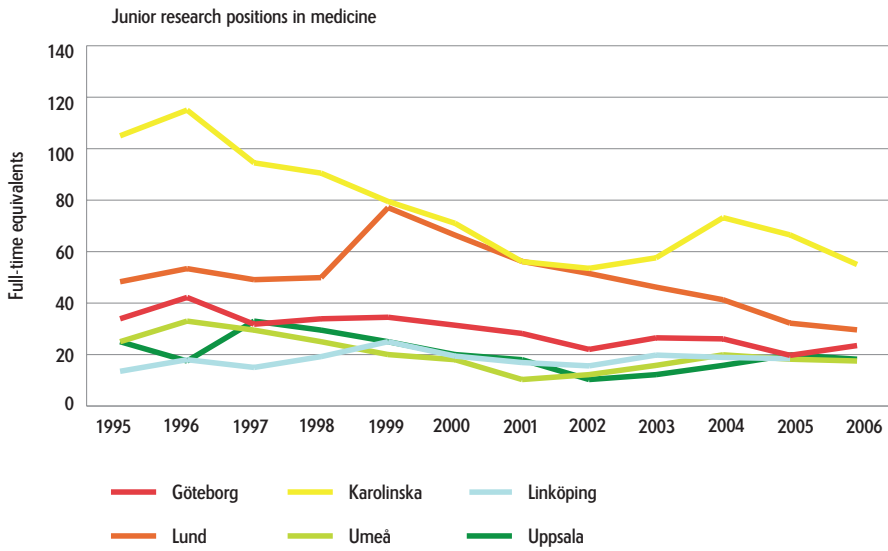
i beviljandegrad minskat över tid och är nu nästan desamma för män och kvinnor. För de tre ansökningsår som undersökts i denna studie var beviljandegraderna: 1994 25,6% för män och 5,5% för kvinnor, 1996 6,5% för män och 7,4% för kvinnor, och 1998 17,7% för män och 9,2% för kvinnor. Med avseende på arbetssituationen under perioden som forskarassistent verkar kvinnor ha varit mindre nöjda, och deras karriärer har heller inte utvecklats i samma takt som männens. Vi fann också skillnader med avseende på föräldraledighet, vilken var längre för kvinnorna, och beräknad veckoarbets-tid, vilken var längre för männen. Dessutom fann vi att kvinnor i större utsträckning än män hade anpassat sin karriär till sin partners karriär. Med största sannolikhet har en kombination av faktorer, i arbetslivet likväl som privat, gett upphov till de skillnader i karriärutveckling som vi presenterar i denna studie. Forskningsfinansiärer, som Vetenskapsrådet, måste fortsätta göra analyser och uppföljningar av bedömningar med avseende på ett flertal parametrar, som t ex kön. I detta måste vi dock också komma ihåg att en rad faktorer som är relaterade till arbetsmiljön och privatlivet inverkar på karriärutvecklingen.

Det kommer att vara av stor vikt att upprepa denna studie i en population sökande som har blivit tilldelade anställning som forskarassistent under 2000-talet för att se i vilken utsträckning de slutsatser vi dragit från denna studie även haft betydelse för karriärutveckling inom medicinsk forskning på senare tid. På samma sätt vore det av stor vikt att upprepa denna studie för de mer seniora anställningarna som forskare som även de finansieras av ämnesrådet för medicin, samt att genomföra fördjupade analyser av de arbetsförhållanden som råder för såväl unga som mer seniora forskare vid universiteten.

Sammanfattningsvis visar denna studie att de som erhållit en anställning från Vetenskapsrådets ämnesråd för medicin ofta lyckats väl i sin forskar-karriär. Med andra ord, de resurser som avsatts för anställningar som forskar-assistent, som ett instrument avsett att förstärka tillväxten av framtida vetenskapliga ledare inom medicinsk forskning, har varit välinvesterade.

APPENDIX 1

FIGURE 1: Junior research positions at the Medical faculties in Sweden as full-time equivalents (NU database, www.hsv.se). N.B. 1995 and 1996 in the figure were in the database reported as junior researchers with a PhD in 94/95, respectively.



APPENDIX 2

A) Job satisfaction, all categories.

	"Agree completely"		Have you ever held a junior research position?		
	No position	Position from SRC+other	Non-SRC-position	SRC-position	Total
It provides a very comfortable salary	23.9%	36.7%	23.9%	22.2%	25.4%
It provides many opportunities for research and creative work	41.8%	46.7%	28.3%	51.9%	42.1%
It uses all my education and skills	41.8%	40.0%	34.8%	42.6%	40.1%
It is a very secure job	14.9%	20.0%	10.9%	24.1%	17.3%
It provides good opportunities for advancement	20.9%	16.7%	8.7%	22.2%	17.8%
It allows me to increase my visibility within the profession	32.8%	46.7%	28.3%	38.9%	35.5%
My colleagues are first-rate professionals in their field	40.3%	30.0%	34.8%	40.7%	37.6%
It leaves me relatively free of supervision by others	44.8%	60.0%	45.7%	48.1%	48.2%
It gives me a chance to exercise leadership	37.3%	63.3%	37.0%	44.4%	43.1%
It provides many opportunities to be helpful to others	68.7%	63.3%	52.2%	51.9%	59.4%
Most days I enjoy it	59.7%	50.0%	39.1%	53.7%	51.8%
It gives me a feeling of worthwhile accomplishment	46.3%	53.3%	37.0%	42.6%	44.2%
	((n=67)	(n=30)	(n=46)	(n=54)	(n=197)

Green: At least 5% more than any other group. Blue: At least 5% less than any other group.

“Do not agree at all”

Have you ever held a junior research position?

	No position	Position from SRC+other	Non-SRC-position	SRC-position	Total
It provides a very comfortable salary	23.9%	13.3%	17.4%	25.9%	21.3%
It provides many opportunities for research and creative work	9.0%	3.3%	4.3%	9.3%	7.1%
It uses all my education and skills	6.0%	13.3%	15.2%	7.4%	9.6%
It is a very secure job	43.3%	46.7%	47.8%	42.6%	44.7%
It provides good opportunities for advancement	31.3%	26.7%	32.6%	24.1%	28.9%
It allows me to increase my visibility within the profession	11.9%	10.0%	17.4%	5.6%	11.2%
My colleagues are first-rate professionals in their field	7.5%	0.0%	17.4%	3.7%	7.6%
It leaves me relatively free of supervision by others	4.5%	3.3%	10.9%	7.4%	6.6%
It gives me a chance to exercise leadership	13.4%	3.3%	15.2%	7.4%	10.7%
It provides many opportunities to be helpful to others	1.5%	3.3%	0.0%	3.7%	2.0%
Most days I enjoy it	3.0%	0.0%	13.0%	1.9%	4.6%
It gives me a feeling of worthwhile accomplishment	4.5%	10.0%	13.0%	7.4%	8.1%
	((n=67)	(n=30)	(n=46)	(n=54)	(n=197)

Green: At least 5% more than any other group. Blue: At least 5% less than any other group.

b) Job satisfaction among university employees, but excluding those who received their positions from funding organisations practicing peer review other than the SRC.

"Agree completely"	No position	Non-SRC Position (peer review excluded)	SRC-position
It provides a very comfortable salary	20.0%	13.8%	25.8%
It provides many opportunities for research and creative work	42.5%	31.0%	56.5%
It uses all my education and skills	47.5%	31.0%	45.2%
It is a very secure job	7.5%	6.9%	22.6%
It provides good opportunities for advancement	20.0%	6.9%	16.1%
It allows me to increase my visibility within the profession	35.0%	20.7%	41.9%
My colleagues are first-rate professionals in their field	42.5%	27.6%	35.5%
It leaves me relatively free of supervision by others	45.0%	41.4%	61.3%
It gives me a chance to exercise leadership	32.5%	27.6%	56.5%
It provides many opportunities to be helpful to others	75.0%	51.7%	58.1%
Most days I enjoy it	55.0%	41.4%	56.5%
It gives me a feeling of worthwhile accomplishment	40.0%	27.6%	50.0%
	(n=40)	(n=29)	(n=62)

Green: At least 5% more than any other group. Blue: At least 5% less than any other group.

	No position	Non-SRC Position (peer review excluded)	SRC-position
“Do not agree at all”			
It provides a very comfortable salary	25.0%	20.7%	21.0%
It provides many opportunities for research and creative work	10.0%	6.9%	6.5%
It uses all my education and skills	2.5%	13.8%	9.7%
It is a very secure job	57.5%	55.2%	45.2%
It provides good opportunities for advancement	37.5%	37.9%	21.0%
It allows me to increase my visibility within the profession	7.5%	24.1%	3.2%
My colleagues are first-rate professionals in their field	7.5%	20.7%	1.6%
It leaves me relatively free of supervision by others	2.5%	17.2%	3.2%
It gives me a chance to exercise leadership	15.0%	17.2%	1.6%
It provides many opportunities to be helpful to others	0.0%	0.0%	3.2%
Most days I enjoy it	2.5%	20.7%	0.0%
It gives me a feeling of worthwhile accomplishment	2.5%	17.2%	11.3%
	(n=40)	(n=29)	(n=62)

Green: At least 5% more than any other group. Blue: At least 5% less than any other group.

c) Job satisfaction among university employees, but only including those who received their positions from faculty funding or the SRC, or those who had not held a junior research position.

"Agree completely"	No position	Non-SRC Position (peer review excluded)	SRC-position
It provides a very comfortable salary	20.0%	9.1%	25.8%
It provides many opportunities for research and creative work	42.5%	40.9%	56.5%
It uses all my education and skills	47.5%	31.8%	45.2%
It is a very secure job	7.5%	9.1%	22.6%
It provides good opportunities for advancement	20.0%	9.1%	16.1%
It allows me to increase my visibility within the profession	35.0%	22.7%	41.9%
My colleagues are first-rate professionals in their field	42.5%	31.8%	35.5%
It leaves me relatively free of supervision by others	45.0%	45.5%	61.3%
It gives me a chance to exercise leadership	32.5%	27.3%	56.5%
It provides many opportunities to be helpful to others	75.0%	54.5%	58.1%
Most days I enjoy it	55.0%	45.5%	56.5%
It gives me a feeling of worthwhile accomplishment	40.0%	27.3%	50.0%
	(n=40)	(n=22)	(n=62)

Green: At least 5% more than any other group. Blue: At least 5% less than any other group.

	No position	Non-SRC Position (peer review excluded)	SRC-position
“Do not agree at all”			
It provides a very comfortable salary	25.0%	27.3%	21.0%
It provides many opportunities for research and creative work	10.0%	0.0%	6.5%
It uses all my education and skills	2.5%	13.6%	9.7%
It is a very secure job	57.5%	54.5%	45.2%
It provides good opportunities for advancement	37.5%	31.8%	21.0%
It allows me to increase my visibility within the profession	7.5%	22.7%	3.2%
My colleagues are first-rate professionals in their field	7.5%	22.7%	1.6%
It leaves me relatively free of supervision by others	2.5%	13.6%	3.2%
It gives me a chance to exercise leadership	15.0%	13.6%	1.6%
It provides many opportunities to be helpful to others	0.0%	0.0%	3.2%
Most days I enjoy it	2.5%	13.6%	0.0%
It gives me a feeling of worthwhile accomplishment	2.5%	13.6%	11.3%
	(n=40)	(n=22)	(n=62)

Green: At least 5% more than any other group. Blue: At least 5% less than any other group.

d) Job satisfaction in all categories, but excluding those who received their positions from funding organisations other than the SRC practicing peer review.

"Agree completely"	No position	Non-SRC Position (peer review excluded)	SRC-position
It provides a very comfortable salary	23.9%	23.1%	27.7%
It provides many opportunities for research and creative work	41.8%	28.2%	50.6%
It uses all my education and skills	41.8%	35.9%	42.2%
It is a very secure job	14.9%	12.8%	22.9%
It provides good opportunities for advancement	20.9%	5.1%	20.5%
It allows me to increase my visibility within the profession	32.8%	28.2%	42.2%
My colleagues are first-rate professionals in their field	40.3%	33.3%	37.3%
It leaves me relatively free of supervision by others	44.8%	43.6%	53.0%
It gives me a chance to exercise leadership	37.3%	35.9%	51.8%
It provides many opportunities to be helpful to others	68.7%	53.8%	56.6%
Most days I enjoy it	59.7%	41.0%	53.0%
It gives me a feeling of worthwhile accomplishment	46.3%	35.9%	47.0%
	(n=67)	(n=39)	(n=83)

Green: At least 5% more than any other group. Blue: At least 5% less than any other group.

	No position	Non-SRC Position (peer review excluded)	SRC- position
“Do not agree at all”			
It provides a very comfortable salary	23.9%	17.9%	21.7%
It provides many opportunities for research and creative work	9.0%	5.1%	7.2%
It uses all my education and skills	6.0%	15.4%	9.6%
It is a very secure job	43.3%	46.2%	44.6%
It provides good opportunities for advancement	31.3%	33.3%	25.3%
It allows me to increase my visibility within the profession	11.9%	17.9%	7.2%
My colleagues are first-rate professionals in their field	7.5%	20.5%	2.4%
It leaves me relatively free of supervision by others	4.5%	12.8%	6.0%
It gives me a chance to exercise leadership	13.4%	17.9%	6.0%
It provides many opportunities to be helpful to others	1.5%	0.0%	3.6%
Most days I enjoy it	3.0%	15.4%	1.2%
It gives me a feeling of worthwhile accomplishment	4.5%	15.4%	8.4%
	(n=67)	(n=39)	(n=83)

Green: At least 5% more than any other group. Blue: At least 5% less than any other group.

ε) Job satisfaction in all employer-categories, but only including those who received their positions from faculty funding or the SRC, or those who had not held a junior research position.

“Agree completely”	No position	Faculty position	SRC-position
It provides a very comfortable salary	23.9%	20.7%	27.7%
It provides many opportunities for research and creative work	41.8%	37.9%	50.6%
It uses all my education and skills	41.8%	41.4%	42.2%
It is a very secure job	14.9%	13.8%	22.9%
It provides good opportunities for advancement	20.9%	6.9%	20.5%
It allows me to increase my visibility within the profession	32.8%	27.6%	42.2%
My colleagues are first-rate professionals in their field	40.3%	34.5%	37.3%
It leaves me relatively free of supervision by others	44.8%	48.3%	53.0%
It gives me a chance to exercise leadership	37.3%	34.5%	51.8%
It provides many opportunities to be helpful to others	68.7%	55.2%	56.6%
Most days I enjoy it	59.7%	44.8%	53.0%
It gives me a feeling of worthwhile accomplishment	46.3%	34.5%	47.0%
	(n=67)	(n=29)	(n=83)

Green: At least 5% more than any other group. Blue: At least 5% less than any other group.

“Do not agree at all”	No position	Faculty position	SRC-position
It provides a very comfortable salary	23.9%	20.7%	21.7%
It provides many opportunities for research and creative work	9.0%	0.0%	7.2%
It uses all my education and skills	6.0%	13.8%	9.6%
It is a very secure job	43.3%	48.3%	44.6%
It provides good opportunities for advancement	31.3%	24.1%	25.3%
It allows me to increase my visibility within the profession	11.9%	17.2%	7.2%
My colleagues are first-rate professionals in their field	7.5%	20.7%	2.4%
It leaves me relatively free of supervision by others	4.5%	10.3%	6.0%
It gives me a chance to exercise leadership	13.4%	13.8%	6.0%
It provides many opportunities to be helpful to others	1.5%	0.0%	3.6%
Most days I enjoy it	3.0%	10.3%	1.2%
It gives me a feeling of worthwhile accomplishment	4.5%	13.8%	8.4%
	(n=67)	(n=29)	(n=83)

Green: At least 5% more than any other group. Blue: At least 5% less than any other group.

f) Job satisfaction in all categories – MDs (läkarexamen) and other educational backgrounds.

“Agree completely”	Medical degree	Non-medical degree	Total
It provides a very comfortable salary	26.7%	25.0%	25.5%
It provides many opportunities for research and creative work	40.0%	43.4%	42.3%
It uses all my education and skills	41.7%	39.7%	40.3%
It is a very secure job	25.0%	14.0%	17.3%
It provides good opportunities for advancement	25.0%	14.7%	17.9%
It allows me to increase my visibility within the profession	43.3%	32.4%	35.7%
My colleagues are first-rate professionals in their field	40.0%	36.8%	37.8%
It leaves me relatively free of supervision by others	48.3%	48.5%	48.5%
It gives me a chance to exercise leadership	46.7%	41.9%	43.4%
It provides many opportunities to be helpful to others	53.3%	62.5%	59.7%
Most days I enjoy it	60.0%	48.5%	52.0%
It gives me a feeling of worthwhile accomplishment	55.0%	39.7%	44.4%
	(n=60)	(n=136)	(m=196)

Green: At least 5% more than any other group.

“Do not agree at all”	Medical degree	Non-medical degree	Total
It provides a very comfortable salary	20.0%	22.1%	21.4%
It provides many opportunities for research and creative work	10.0%	5.9%	7.1%
It uses all my education and skills	10.0%	9.6%	9.7%
It is a very secure job	35.0%	49.3%	44.9%
It provides good opportunities for advancement	20.0%	33.1%	29.1%
It allows me to increase my visibility within the profession	10.0%	11.8%	11.2%
My colleagues are first-rate professionals in their field	6.7%	8.1%	7.7%
It leaves me relatively free of supervision by others	6.7%	6.6%	6.6%
It gives me a chance to exercise leadership	10.0%	11.0%	10.7%
It provides many opportunities to be helpful to others	0.0%	2.9%	2.0%
Most days I enjoy it	6.7%	3.7%	4.6%
It gives me a feeling of worthwhile accomplishment	5.0%	9.6%	8.2%
	(n=60)	(n=136)	(m=196)

Green: At least 5% more than the other group.

g) Job satisfaction among university employees – MDs (läkarexamen) and other educational backgrounds.

“Agree completely”	Medical degree	Non-medical degree	Total
It provides a very comfortable salary	22.5%	20.6%	21.2%
It provides many opportunities for research and creative work	47.5%	44.3%	45.3%
It uses all my education and skills	42.5%	41.2%	41.6%
It is a very secure job	22.5%	10.3%	13.9%
It provides good opportunities for advancement	20.0%	13.4%	15.3%
It allows me to increase my visibility within the profession	42.5%	30.9%	34.3%
My colleagues are first-rate professionals in their field	35.0%	36.1%	35.8%
It leaves me relatively free of supervision by others	55.0%	50.5%	51.8%
It gives me a chance to exercise leadership	47.5%	40.2%	42.3%
It provides many opportunities to be helpful to others	50.0%	64.9%	60.6%
Most days I enjoy it	55.0%	49.5%	51.1%
It gives me a feeling of worthwhile accomplishment	52.5%	37.1%	41.6%
	(n=40)	(n=97)	(n=137)

Green: At least 5% more than any other group.

"Do not agree at all"	Medical degree	Non-medical degree	Total
It provides a very comfortable salary	20.0%	22.7%	21.9%
It provides many opportunities for research and creative work	7.5%	7.2%	7.3%
It uses all my education and skills	10.0%	8.2%	8.8%
It is a very secure job	42.5%	55.7%	51.8%
It provides good opportunities for advancement	22.5%	33.0%	29.9%
It allows me to increase my visibility within the profession	12.5%	8.2%	9.5%
My colleagues are first-rate professionals in their field	7.5%	7.2%	7.3%
It leaves me relatively free of supervision by others	7.5%	5.2%	5.8%
It gives me a chance to exercise leadership	7.5%	9.3%	8.8%
It provides many opportunities to be helpful to others	0.0%	2.1%	1.5%
Most days I enjoy it	7.5%	4.1%	5.1%
It gives me a feeling of worthwhile accomplishment	7.5%	10.3%	9.5%
	(n=40)	(n=97)	(n=137)

Green: At least 5% more than the other group.

H) Job satisfaction all categories – men and women.

“Agree completely”	Women	Men	Total
It provides a very comfortable salary	23.2%	27.5%	25.4%
It provides many opportunities for research and creative work	42.1%	42.2%	42.1%
It uses all my education and skills	44.2%	36.3%	40.1%
It is a very secure job	11.6%	22.5%	17.3%
It provides good opportunities for advancement	20.0%	15.7%	17.8%
It allows me to increase my visibility within the profession	31.6%	39.2%	35.5%
My colleagues are first-rate professionals in their field	40.0%	35.3%	37.6%
It leaves me relatively free of supervision by others	49.5%	47.1%	48.2%
It gives me a chance to exercise leadership	41.1%	45.1%	43.1%
It provides many opportunities to be helpful to others	65.3%	53.9%	59.4%
Most days I enjoy it	51.6%	52.0%	51.8%
It gives me a feeling of worthwhile accomplishment	44.2%	44.1%	44.2%
	(n=95)	(n=102)	(n=197)

Green: At least 5% more than any other group.

“Do not agree at all”	Women	Men	Total
It provides a very comfortable salary	27.4%	15.7%	21.3%
It provides many opportunities for research and creative work	8.4%	5.9%	7.1%
It uses all my education and skills	9.5%	9.8%	9.6%
It is a very secure job	56.8%	33.3%	44.7%
It provides good opportunities for advancement	27.4%	30.4%	28.9%
It allows me to increase my visibility within the profession	10.5%	11.8%	11.2%
My colleagues are first-rate professionals in their field	8.4%	6.9%	7.6%
It leaves me relatively free of supervision by others	5.3%	7.8%	6.6%
It gives me a chance to exercise leadership	6.3%	14.7%	10.7%
It provides many opportunities to be helpful to others	2.1%	2.0%	2.0%
Most days I enjoy it	3.2%	5.9%	4.6%
It gives me a feeling of worthwhile accomplishment	7.4%	8.8%	8.1%
	(n=95)	(n=102)	(n=197)

Green: At least 5% more than the other group.

i) Job satisfaction among university employees – men and women.

“Agree completely”	Women	Men	Total
It provides a very comfortable salary	20.0%	22.2%	21.2%
It provides many opportunities for research and creative work	47.7%	43.1%	45.3%
It uses all my education and skills	46.2%	37.5%	41.6%
It is a very secure job	7.7%	19.4%	13.9%
It provides good opportunities for advancement	18.5%	12.5%	15.3%
It allows me to increase my visibility within the profession	27.7%	40.3%	34.3%
My colleagues are first-rate professionals in their field	35.4%	36.1%	35.8%
It leaves me relatively free of supervision by others	50.8%	52.8%	51.8%
It gives me a chance to exercise leadership	40.0%	44.4%	42.3%
It provides many opportunities to be helpful to others	66.2%	55.6%	60.6%
Most days I enjoy it	50.8%	51.4%	51.1%
It gives me a feeling of worthwhile accomplishment	40.0%	43.1%	41.6%
	(n=65)	(n=72)	(n=137)

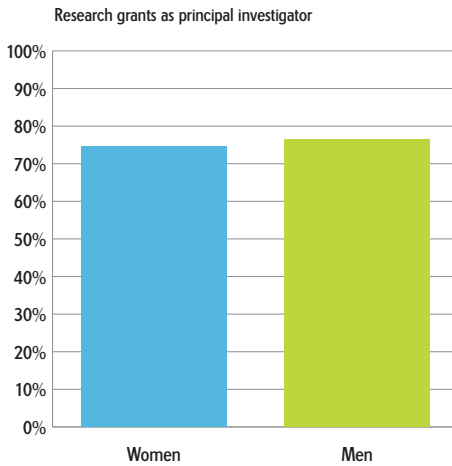
Green: At least 5% more than any other group.

“Do not agree at all”	Women	Men	Total
It provides a very comfortable salary	29.2%	15.3%	21.9%
It provides many opportunities for research and creative work	12.3%	2.8%	7.3%
It uses all my education and skills	10.8%	6.9%	8.8%
It is a very secure job	69.2%	36.1%	51.8%
It provides good opportunities for advancement	27.7%	31.9%	29.9%
It allows me to increase my visibility within the profession	7.7%	11.1%	9.5%
My colleagues are first-rate professionals in their field	6.2%	8.3%	7.3%
It leaves me relatively free of supervision by others	4.6%	6.9%	5.8%
It gives me a chance to exercise leadership	3.1%	13.9%	8.8%
It provides many opportunities to be helpful to others	1.5%	1.4%	1.5%
Most days I enjoy it	4.6%	5.6%	5.1%
It gives me a feeling of worthwhile accomplishment	9.2%	9.7%	9.5%
	(n=65)	(n=72)	(n=137)

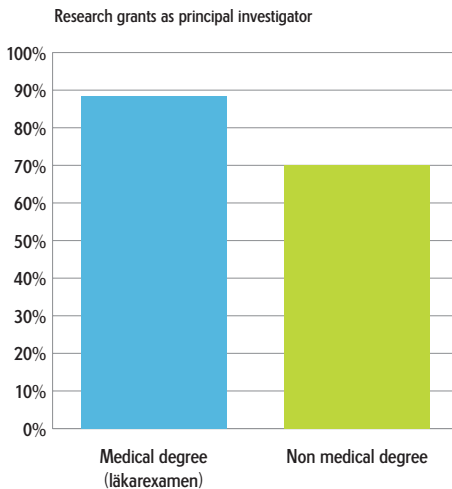
Green: At least 5% more than the other group.

APPENDIX 3

A) The percentage who responded 'yes' to the question "Have you ever received research grants as principal investigator from any of the following funding agencies: The Swedish Research Council, VINNOVA, FAS, SSF, KVA, Cancerfonden, Hjärt-lungfonden, ALF/TUA, KA Wallenbergstiftelsen, Barncancerfonden, international funds?" (Women n=95, men n=102).

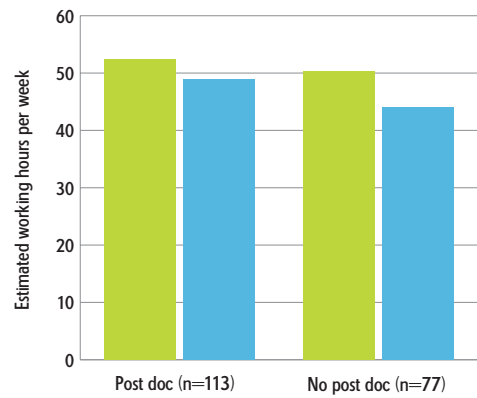
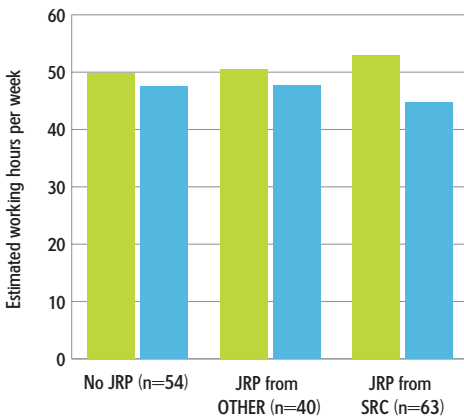
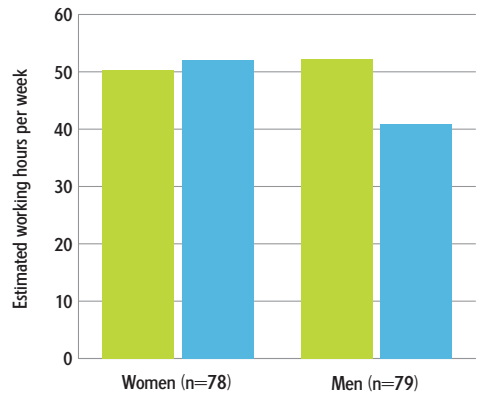
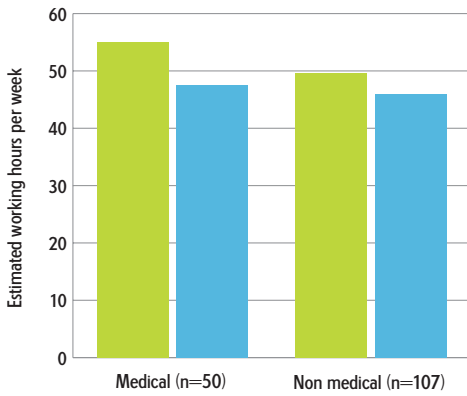


B) The percentage who responded 'yes' to the question "Have you ever received research grants as principal investigator from any of the following funding agencies: The Swedish Research Council, VINNOVA, FAS, SSF, KVA, Cancerfonden, Hjärt-lungfonden, ALF/TUA, KA Wallenbergstiftelsen, Barncancerfonden, international funds?" (MDs n=60, non-MDs n=137).



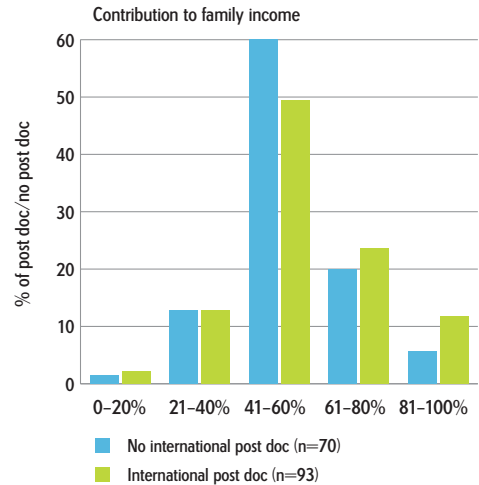
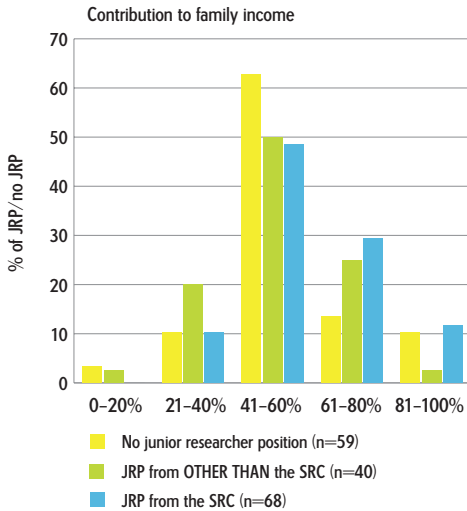
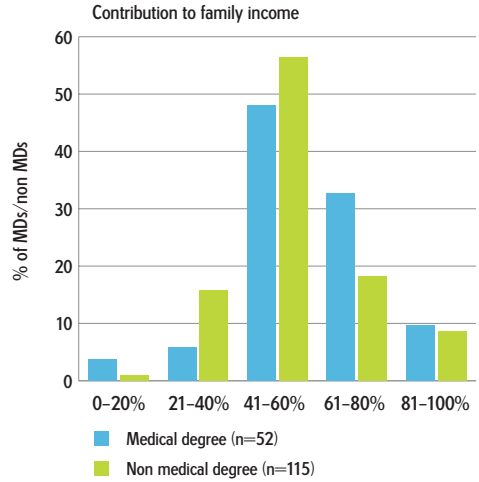
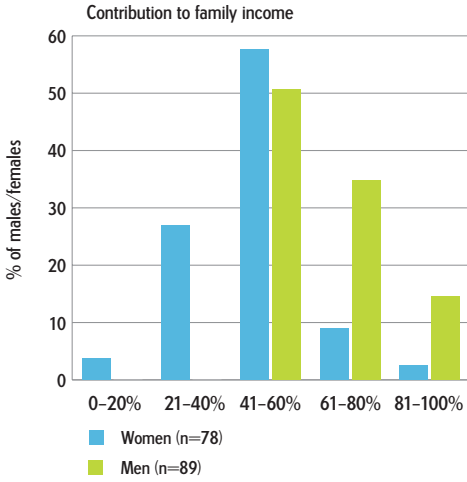
APPENDIX 4

a) Scientists' estimates of their own and their partners' working hours per week.



■ Average working hours
■ Partner's average working hours

B) Distribution of family income as divided into different categories.



This report is a follow up on the junior researcher programme as a funding instrument at the Swedish Research Council, Medicine. The evaluation is based on a survey sent to researchers who applied for junior research positions within medicine in the mid and late 1990s, examining their careers retrospectively.

The conclusions are that those appointed a junior research position from the Scientific Council of Medicine are frequently found to pursue successful scientific careers. Hence, the resources allocated for junior research positions to boost development of future scientific leaders in medical research have been well-invested. However, there are differences for men and women, most likely reflecting a combination of factors including professional and private life.



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The Swedish Research Council is a government agency that provides funding for basic research of the highest scientific quality in all disciplinary domains. Besides research funding, the agency works with strategy, analysis, and research communication. The objective is for Sweden to be a leading research nation.

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