The 3rd Large-Scale Survey of Actual Conditions of Gender Equality in Scientific and Technological Professions

Survey Report

Concise Summary

August 2013

Japan Inter-Society Liaison Association Committee for Promoting Equal Participation of Men and Women in Science and Engineering (EPMEWSE)

Concise Summary of “The 3rd Large-Scale Survey of Actual Conditions of Gender Equality in Scientific and Technological Professions (Survey Report)”

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JAPAN

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Preface

We are pleased to announce here that there is now an English version of “The 3rd Large-Scale Survey of Actual Conditions of Gender Equality in Scientific and Technological Professions” conducted by “The Japan Inter-Society Liaison Association Committee for Promoting Equal Participation of Men and Women in Science and Engineering (EPMEWSE).” At the same time, the association hopes that access to an English version of the survey results will improve understanding and cooperation for the gender equity movement in Japan.

Since entering the 21st century, the issues of a declining birth rate, an aging population and unemployment have come to the forefront in Japan, and these problems are about to bring significant changes to the lives of its citizens. In order for Japan to remain a world leader in science and technology, it must drive forward the science and technology fields while at the same time improve the environment for the wide range of people actually involved in research and management of those fields. Therefore, it is important to identify problems through continuous examination of the society’s “mechanisms” and “ways.” An issue cited from the perspective of society diversity is gender equality. The Basic Act for a Gender-Equal Society was enacted 14 years ago, and 41 years have already passed since the enactment of the Equal Employment Opportunity Act. It is about time gender equality is fully realized, as those words should be terms of the past. Unfortunately, it is difficult to say the present situation is at that stage. In recent years, problems with gender equality have been brought to light from surveys conducted by various circles. However, very few surveys have focused on gender equality in research and engineering professions.

In November 2012, we, EPMEWSE, conducted a third large-scale survey, which was for the first time in five years. To enable the result of this survey to be compared with the previous two surveys, no major changes were made to the topics. For example, items related to “regular employment and non-regular employment,” currently considered a major issue, remain to be investigated. On the other hand, new topics addressing issues that have gained attention in the last five years (e.g. nursing care) have been added. Approaching the investigation from a variety of perspectives, including those mentioned above, not only provided insight into gender equality, but from the researchers’ and engineers’ various employment statuses, affiliated organizations and fields of expertise, understanding of the current situation and changes in overall equality of the science and technology fields was obtained. Among them is the need to consider family and environment as well as the researchers and engineers themselves, that is, the issues of work-life balance and career path are included. Additionally, the awareness and perception of “positive action” measures including those established by the Japanese government to promote gender equality were studied. Listening to the voices of actual researchers will lead to effective bottom-up style recommendations.

Although an effort was made to include fewer items than on previous surveys, the latest survey had nearly 80 items and required approximately 30 minutes to answer. Despite the length, there were more than 16,000 respondents, surpassing the number received previously, which suggests that interest in the topic continues to remain high. Furthermore, many interesting findings were obtained when compared with the previous surveys. Surveys such as this with so many parameters are extremely valuable. Expectation is high that this report will not simply end as a data report but will aid the various individuals and groups that further promote gender equality.

Chapter 1 Summary of Results

1.1 Basic Data

Total number of respondents for this survey was 16,314 (an increase of 15.6% from the previous survey's 14,110).

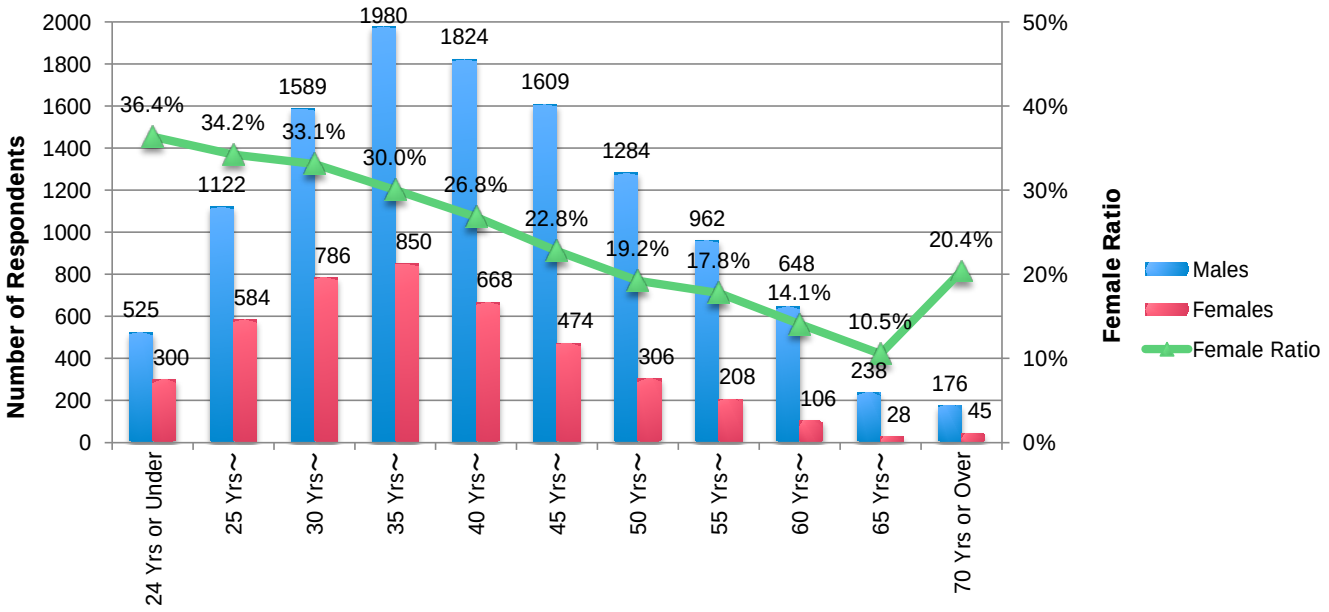


Figure 1.1 Age Distribution of Respondents and Percentage of Females

Age Group (Question 1; Figure 1.1)

The largest number of responses came from people in their 30's. The under-24 age group had the highest percentage of female respondents (36.4%).

Gender (Question 2)

There were 11,958 male and 4,356 female (26.7%, same as previous survey) respondents.

Highest Academic Degree (Questions 3, 4; Figures 1.2-5)

The percentage of respondents with a doctoral degree is approximately 70%, which is an increase from the previous survey.

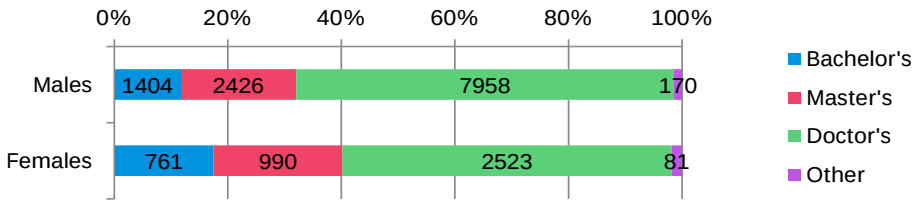


Figure 1.2 Highest Academic Degree

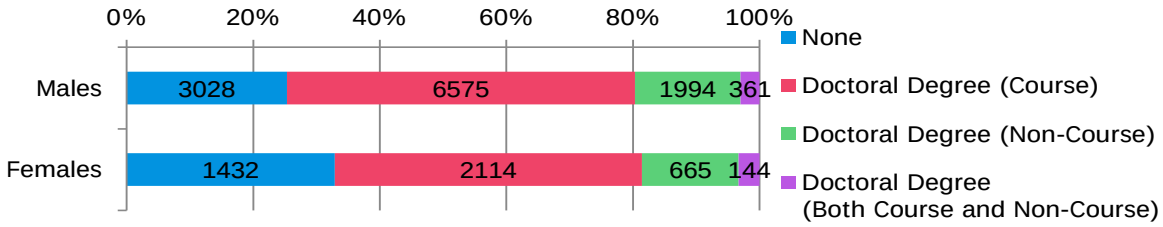


Figure 1.3 Types of Doctoral Degree

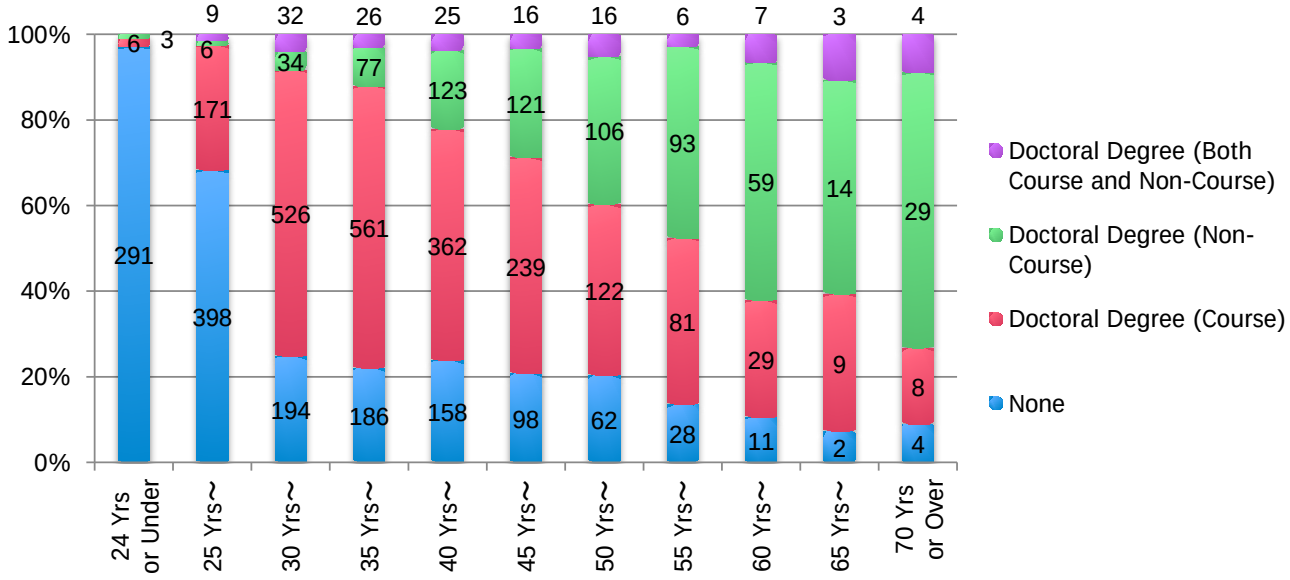


Figure 1.4 Female Respondents with Doctoral Degree by Age Group

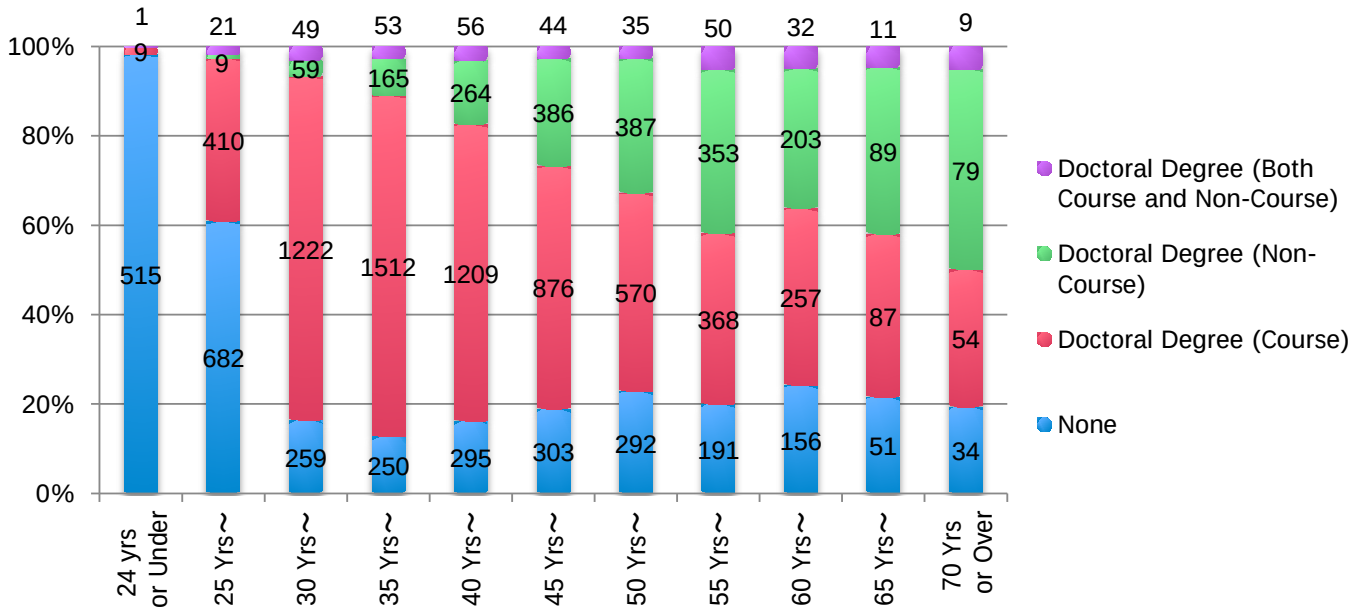


Figure 1.5 Male Respondents with Doctoral Degree by Age Group

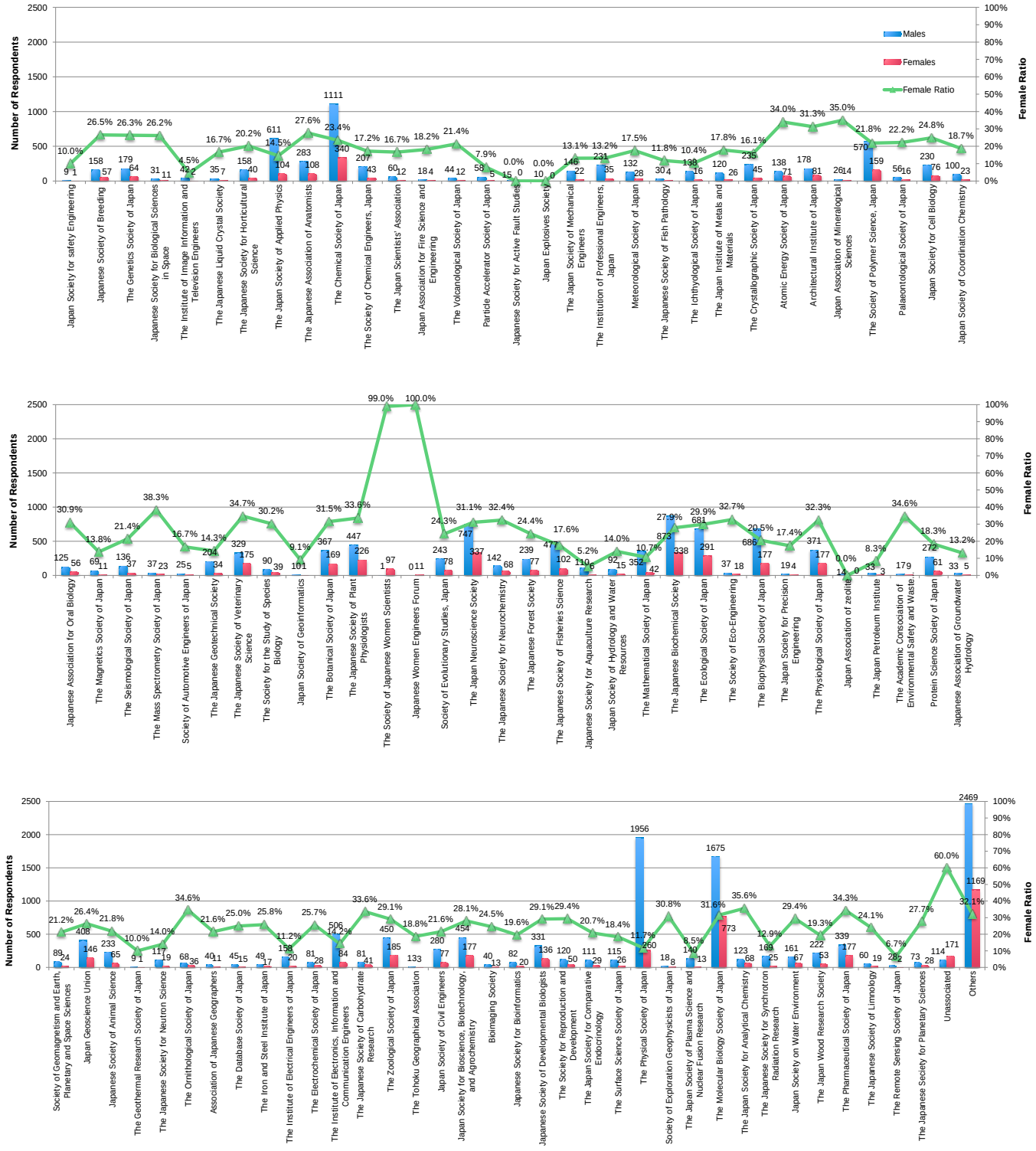


Figure 1.6 Respondents' Affiliated Academic Society and Percentage of Females

Job Categories (Question 6.1; Figures 1.7-9)

Comparing research and technical jobs, as before, about 80% of both males and females are in research positions.

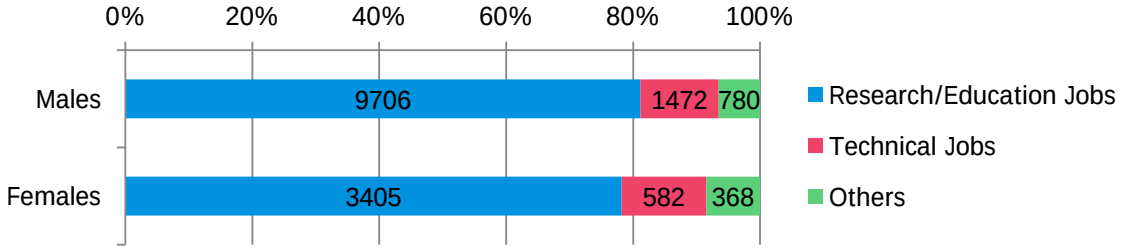


Figure 1.7 Percentage of Research/Education and Technical Jobs

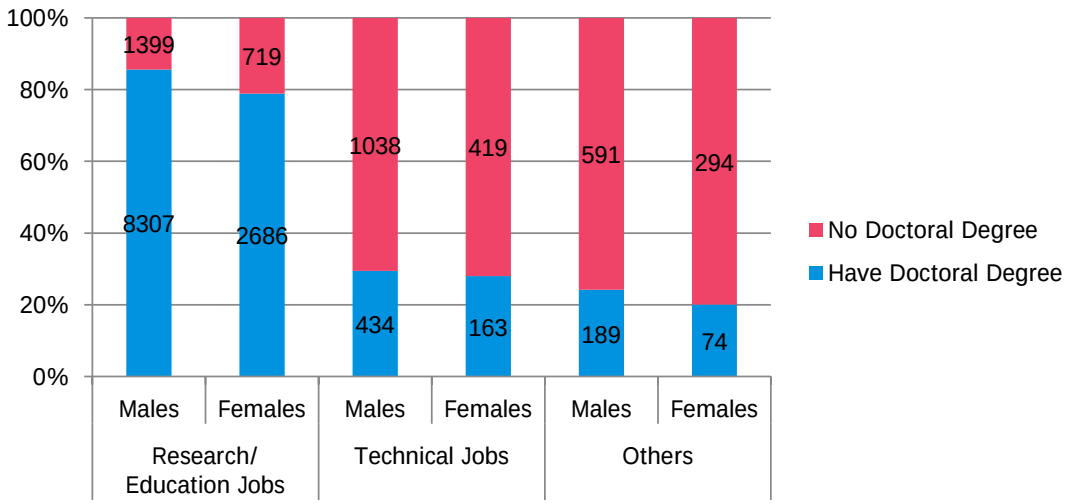


Figure 1.8 Respondents with Doctoral Degree by Job Category

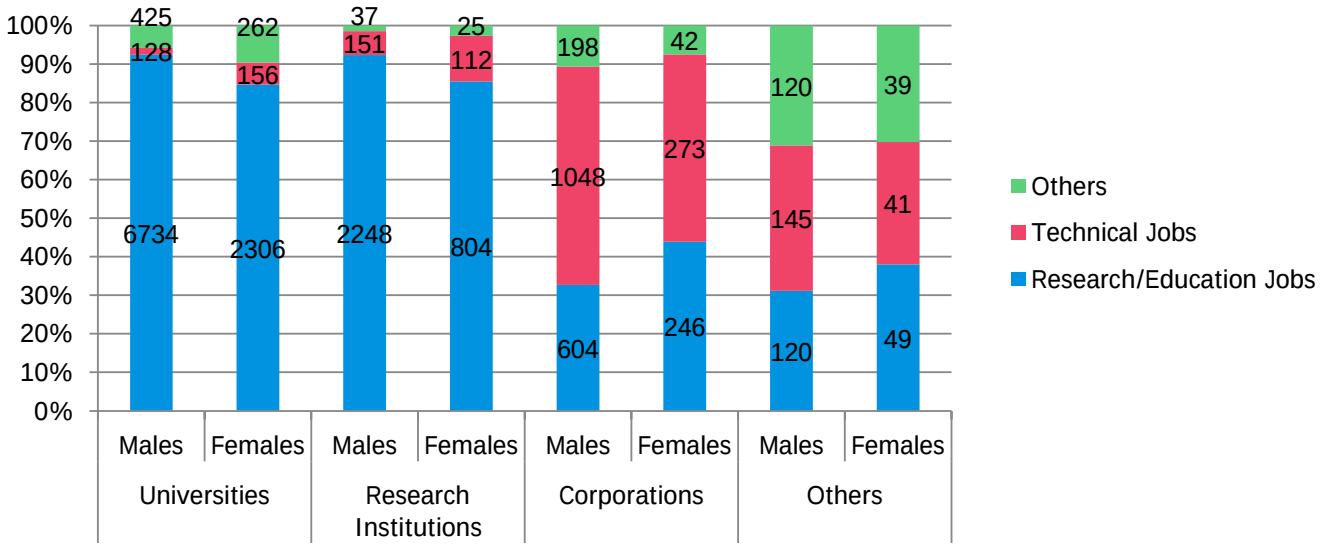


Figure 1.9 Respondents' Job Category by Affiliated Institution

Profession (Questions 6.2, 6.3; Figure 1.10)

By affiliated field, number of respondents from highest to lowest was science, engineering, agricultural and health (medical, dentistry, pharmacy). Previously, the number of respondents in the engineering field was extremely high, and should be noted when making comparisons. As for profession, result was similar to the previous survey with life science/biology having the most number of respondents.

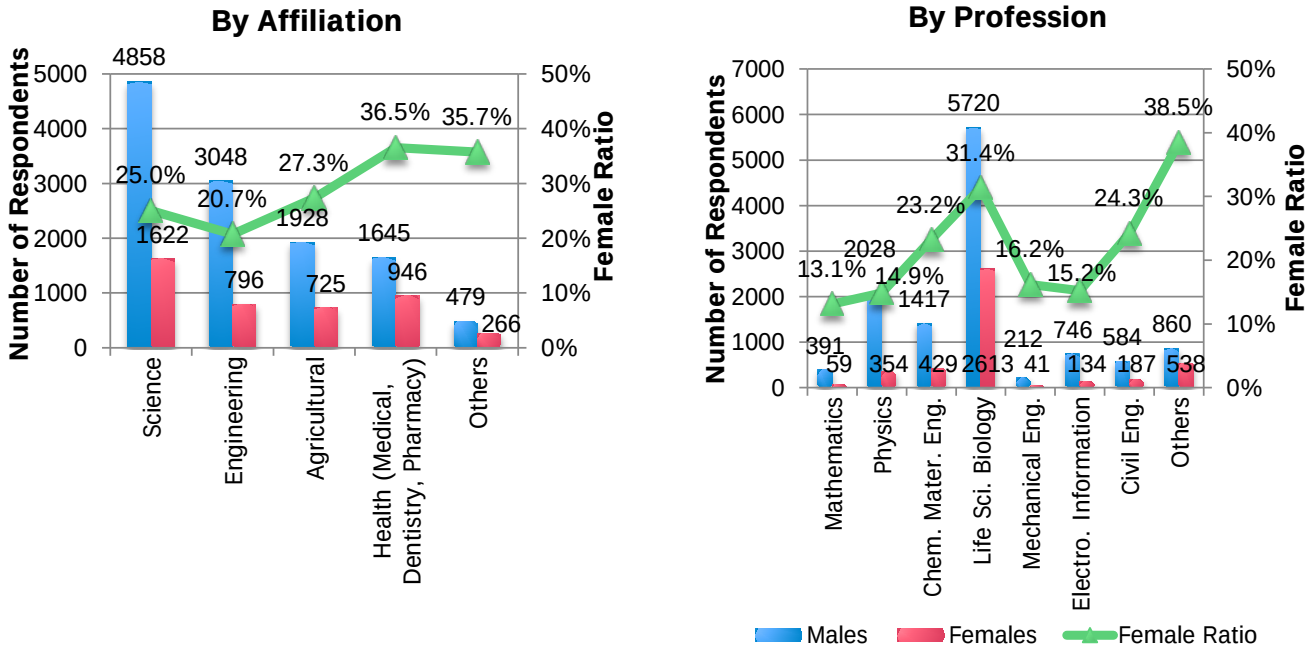


Figure 1.10 Number of Respondents by Affiliated Field/Profession

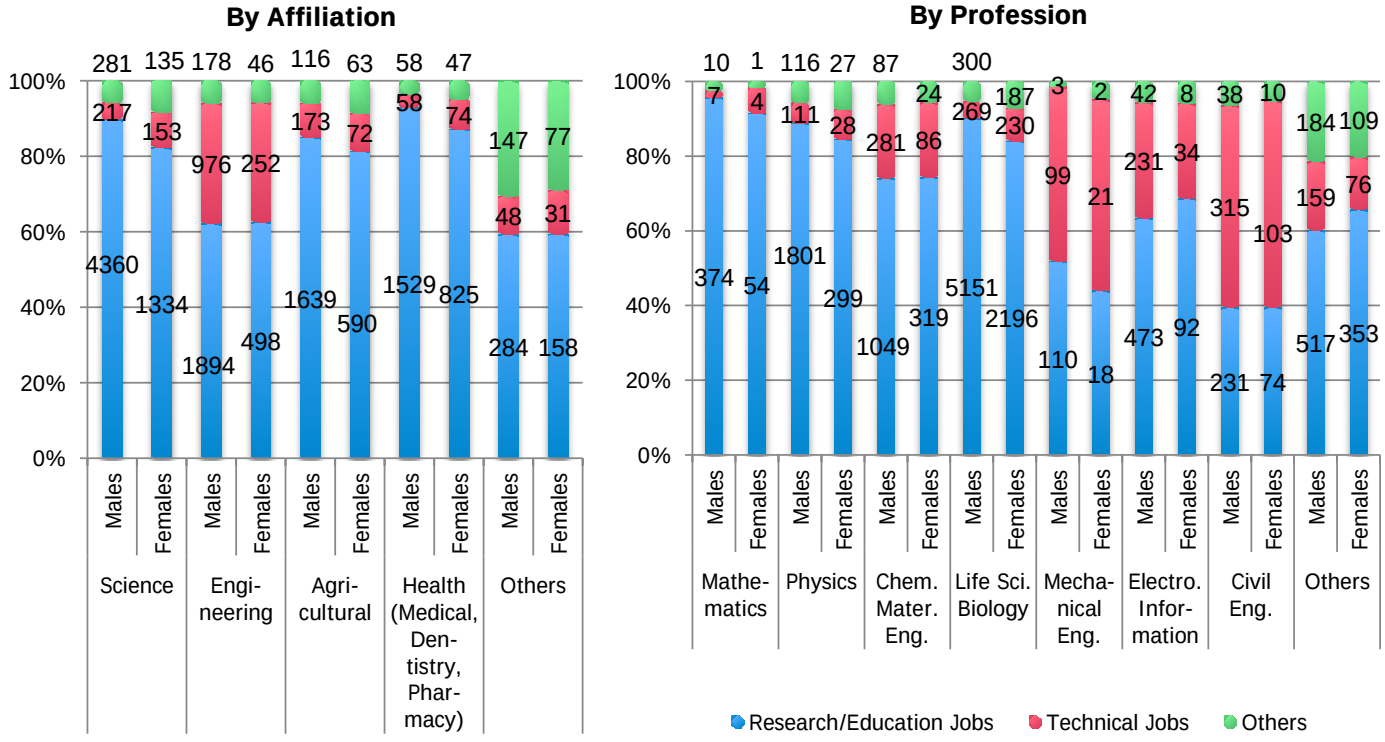


Figure 1.11 Respondents' Job Category by Affiliated Field/Profession

Affiliated Institution (Question 7; Figures 1.12-16)

Respondents affiliated with universities increased (61.4%, previously 53.6%) while those affiliated with corporations decreased (14.8%, previously 23.2%).

No significant difference can be seen between males and females in the breakdown of their professions.

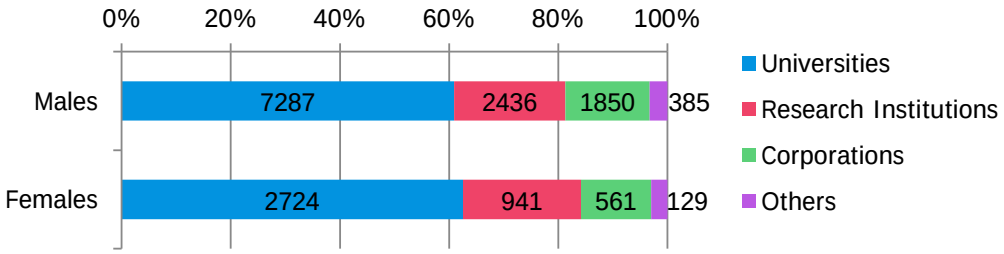


Figure 1.12 Respondents' Affiliated Institution

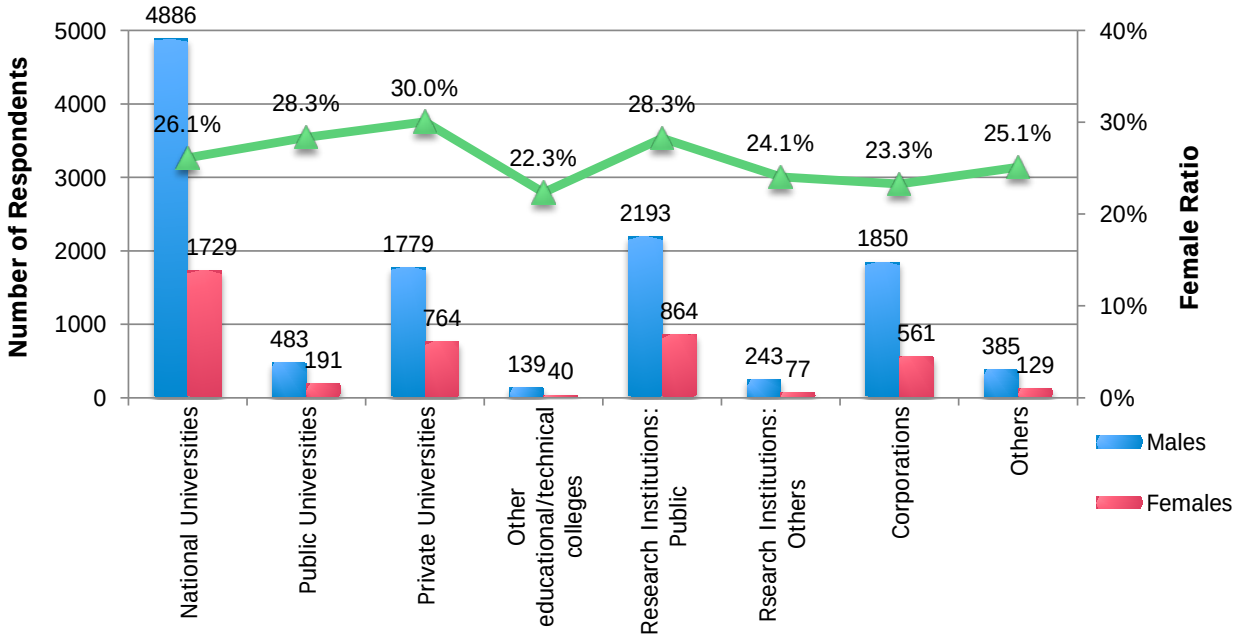


Figure 1.13 Number of Respondents by Institution and Percentage of Females

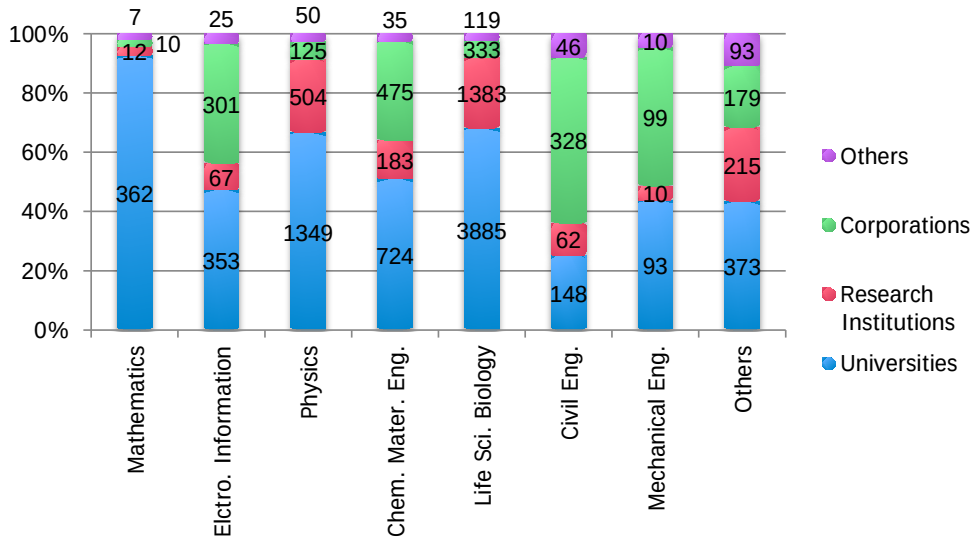


Figure 1.14 Male Respondents' Affiliated Institutions by Profession

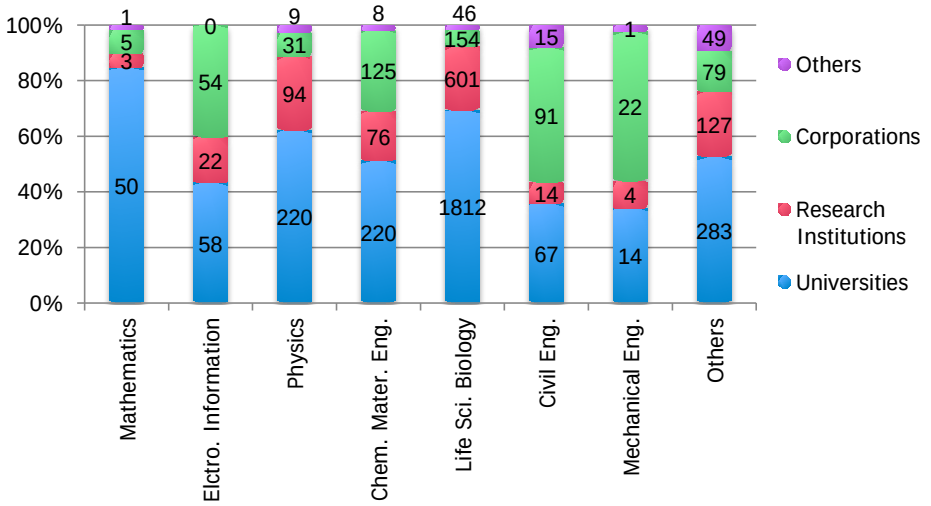


Figure 1.15 Female Respondents' Affiliated Institution by Profession

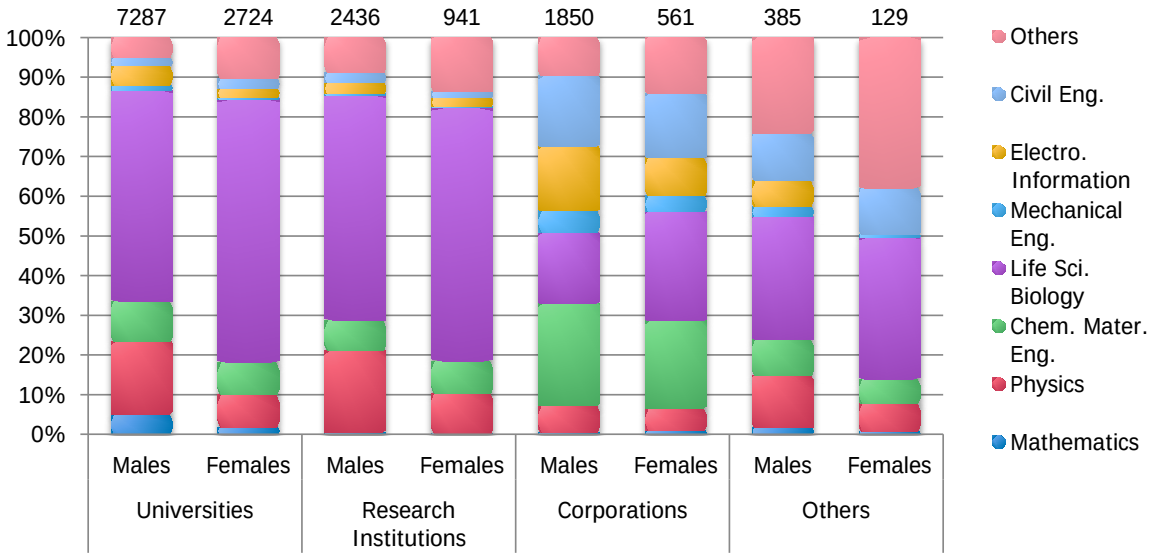


Figure 1.16 Breakdown of Professions by Affiliated Institution

Job Positions (Question 8; Figure 1.17)

Similar to previous surveys, as position becomes higher, percentage of females becomes lower.

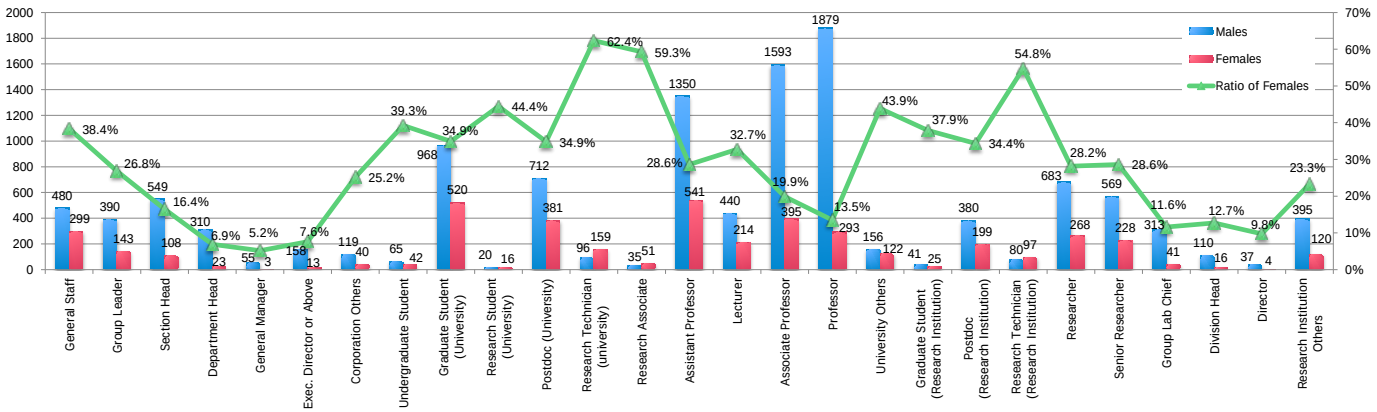


Figure 1.17 Job Positions and Percentage of Females

Annual Salary (Question 9; Figures 1.18-19)

There was a decrease from the previous survey in all categories.

When viewed by affiliated institution, the average annual salary of females is about 80% of the males in almost all age groups. This gender difference is thought to be largely due to differences in employment statuses and job positions.

While the age at which average annual salary peaked differed for males and females in the previous survey, the trend was the same for both genders this time around (late 50's for corporations/research institutions, early 60's for universities).

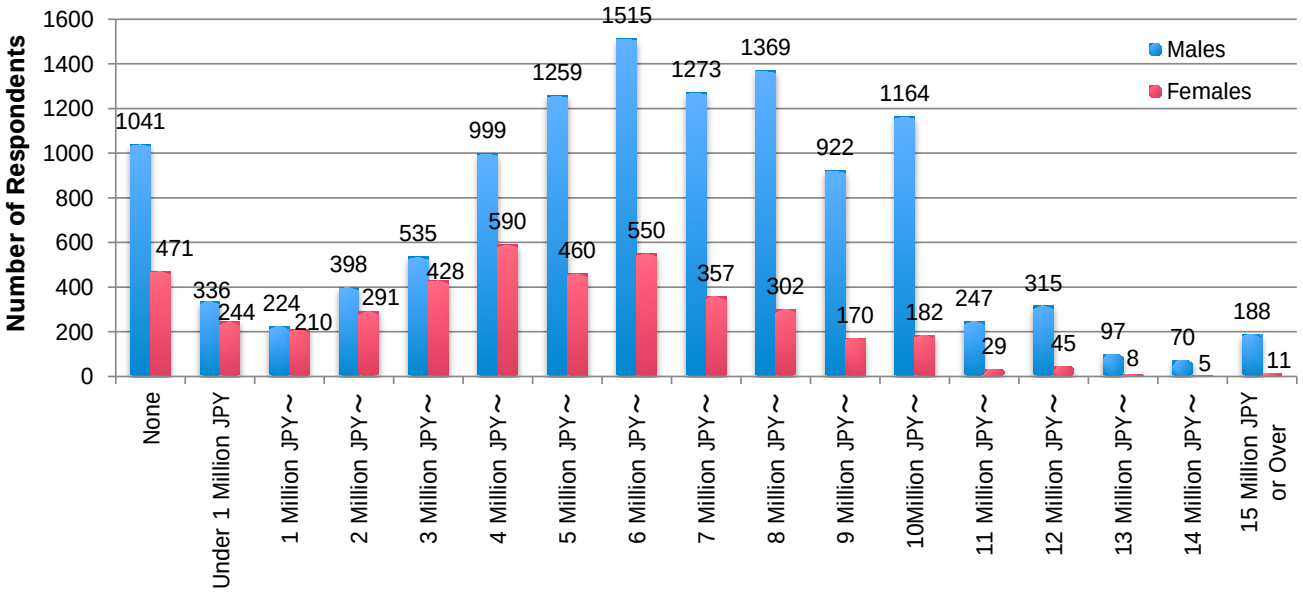


Figure 1.18 Annual Salary by Gender

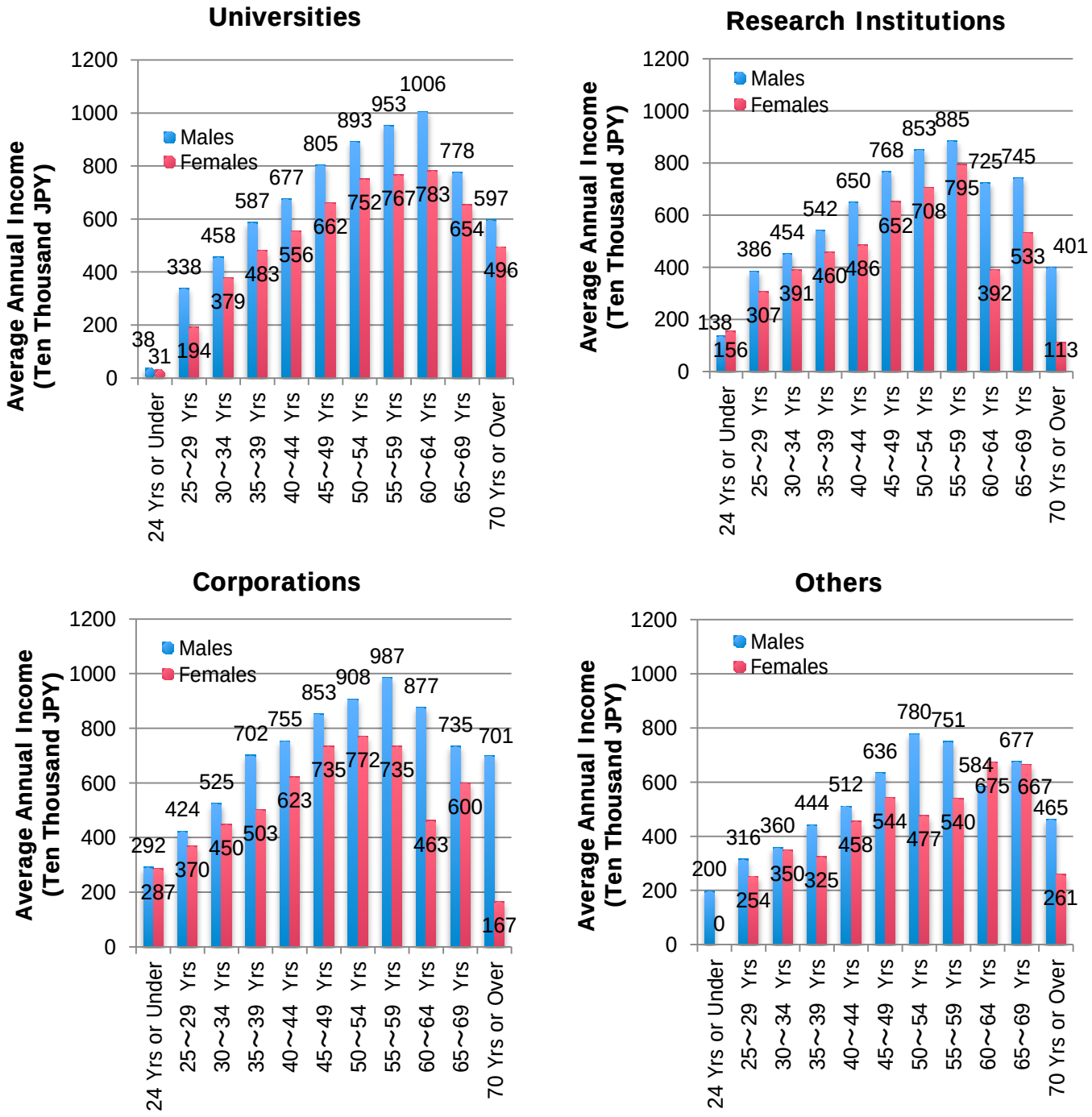


Figure 1.19 Annual Salary by Age Group for Each Institution

1.2 Working Conditions

Working Hours (Questions 10, 11; Figures 1.20-27)

Hours spent at the workplace and working in R&D significantly dropped following the last survey.

Hours spent at workplace: Percentage of respondents working under 20 hours greatly increased (8-fold compared to the previous survey). Working hours of males in their 30's to 40's remain almost unchanged, but females show an M-shaped trend reaching a low-point in their late 30's. For males and females in their late 30's, the difference in working hours is about 6. While males have longer working hours from their late 20's into their 40's, females' working hours surpass males' when they reach their early 60's.

Hours spent in R&D: From their late 20's to early 40's, males spent 3 to 4 hours longer in R&D work than females (noticeably different from the previous survey).

Hours spent working at home: Average hours spent working at home were 9.3hrs/week for males and 8.0hrs/week for females, including 7.0hrs/week and 6.3hrs/week males and females respectively spent in R&D. This suggests a new gender gap may have developed since the previous survey. Observing working hours by age group, females under 40 spent fewer hours working at home than all other age groups (Figure 1.25).

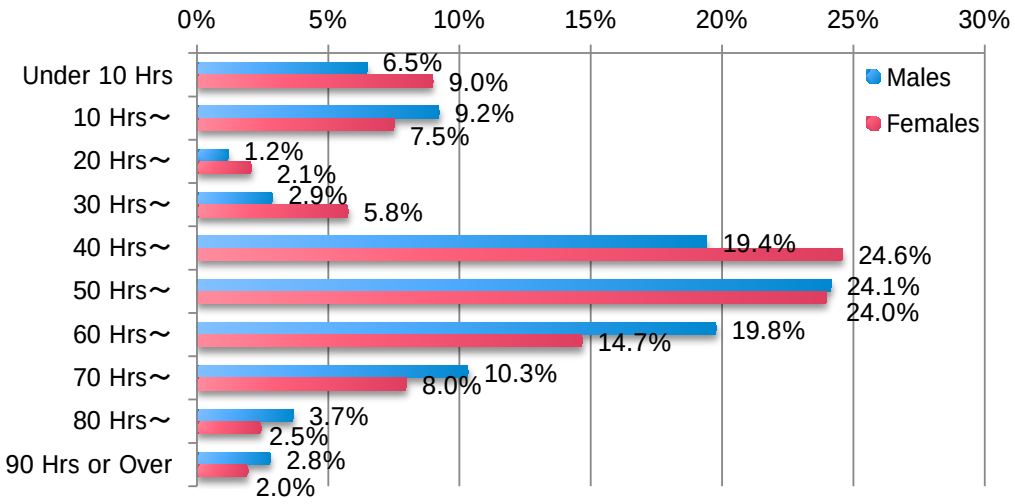


Figure 1.20 Hours Spent at Workplace per Week

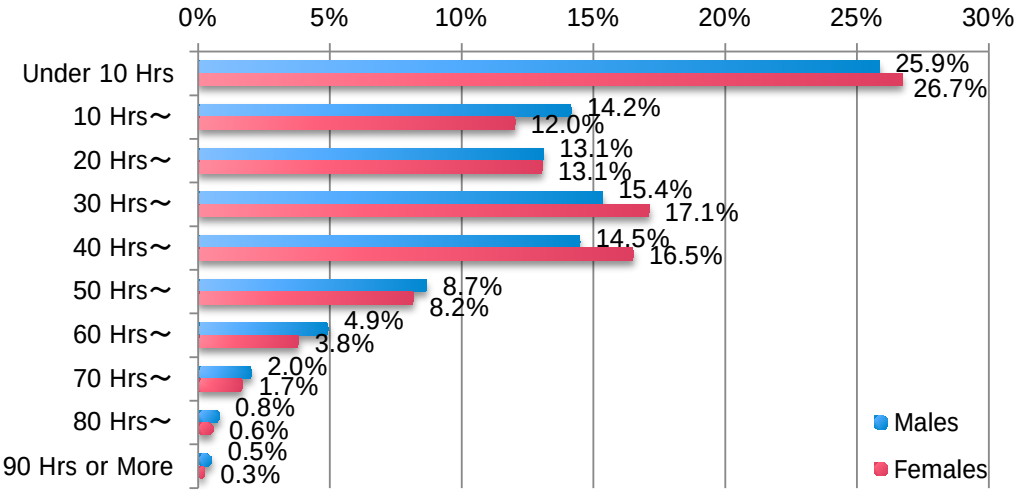


Figure 1.21 Hours Spent in R&D per Week

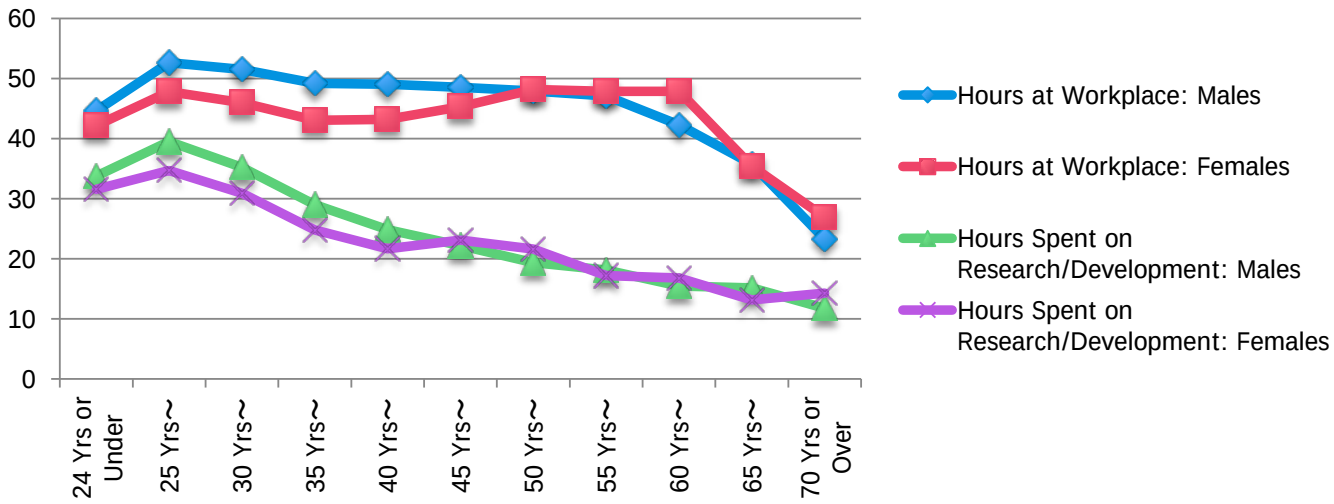


Figure 1.22 Hours Spent at Workplace by Age Group

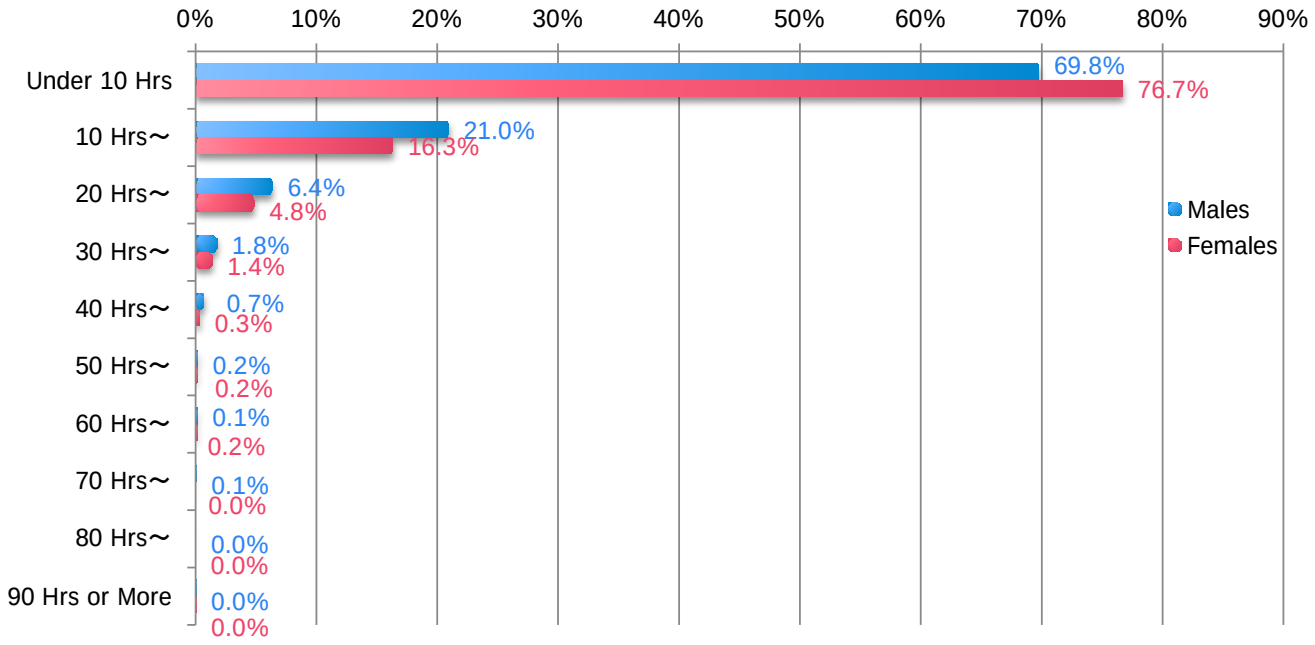


Figure 1.23 Hours Spent Working at Home

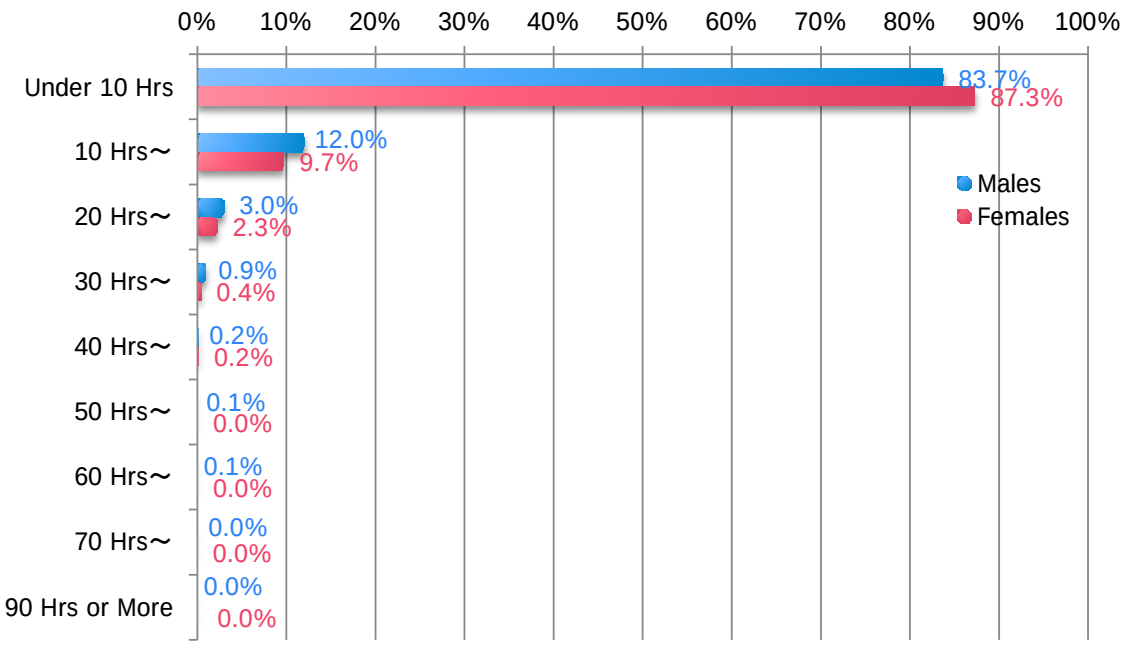


Figure 1.24 Hours Spent in R&D at Home

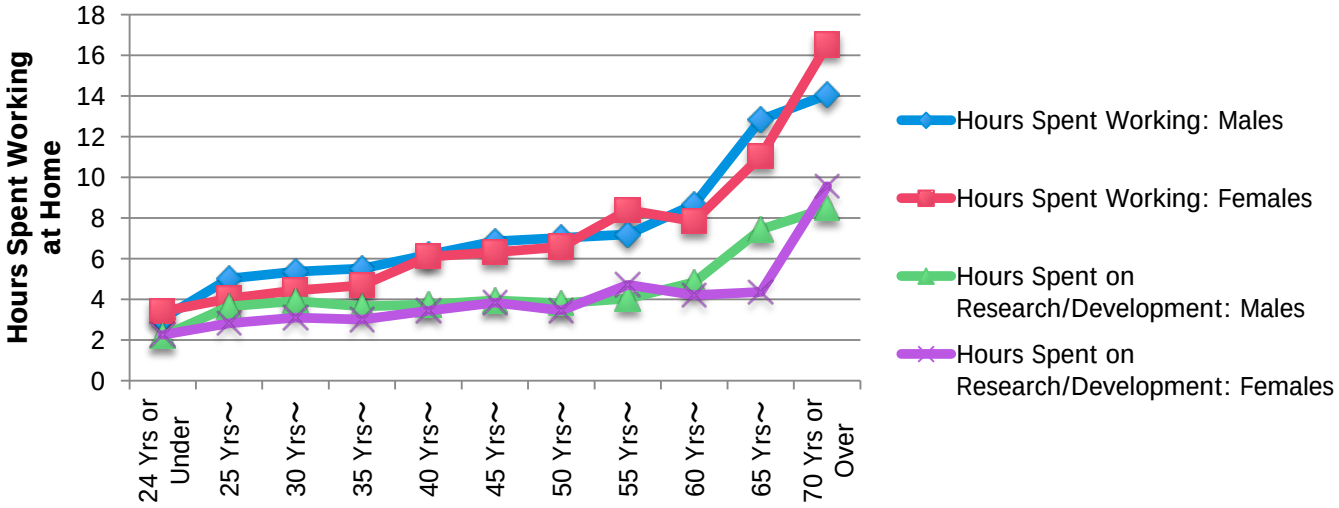


Figure 1.25 Hours Spent Working at Home by Age Group

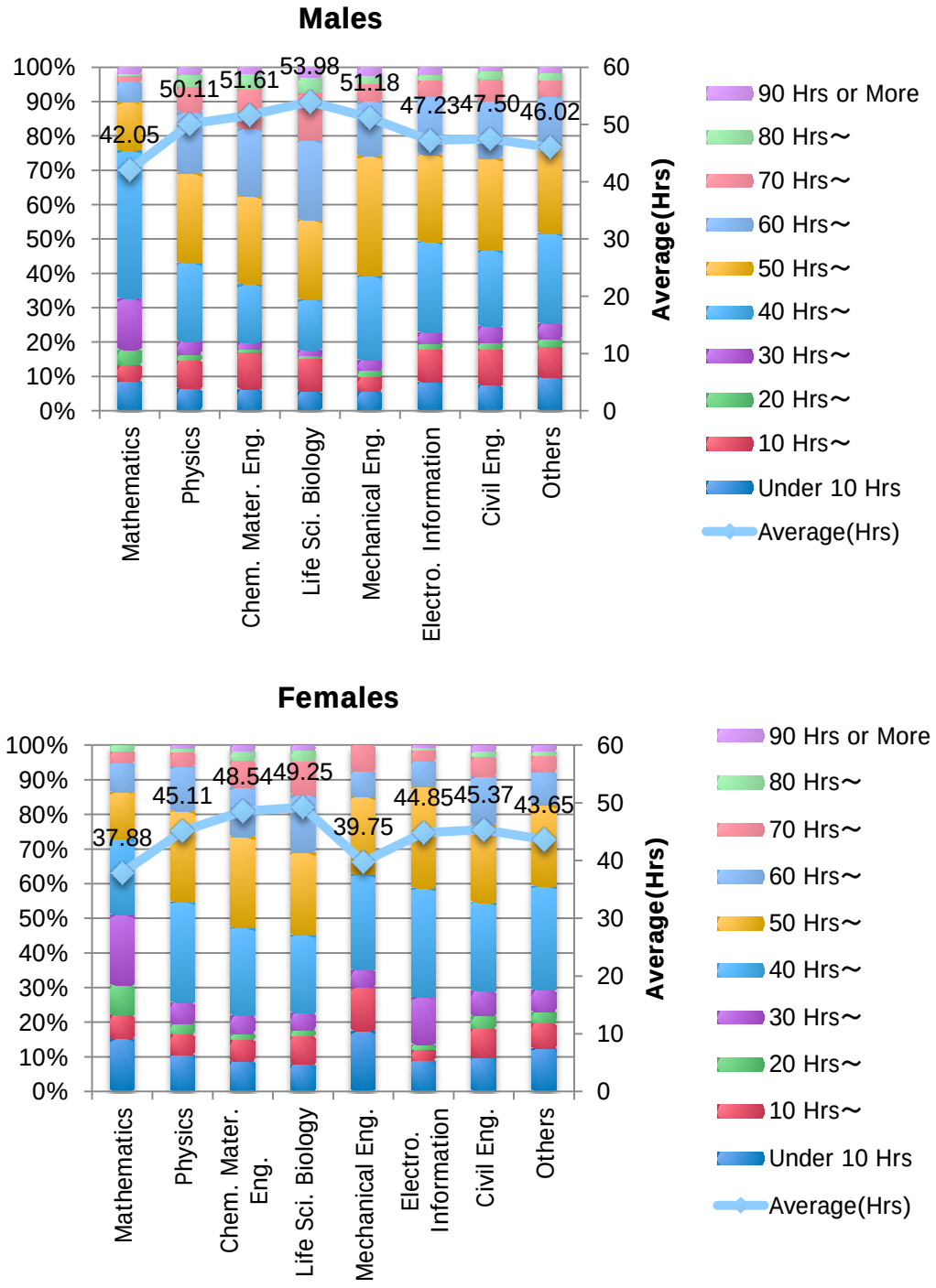


Figure 1.26 Hours Spent at Workplace by Profession

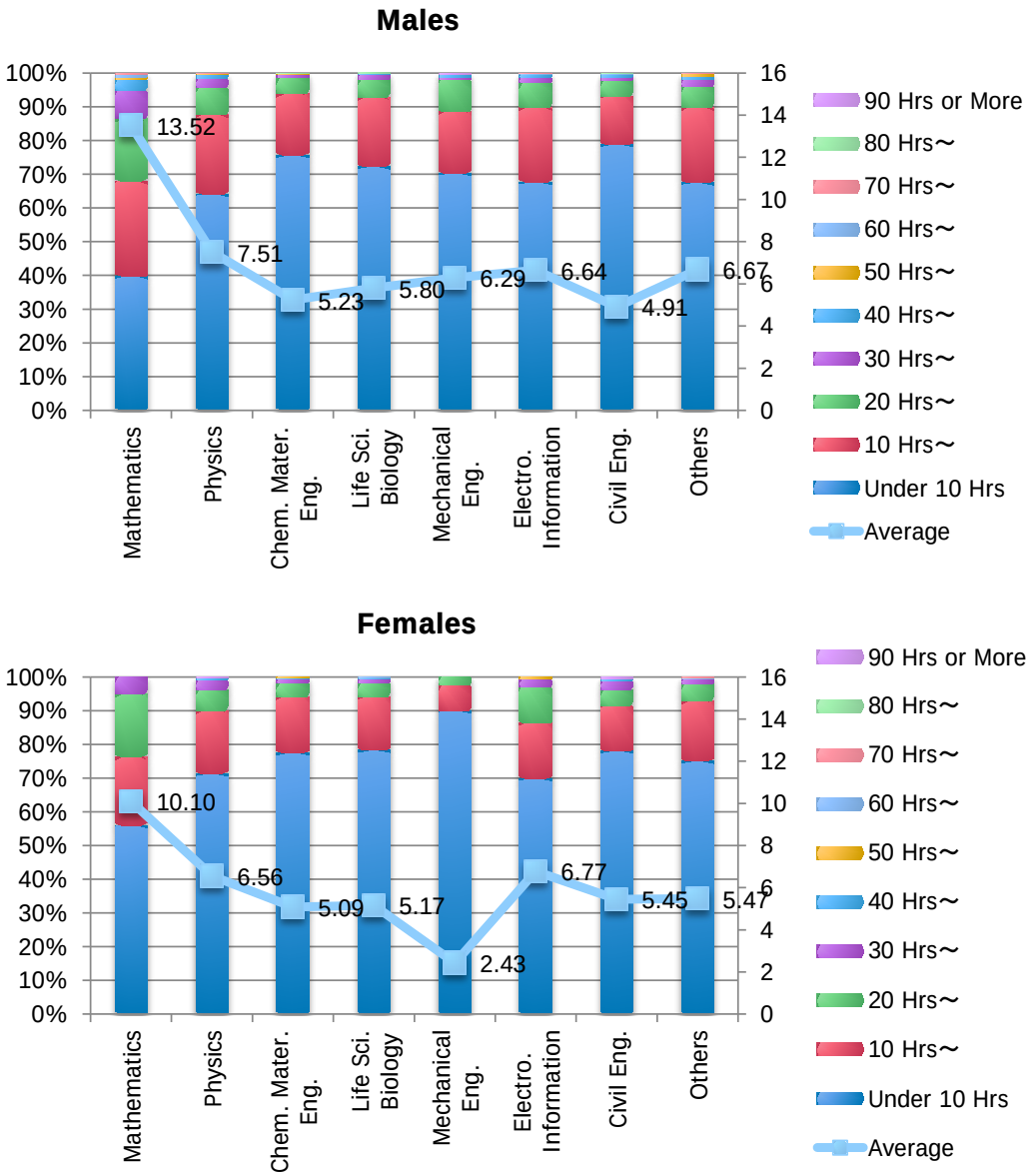


Figure 1.27 Hours Spent Working at Home by Profession

Number of Subordinates and R&D Funds (Questions 12, 13; Figures 1.28-31)

Females have less subordinates than males (unchanged from the previous).

Percentage of those having no annual R&D funds has dropped significantly from the previous survey.

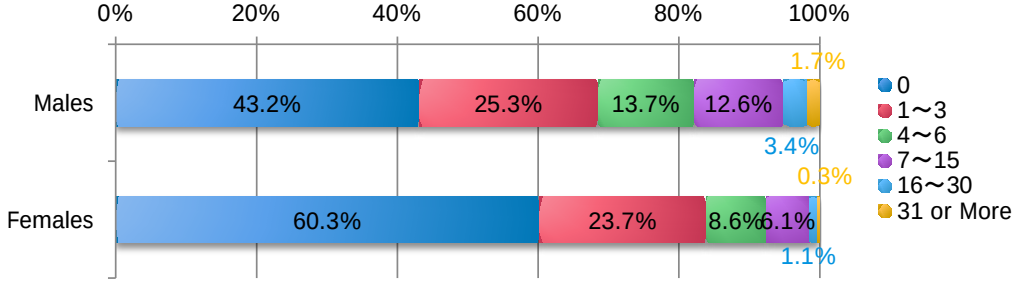


Figure 1.28 Number of Subordinates

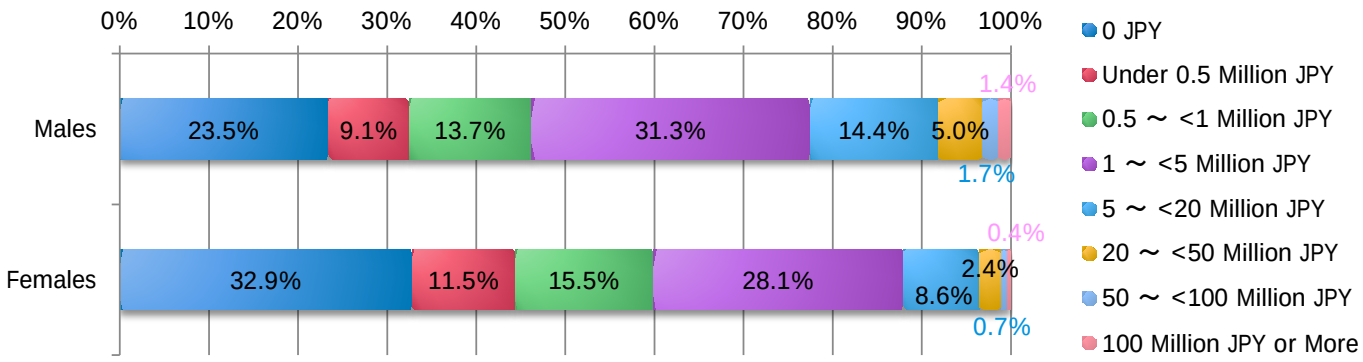


Figure 1.29 R&D Funds

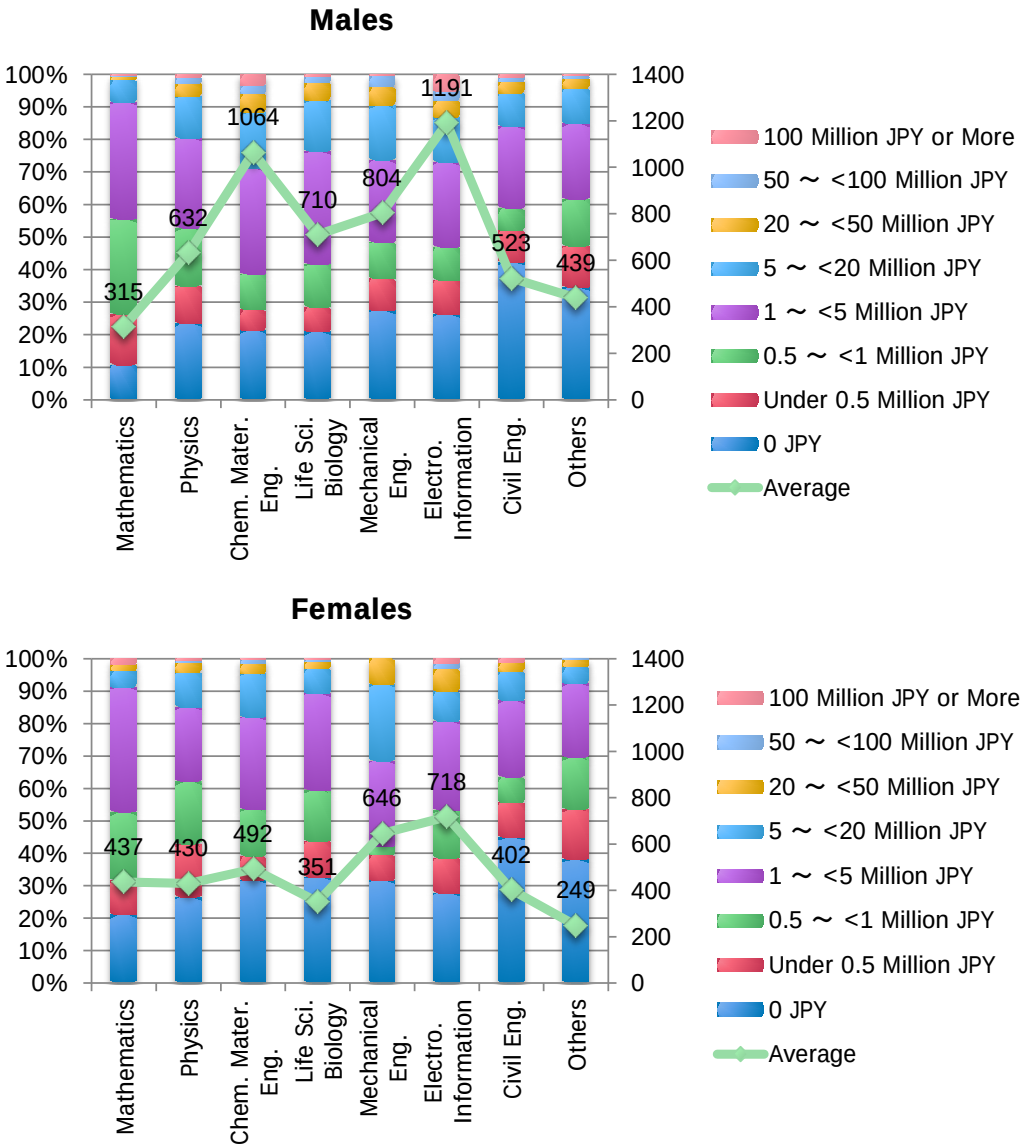


Figure 1.30 R&D Funds by Profession

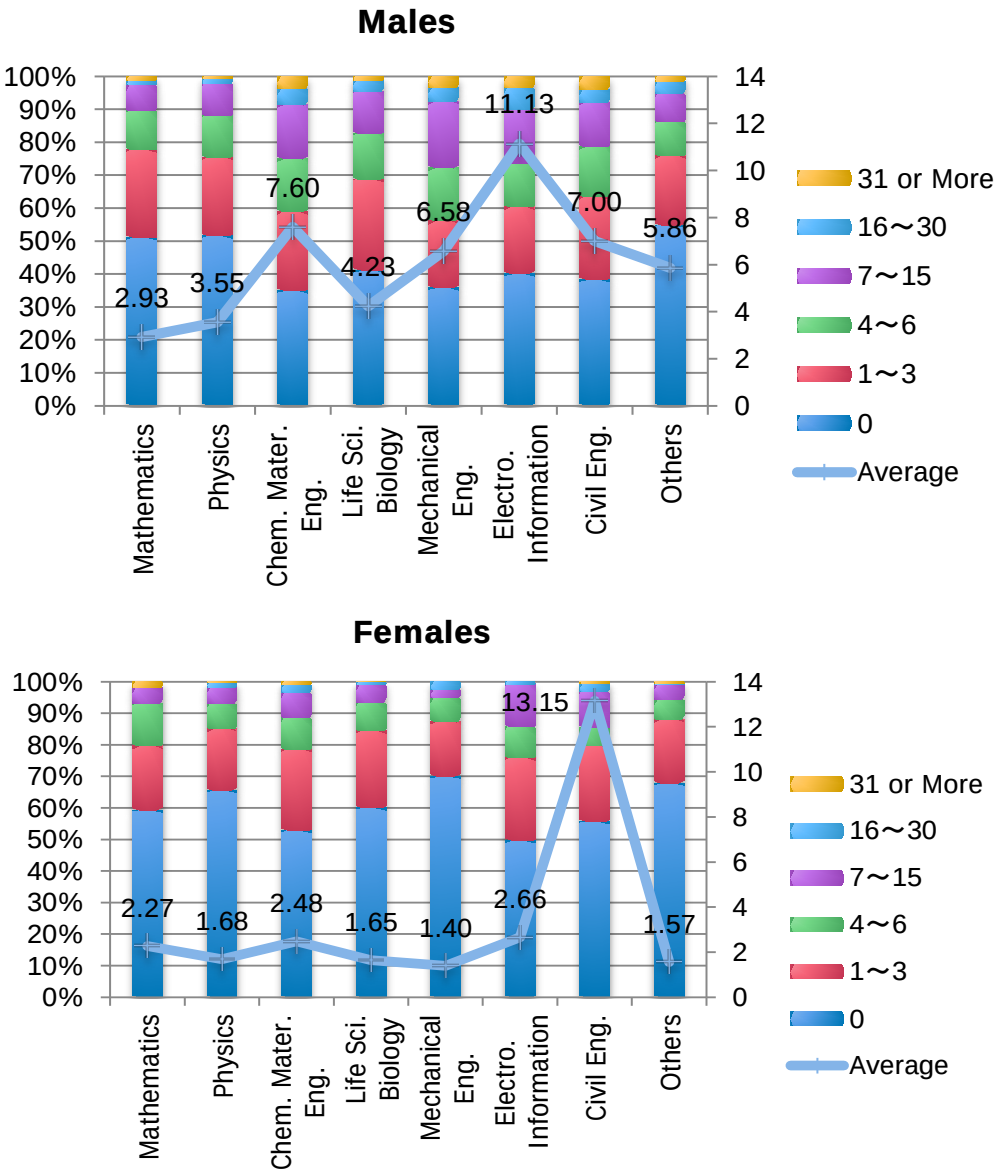


Figure 1.31 Number of Subordinates by Profession

Reasons for Choosing Current Occupation (Question 14; Figures 1.32-34)

Overall, “academic satisfaction/intellectual stimulation”, “make full use of my abilities” and “benefit society” were the top three reasons for respondents choosing their current occupation. Notably, respondents affiliated with corporations seeking “academic satisfaction/intellectual stimulation” were substantially low, and “job security” was the third highest reason.

For females across all age groups, “balance family and career” and “free of gender discrimination” were the two top responses (Figure 1.34). Although “inspired by friend active in the same field” was a popular choice from the younger age groups of both genders, it especially stood out for females in their 20’s.

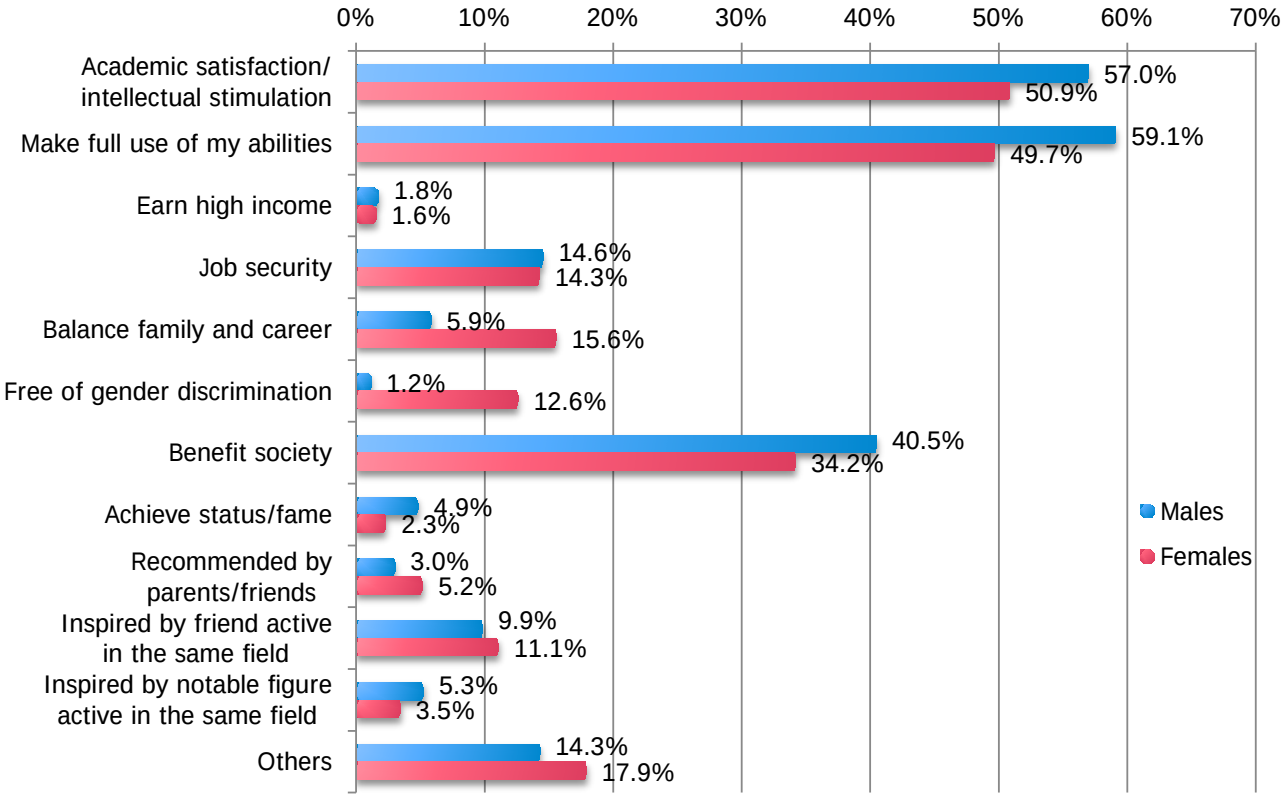


Figure 1.32 Reasons for Choosing Current Occupation

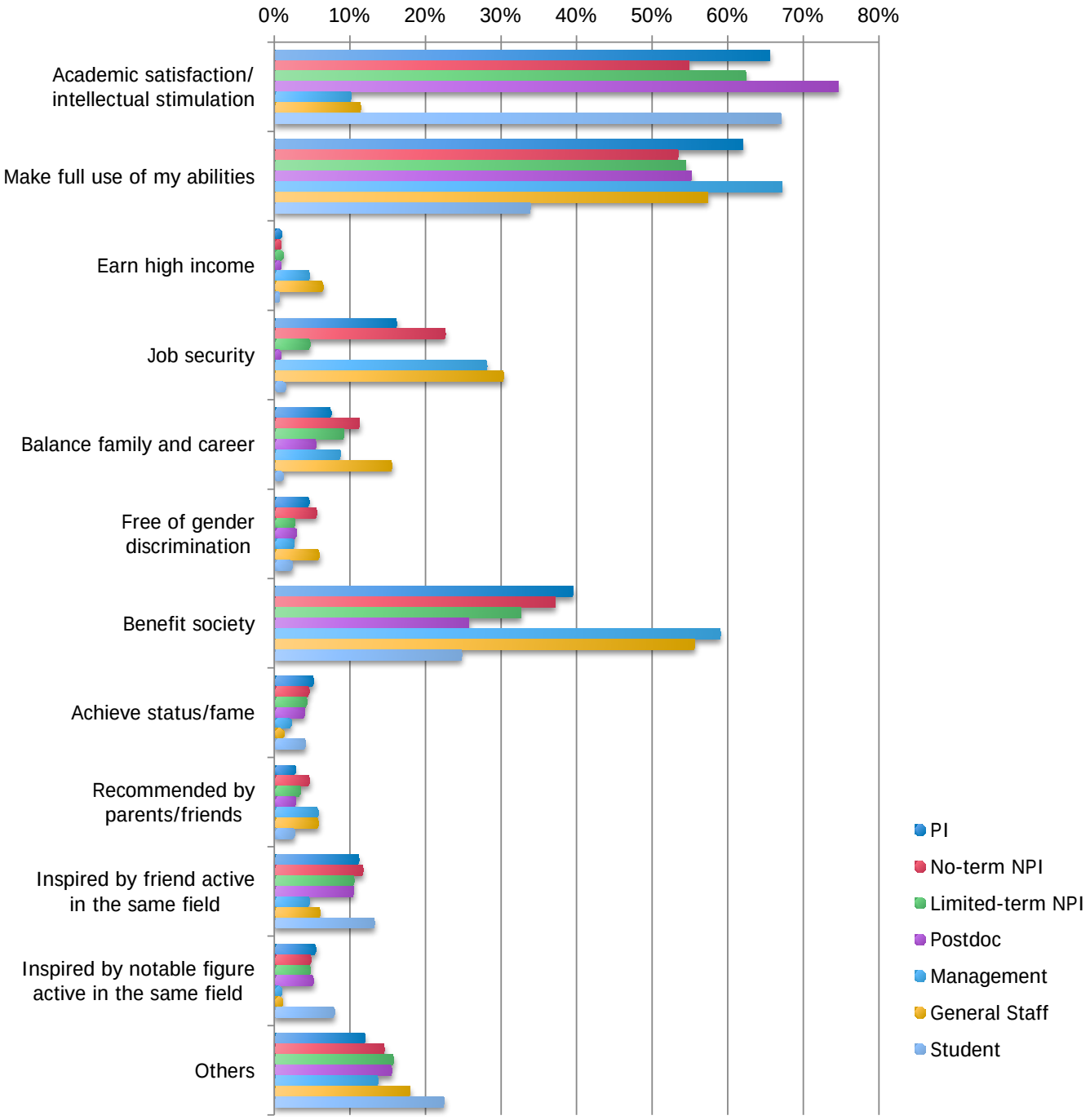


Figure 1.33 Reasons for Choosing Current Occupation by Job Position

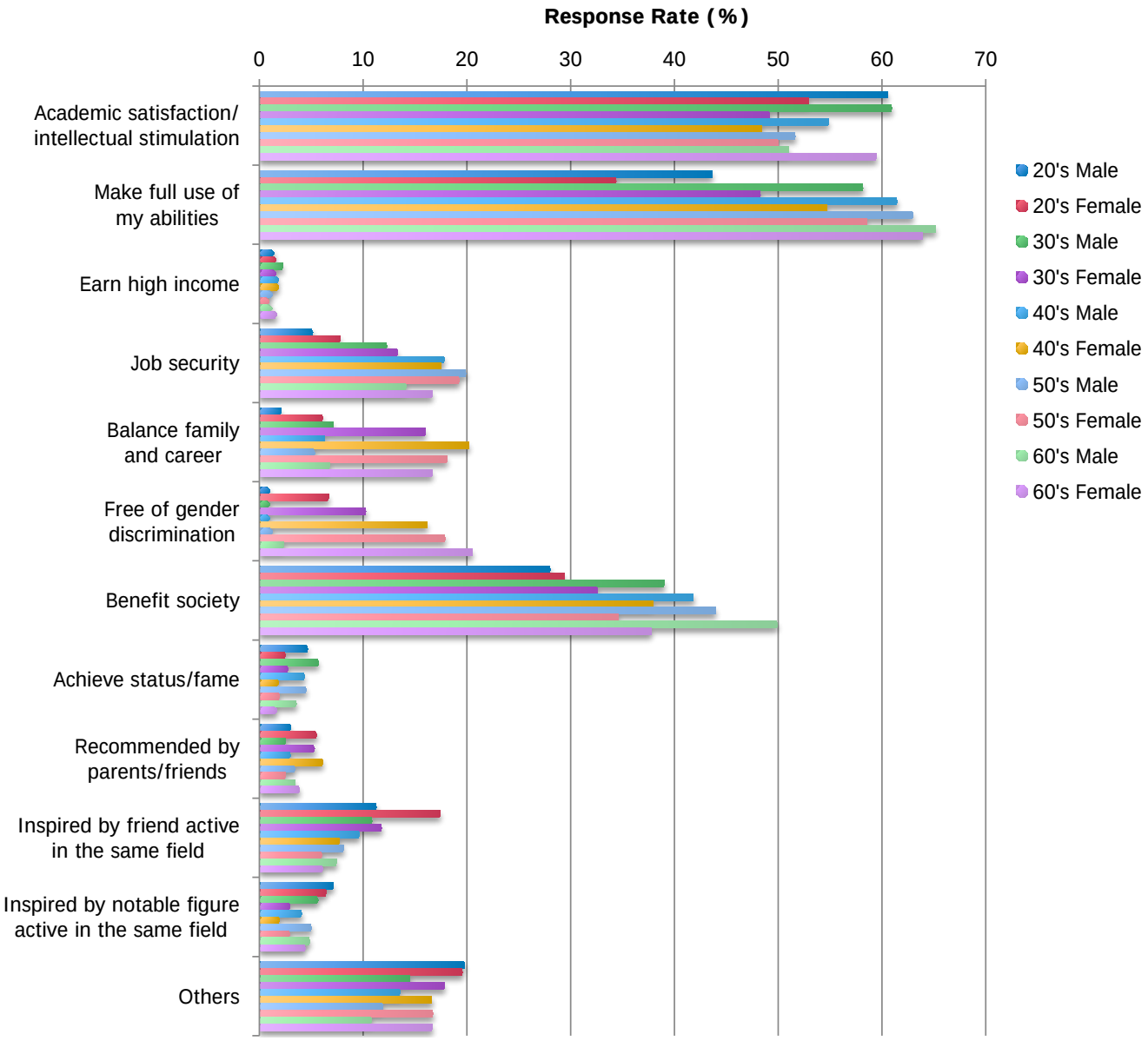


Figure 1.34 Reasons for Choosing Current Occupation by Age Group/Gender

Influence on Career Path during Grade/High School (Question 15; Figures 1.35-36)

"Interest since childhood" and "books or TV shows" were the standout responses with a higher ratio of males selecting these answers than females. "Grades in course", "interesting course content", "interaction with teacher" and "influenced by parents/relatives" had about the same level of response for the third spot, with a higher response ratio from females.

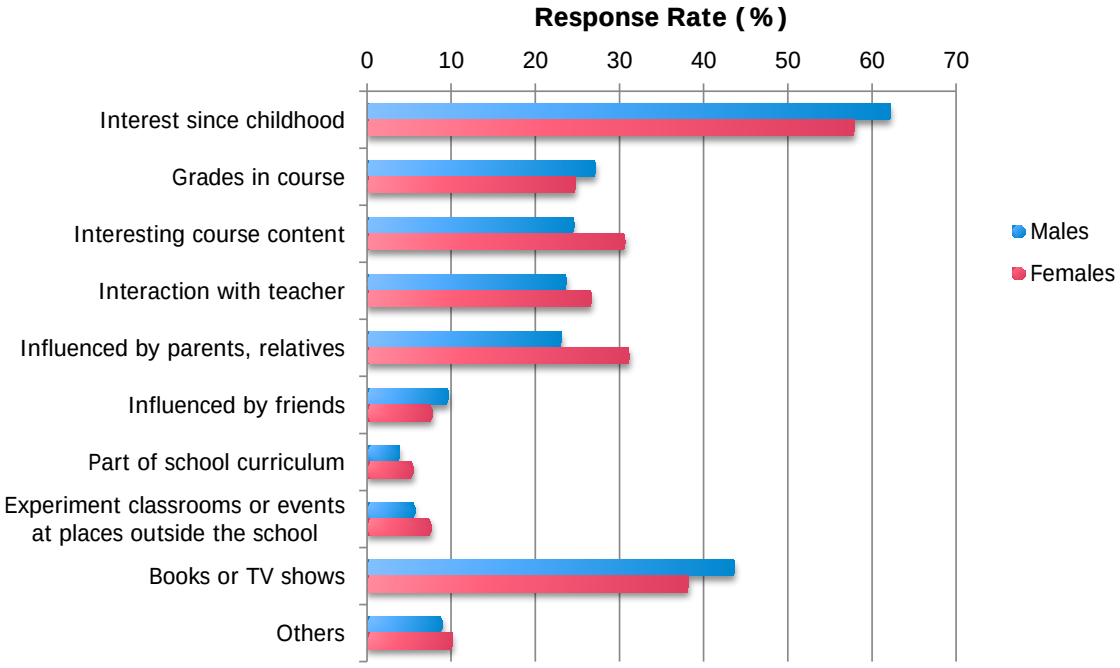


Figure 1.35 Influence on Career Path by Gender

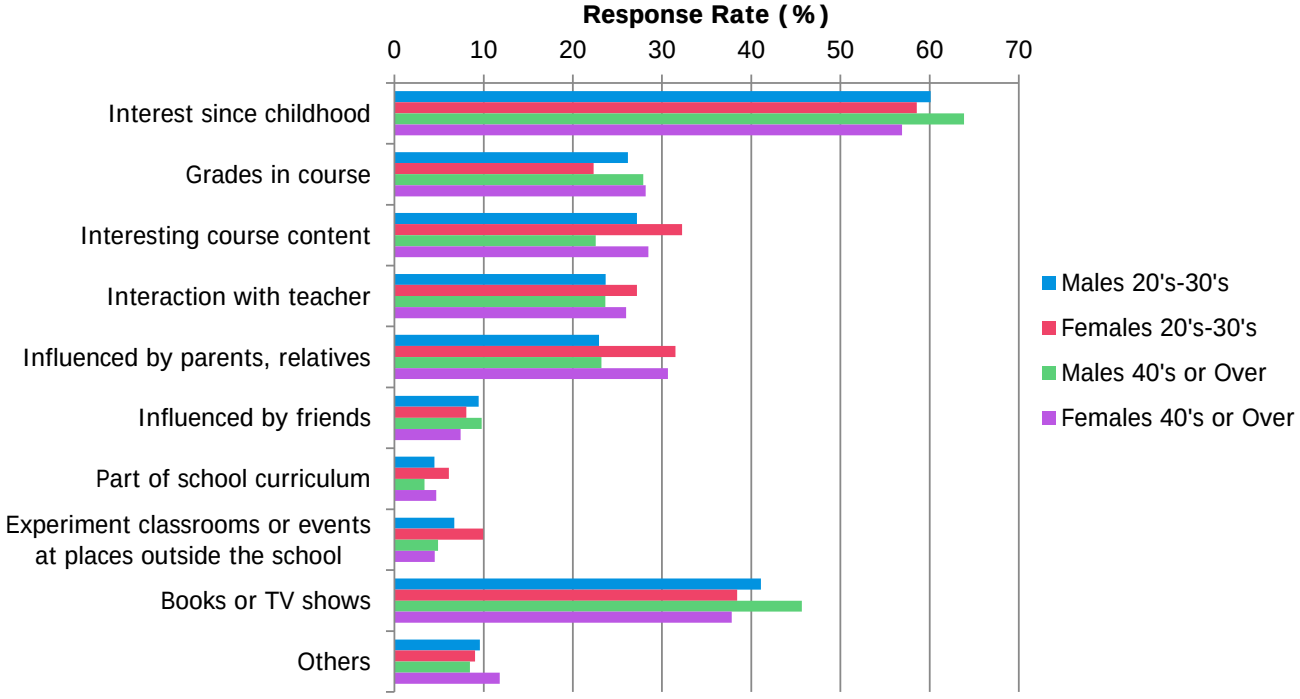


Figure 1.36 Influence on Career Path by Age Group

Employment Status (Question 16; Figures 1.37-40)

The ratio of no-term employment was higher than that of limited-term employment for both genders. However, the number of males with no-term employment far exceeded those with limited-term employment, whereas the difference was minimal for females (Figure 1.37, Total).

When compared with the results of the previous survey (2nd Survey, Figure 1.17), the difference in employment status between genders appears to be smaller.

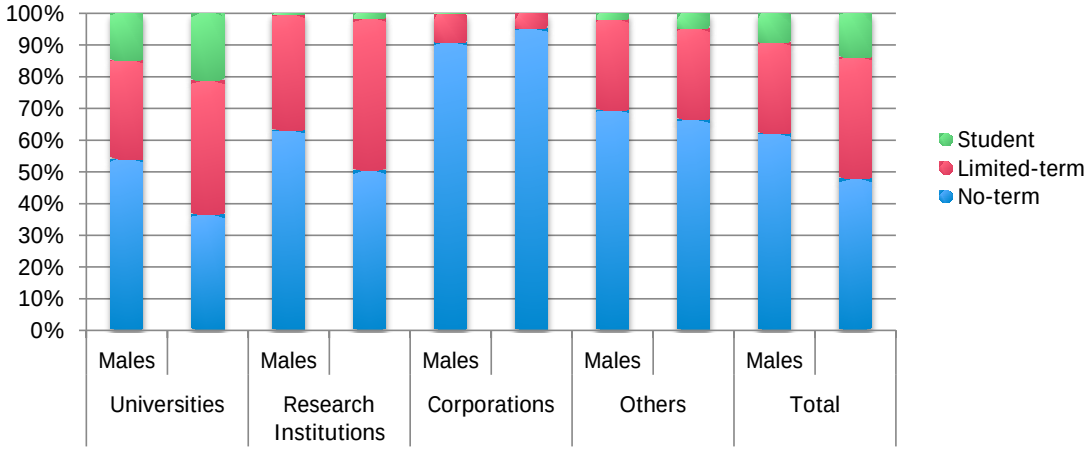


Figure 1.37 Employment Status by Institution

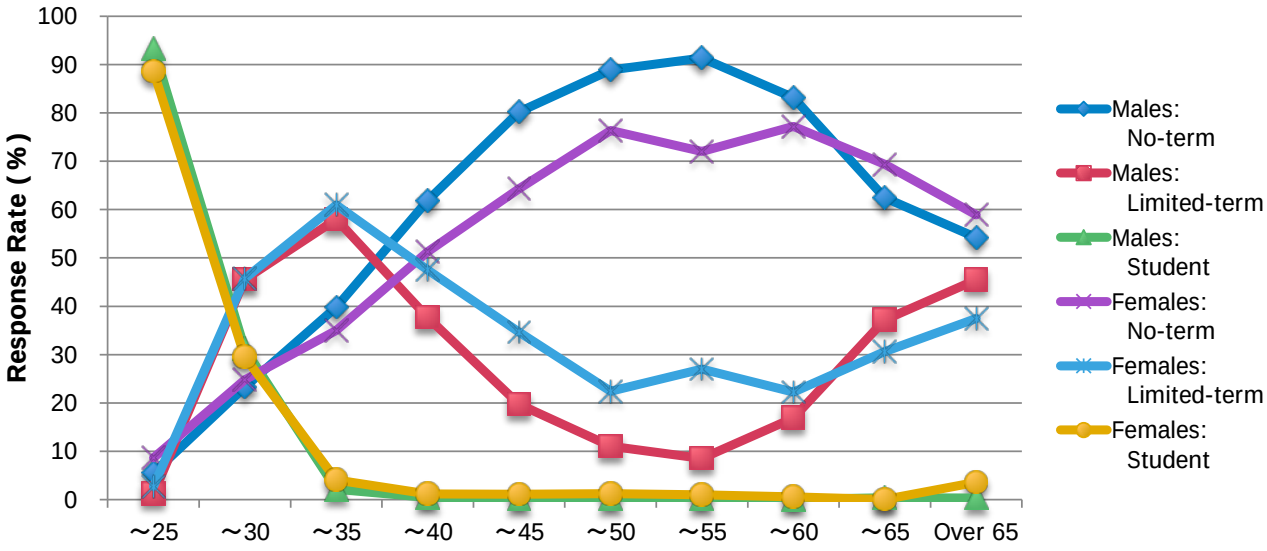


Figure 1.38 Employment Status by Age Group

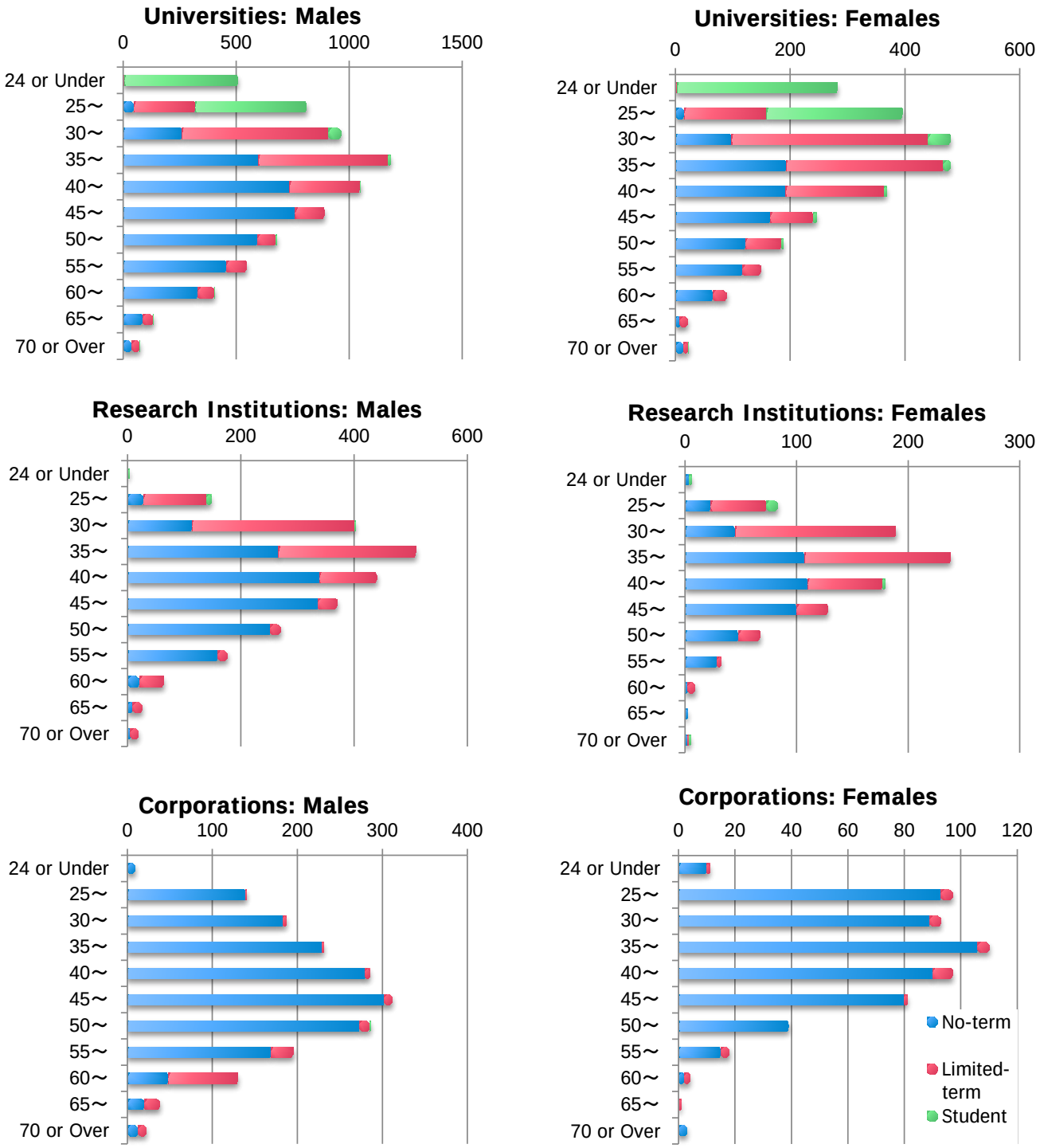


Figure 1.39 Employment Status by Age Group for Each Institution

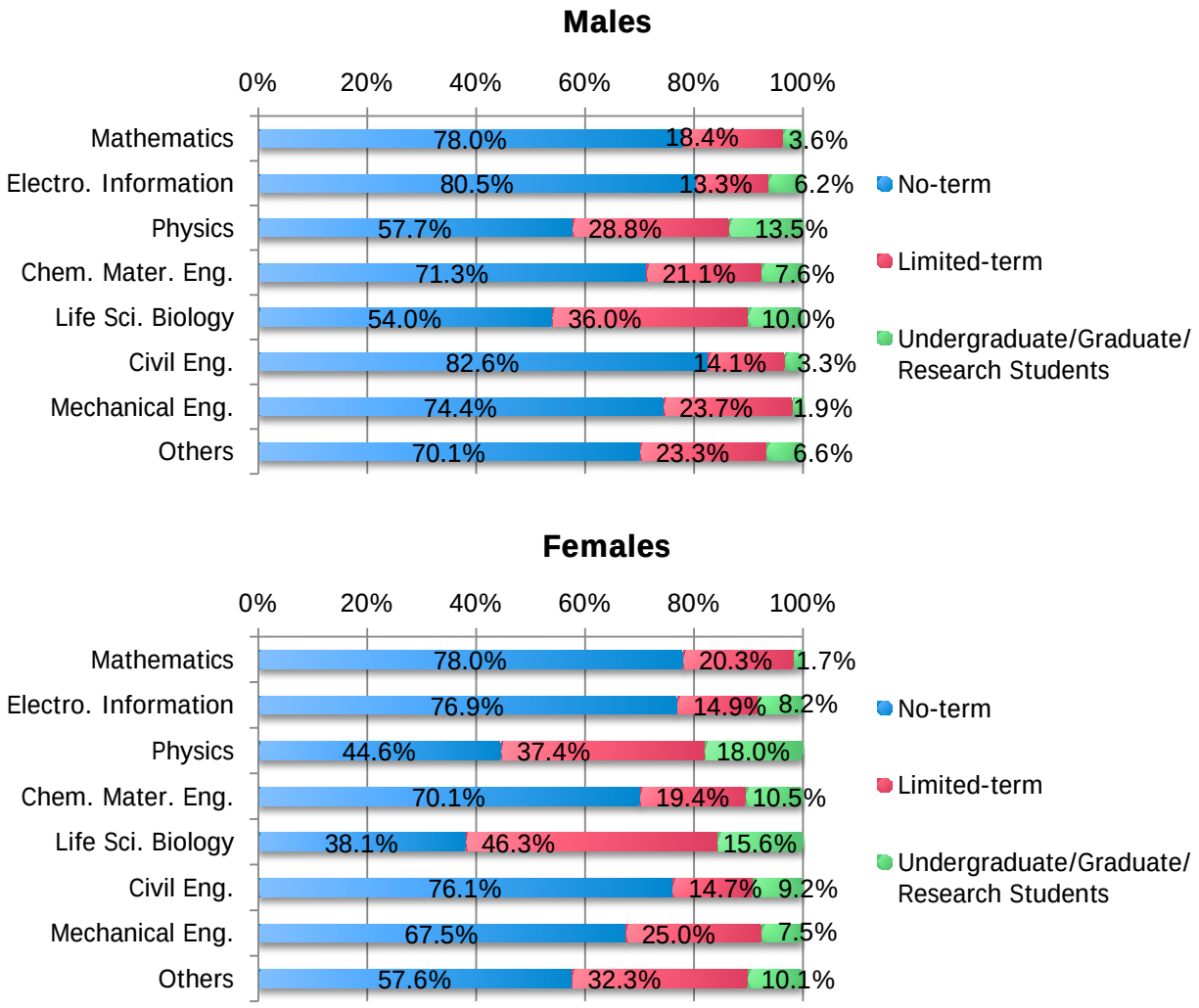


Figure 1.40 Employment Status by Profession

Limited-term Employment (Questions 17, 18; Figures 1.41-50)

Term of current occupation: Top responses were 5 years or more for males and 1 year for females.

Total years at workplace: There was a large increase from the previous survey in the percentage of respondents that have been at their workplace 10 years or more.

Contract Working Hours: The percentage of “no contract working hours” was half that of the previous survey. The percentage of those required to spend 40 hours or more increased.

While the percentage of respondents answering “childcare leave not allowed” decreased, about 20% are not allowed to take leave.

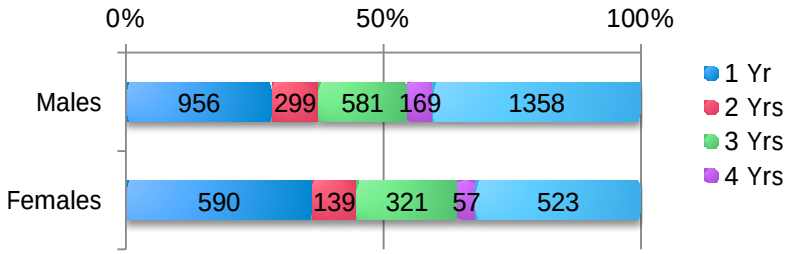


Figure 1.41 Term of Current Occupation (Limited-term Employment)

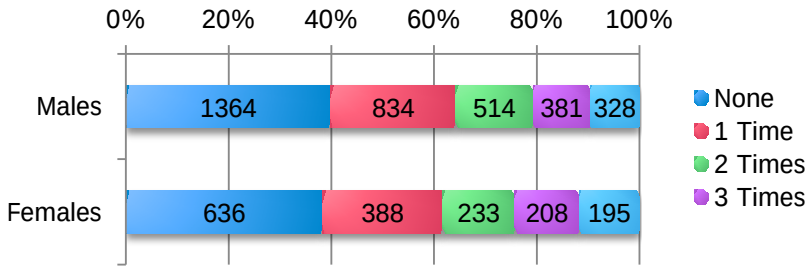


Figure 1.42 Affiliation Changes (Current: Limited-term Employment)

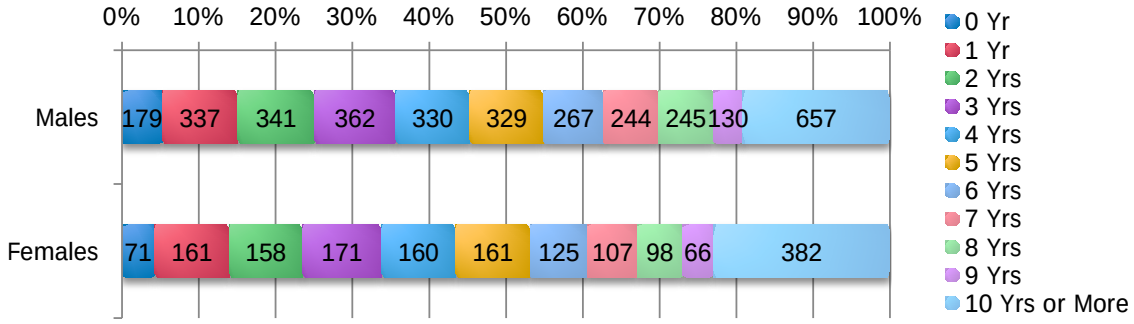


Figure 1.43 Total Years as Limited-term Employee

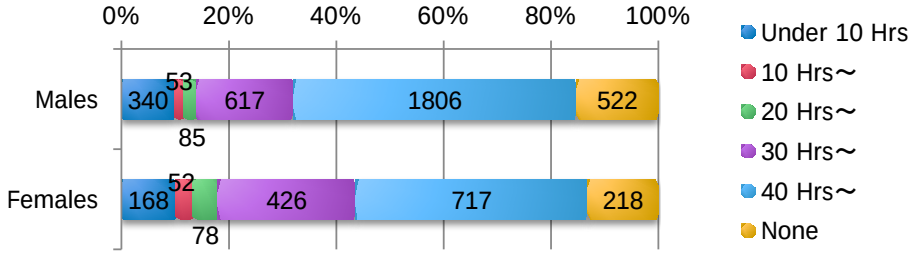


Figure 1.44 Contract Working Hours

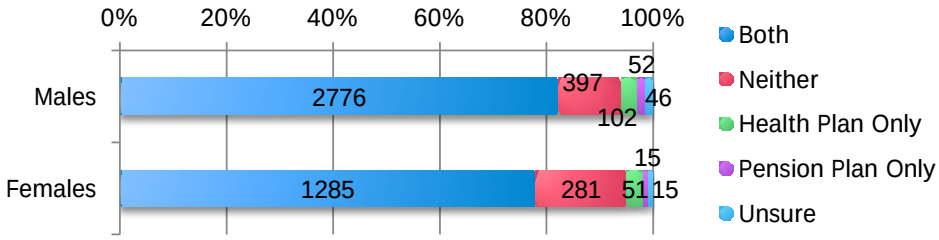


Figure 1.45 Social Security

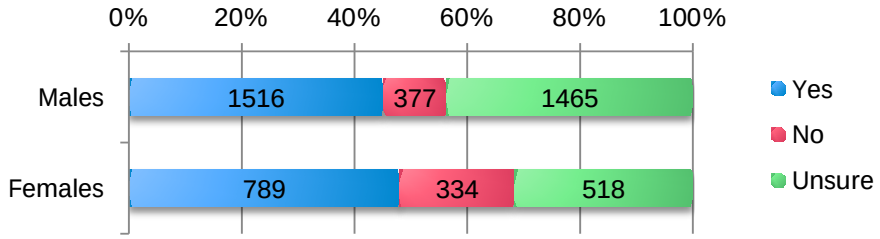


Figure 1.46 Provision for Childcare Leave

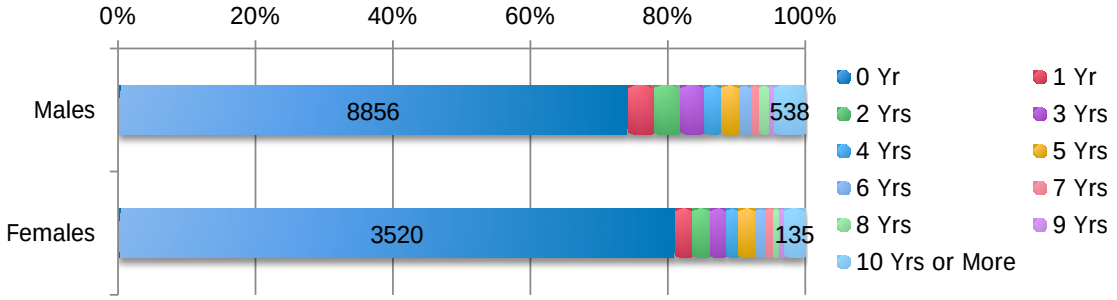


Figure 1.47 Length of Limited-term Employment

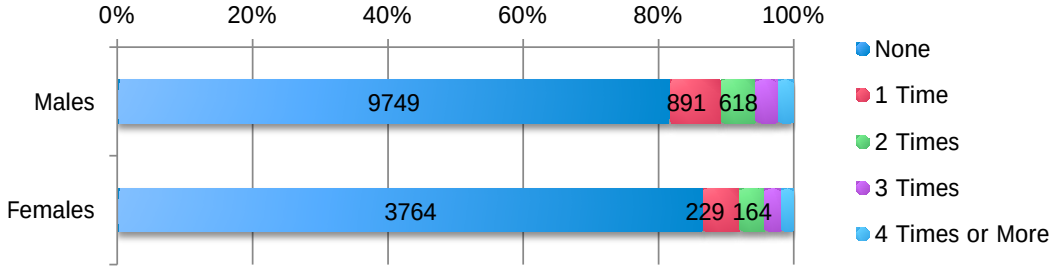


Figure 1.48 Affiliation Changes (Current: No-term Employment)

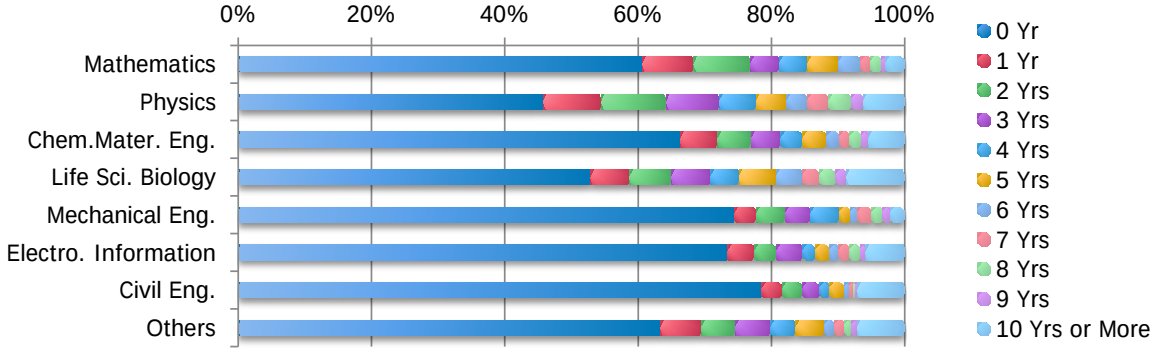


Figure 1.49 Length of Limited-term Employment by Profession

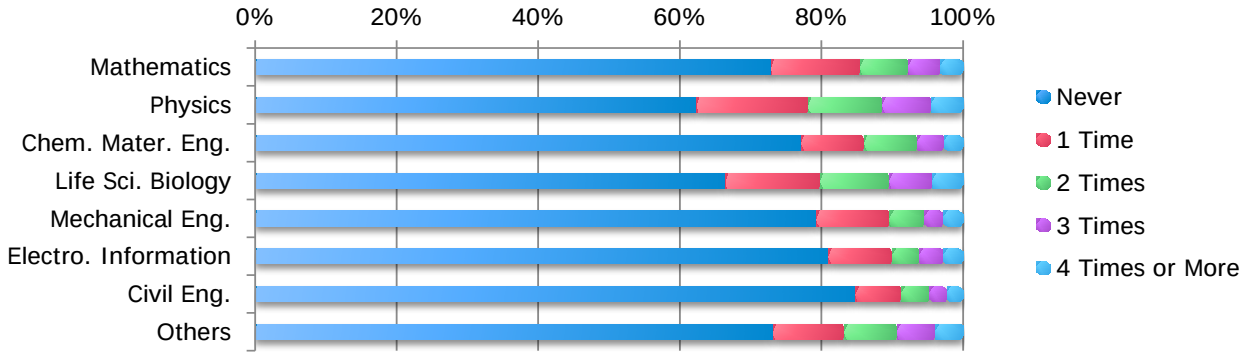


Figure 1.50 Affiliation Changes by Profession

Job Change/Relocation/Quitting Job (Questions 19, 20; Figures 1.51-54) (New Topic)

The percentage of respondents that quit their jobs differs by gender with the females having a higher ratio.

The most significant difference between genders in their reasons for job change/relocation/quitting job was the percentages of females that selected “job relocation of family member”, “marriage”, “caring for children” and “gender discrimination”. Respondents choosing “Gender discrimination” dropped sharply from the previous survey (7.1%) (2nd Survey 1.45).

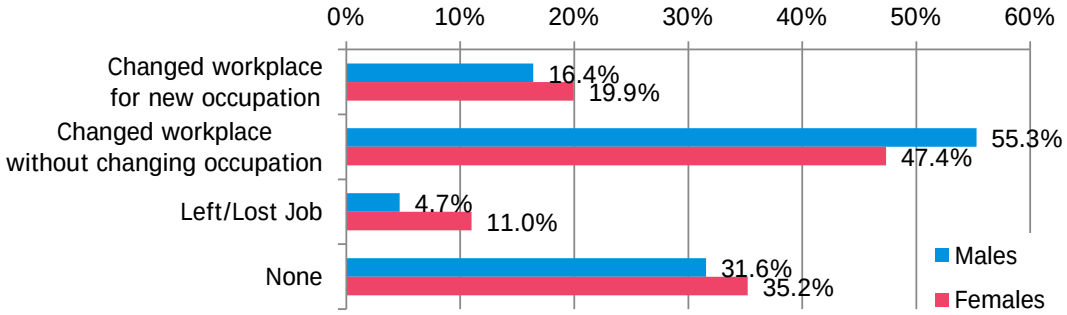


Figure 1.51 Experience with Job Change/Relocation/Quitting Job

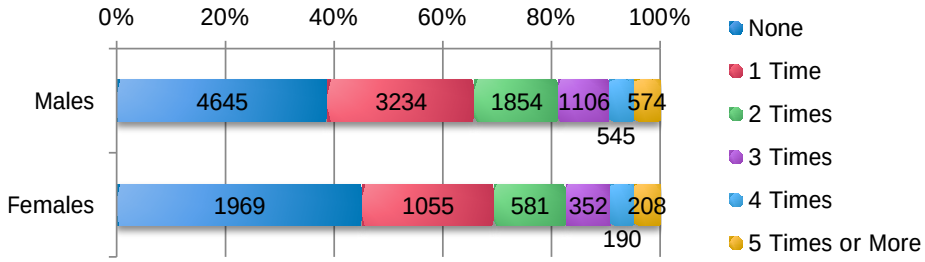


Figure 1.52 Number of Job Change/Relocation/Quitting Job

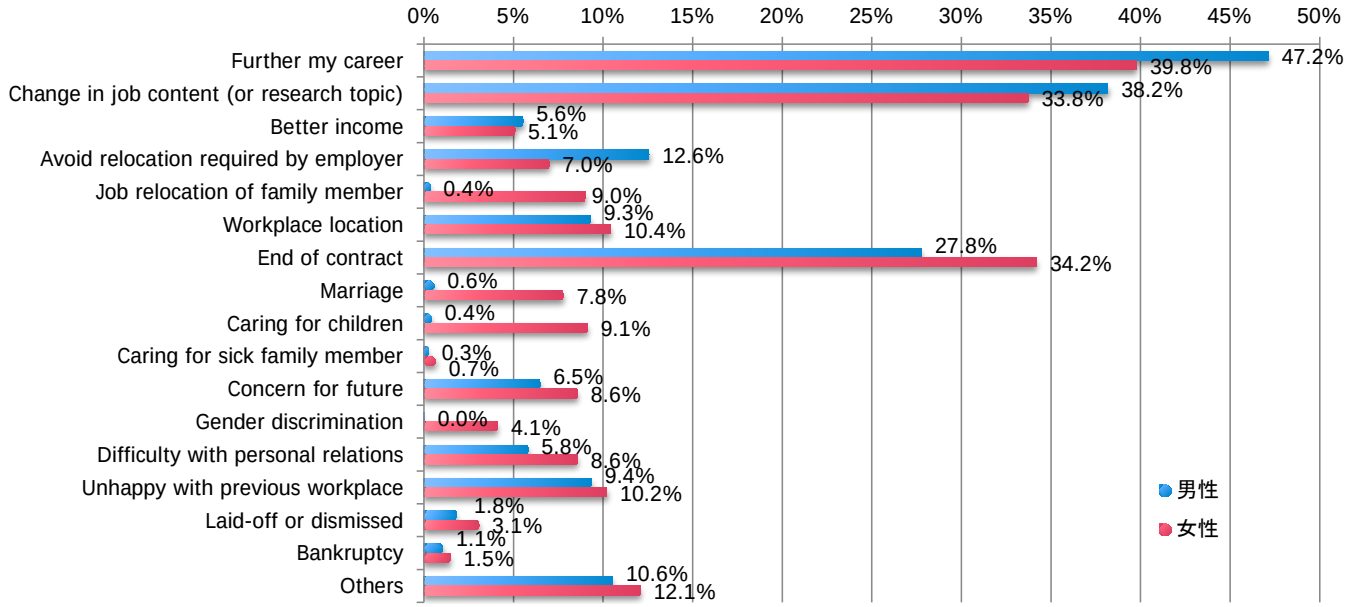


Figure 1.53 Reasons for Job Change/Relocation/Quitting Job

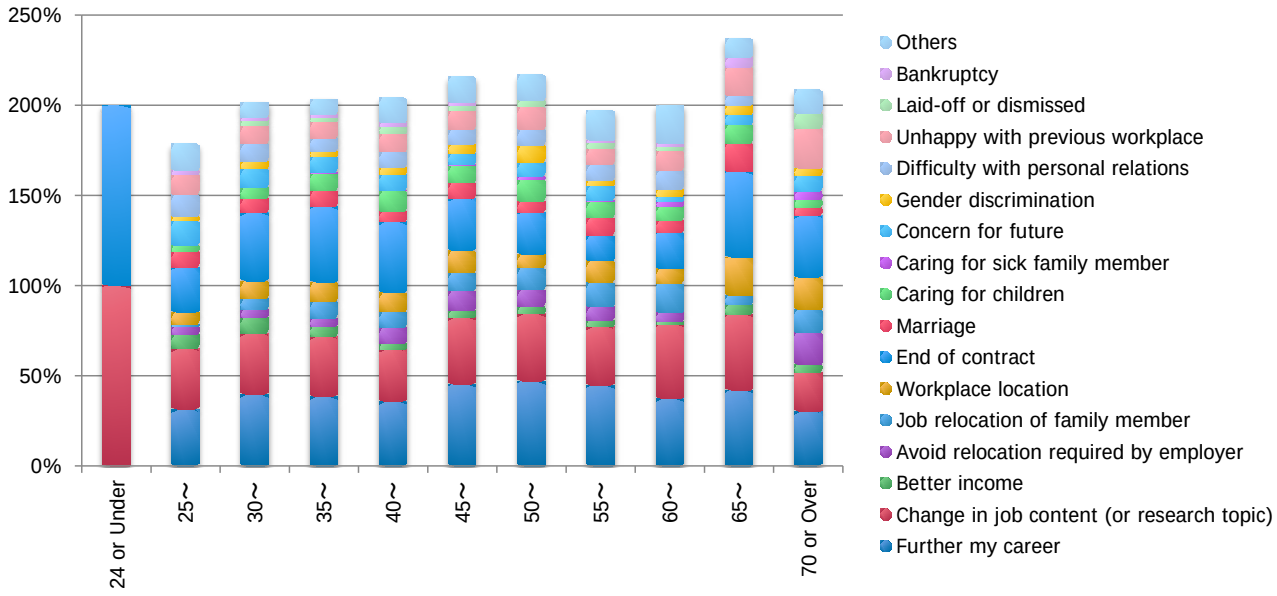


Figure 1.54 Reasons for Job Change/Quitting Job by Age Group (Females)
(Note: Vertical axis exceeds 100% since multiple answers were allowed.)

Public Recruitment Experience (Question 21; Figure 1.55)

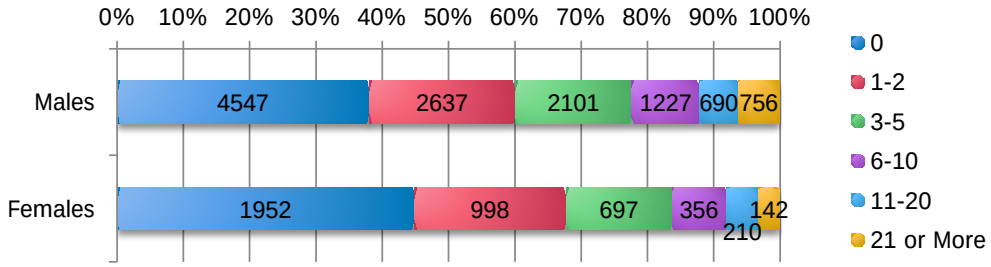


Figure 1.55 Number of Times Applied for Public Recruitment

Career Goals (Question 22; Figure 1.56-58)

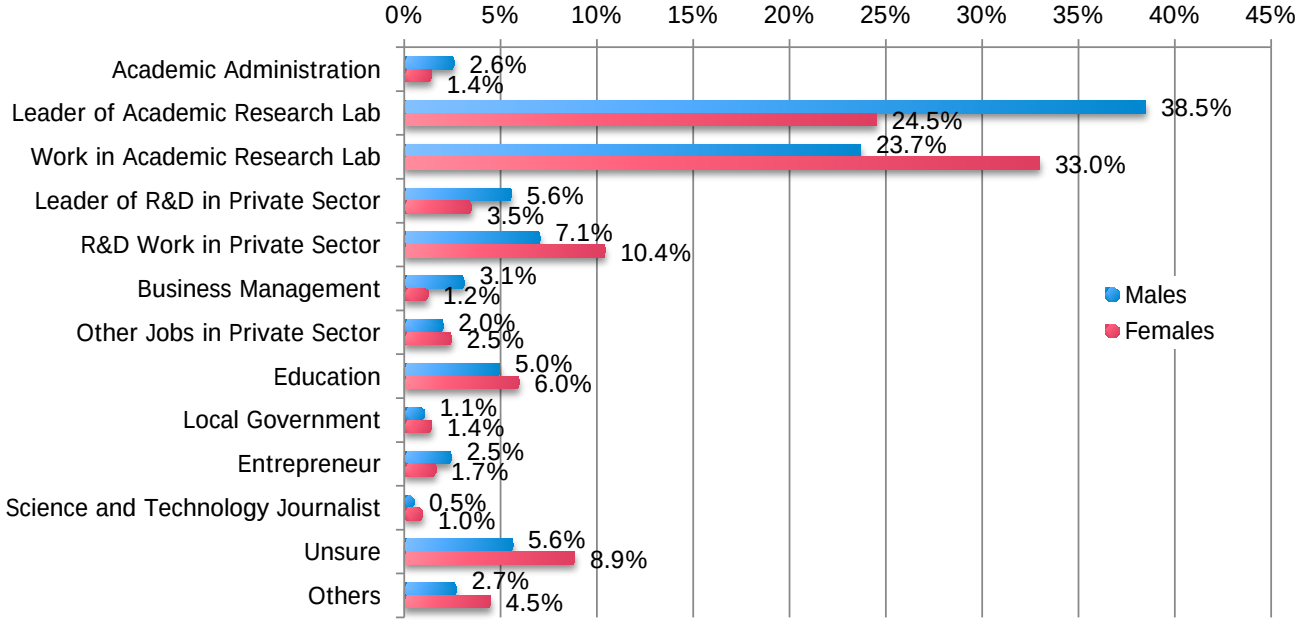


Figure 1.56 Career Goals by Gender

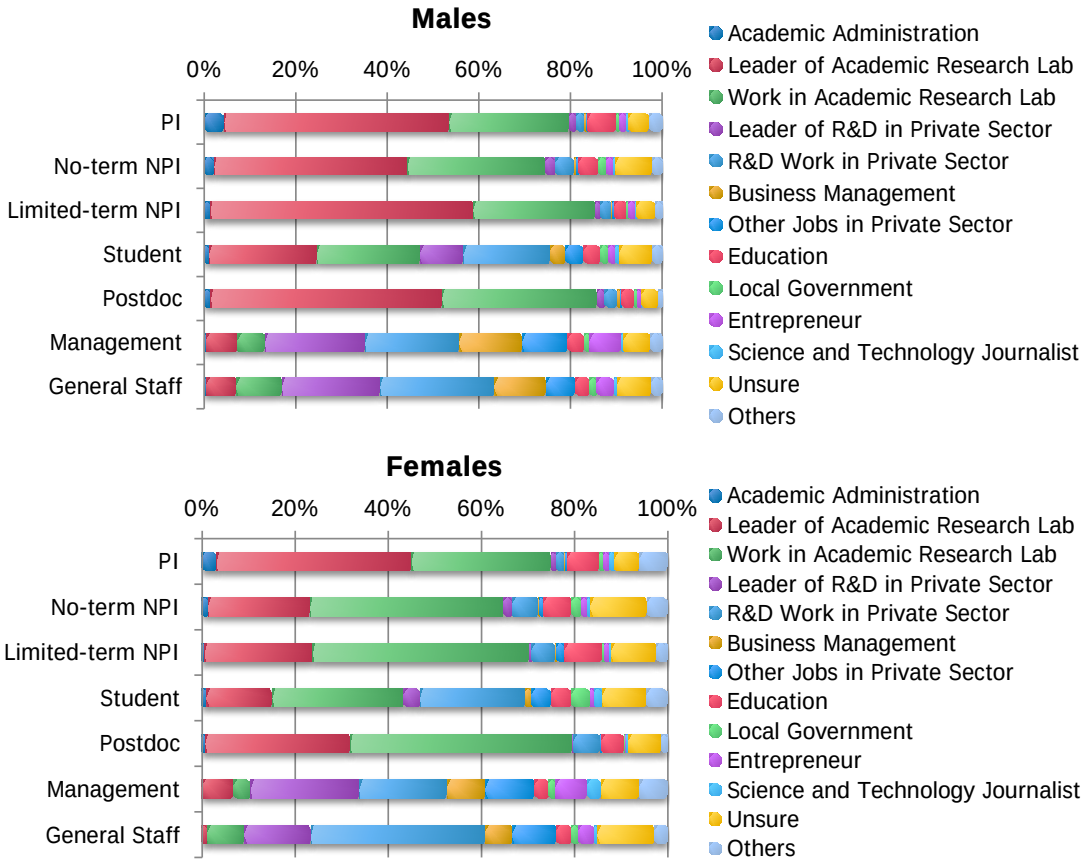


Figure 1.57 Career Goals by Occupational Field

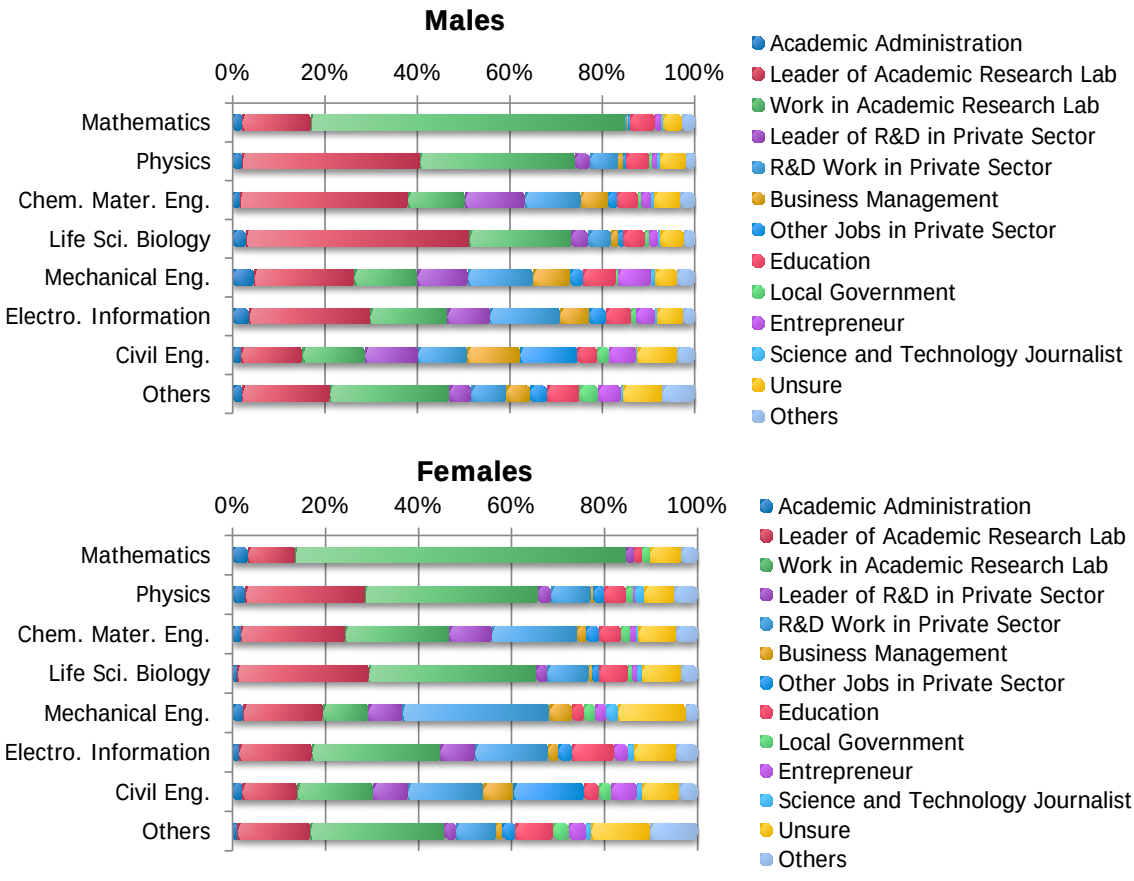


Figure 1.58 Career Goals by Profession

Overseas Research Activities (Question 23; Figure 1.59-60) (New Topic)

Both genders believe there are benefits to researching overseas, but the percentage of males and females that have actual experience are 30% and 20%, respectively, indicating a clear difference between genders.

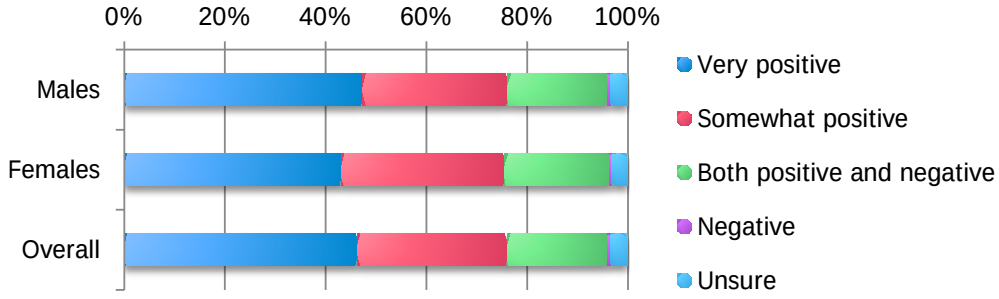


Figure 1.59 Impact of Overseas Activities on Career Development

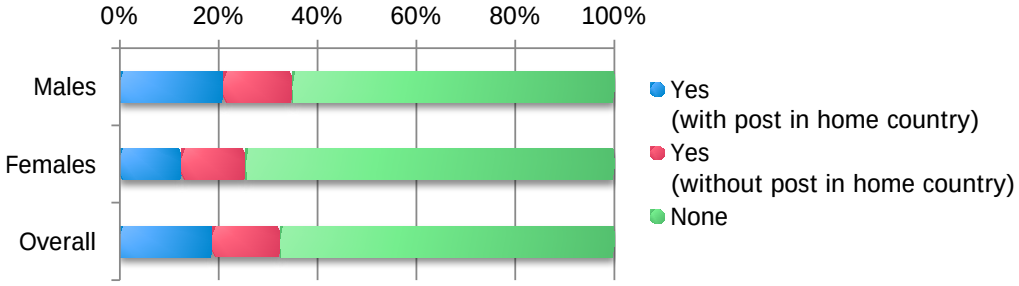


Figure 1.60 Experience with Overseas Research Activities Lasting Over 6 Months

Postdoctoral Position and Career Development (Question 24; Figures 1.61-65)

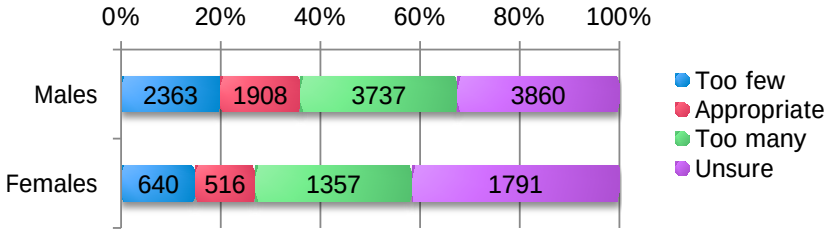


Figure 1.61 Opinion on Number of Postdocs

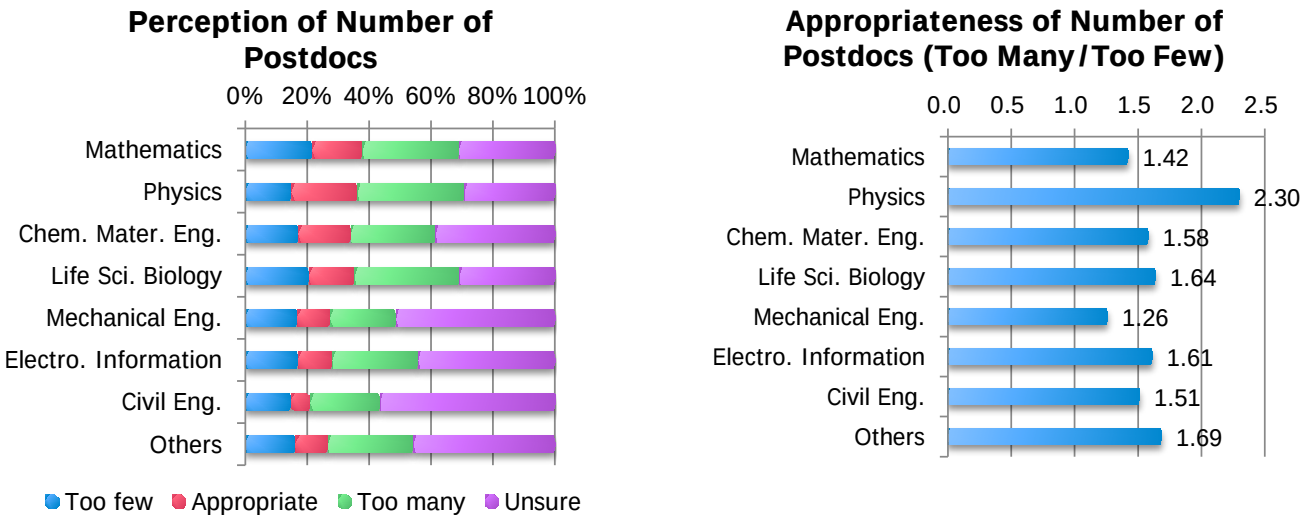


Figure 1.62 Opinion on Number of Postdocs by Profession

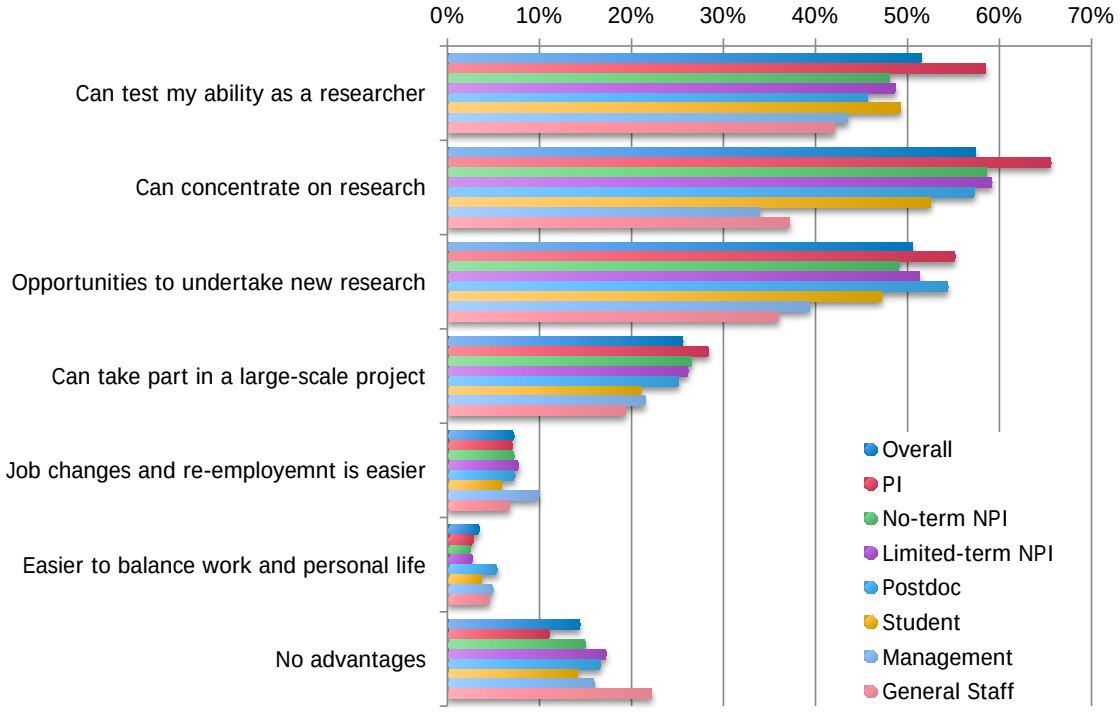


Figure 1.63 Benefits of Postdoctoral Position

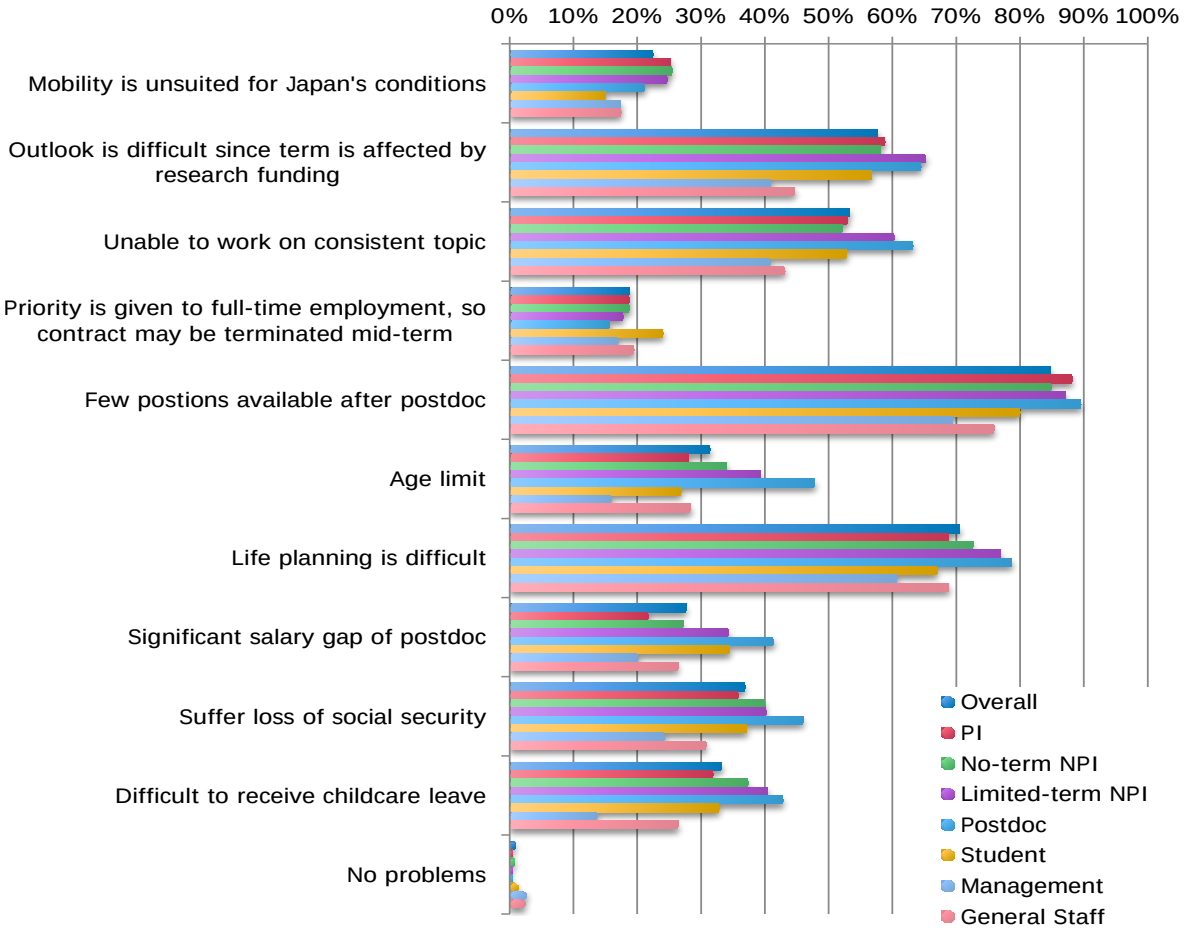


Figure 1.64 Problems with Postdoctoral Position

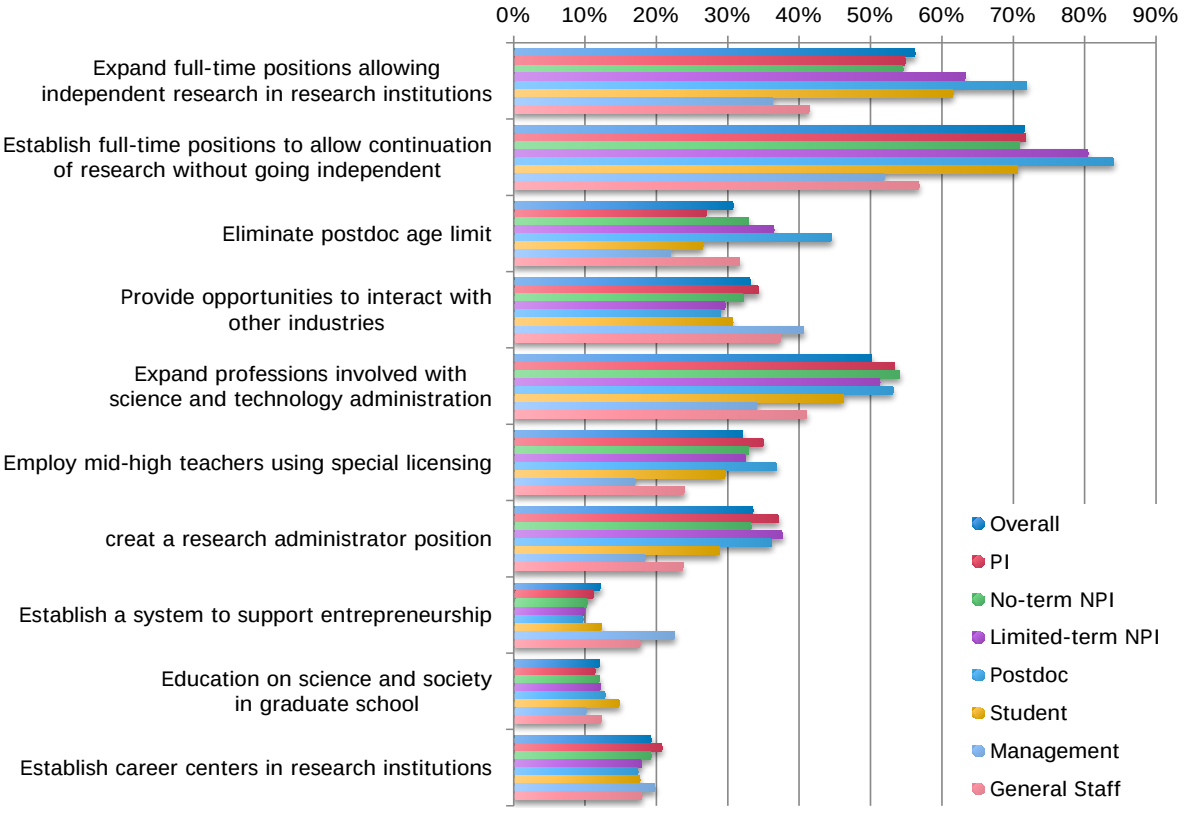


Figure 1.65 Securing Career Path After Postdoc

1.3 Work and Family

Marital Status (Questions 25, 26, 27; Figures 1.66-72)

There is clearly a wide gender gap in marital status with a higher percentage of males being married.

Spouse's employment status: More than half of male respondents' spouses are unemployed, while more than 98% of the female 'respondents' spouses have jobs.

Separate living experience: 26.8% of males have experience (a decrease from the previous survey), while 49.4% of females had experience (an increase).

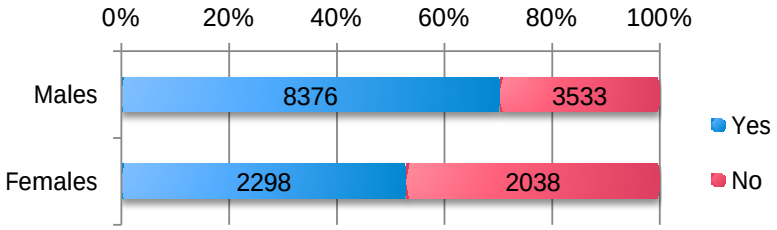


Figure 1.66 Marital Status

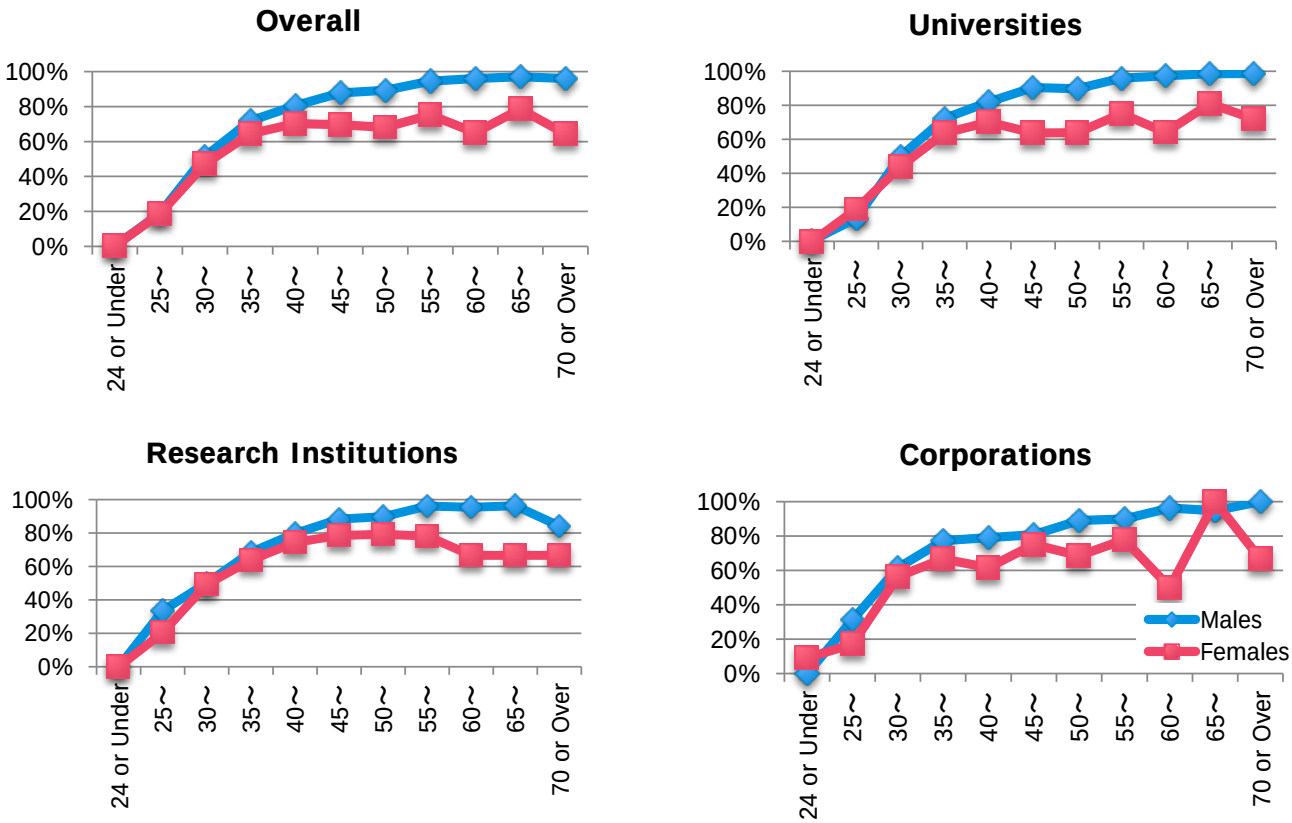


Figure 1.67 Marital Status by Age Group for Each Institution

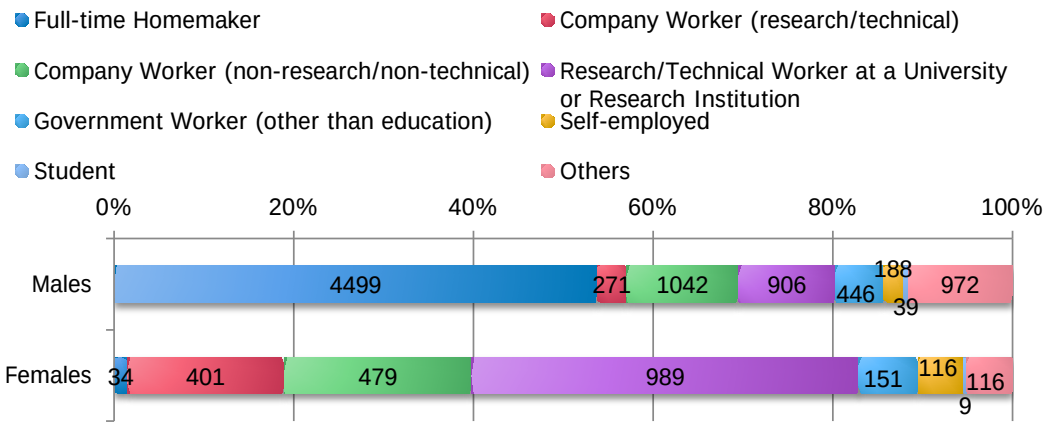


Figure 1.68 Spouse's Employment

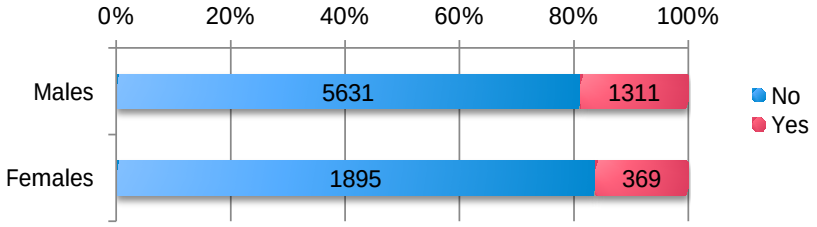


Figure 1.69 Term for Spouse's Employment

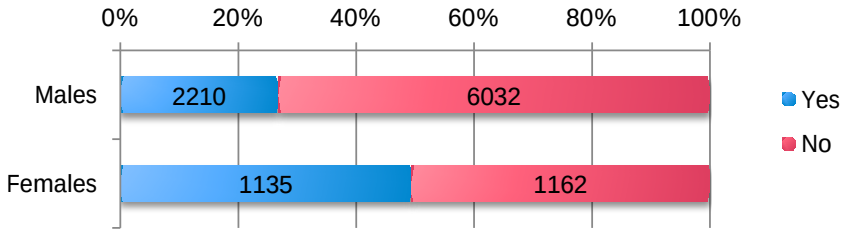


Figure 1.70 Experience Living Separately

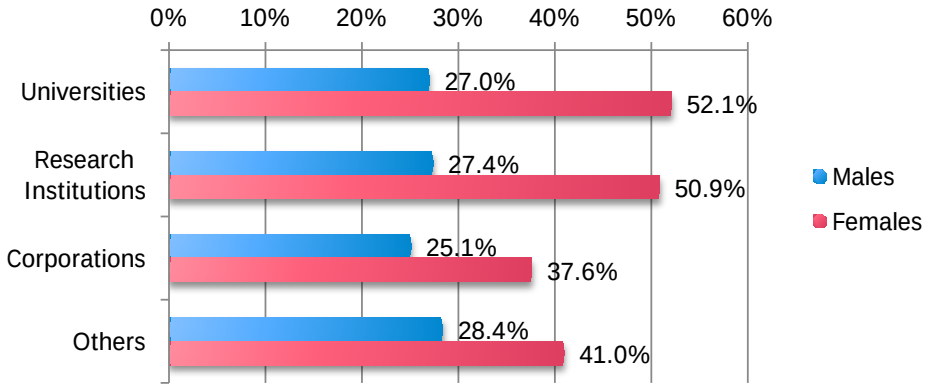


Figure 1.71 Percentage of Respondents with Separate Living Experience by Affiliated Institution

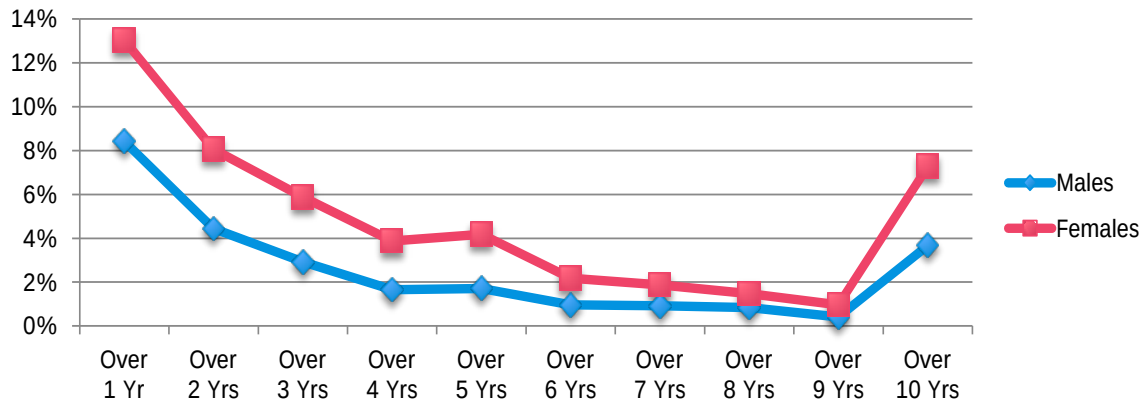


Figure 1.72 Years Spent Living Separately

Number of Children (Questions 28, 29.1, 29.2, 36; Figures 1.73-79)

About 2/3 of female respondents do not have children, and of those that do have children, most have one child. On the other hand, more than half of male respondents have children, with the majority having two children. Interestingly over 50% of both males and females believe the ideal number of children to have is two, followed by 30% who think three children is ideal (figure 1.77).

Reasons for not having the ideal number of children: While most males gave "financial" as the reason for not having the ideal number of children, the top reason cited by females respondents was "balance between career and childcare" (Figure 1.79). Neglecting "others", the second most popular reason for both genders was "job stability".

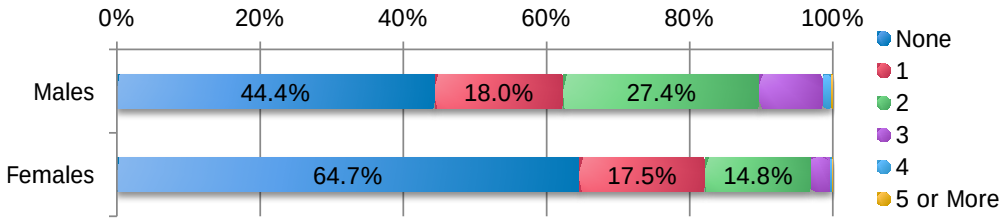


Figure 1.73 Number of Children

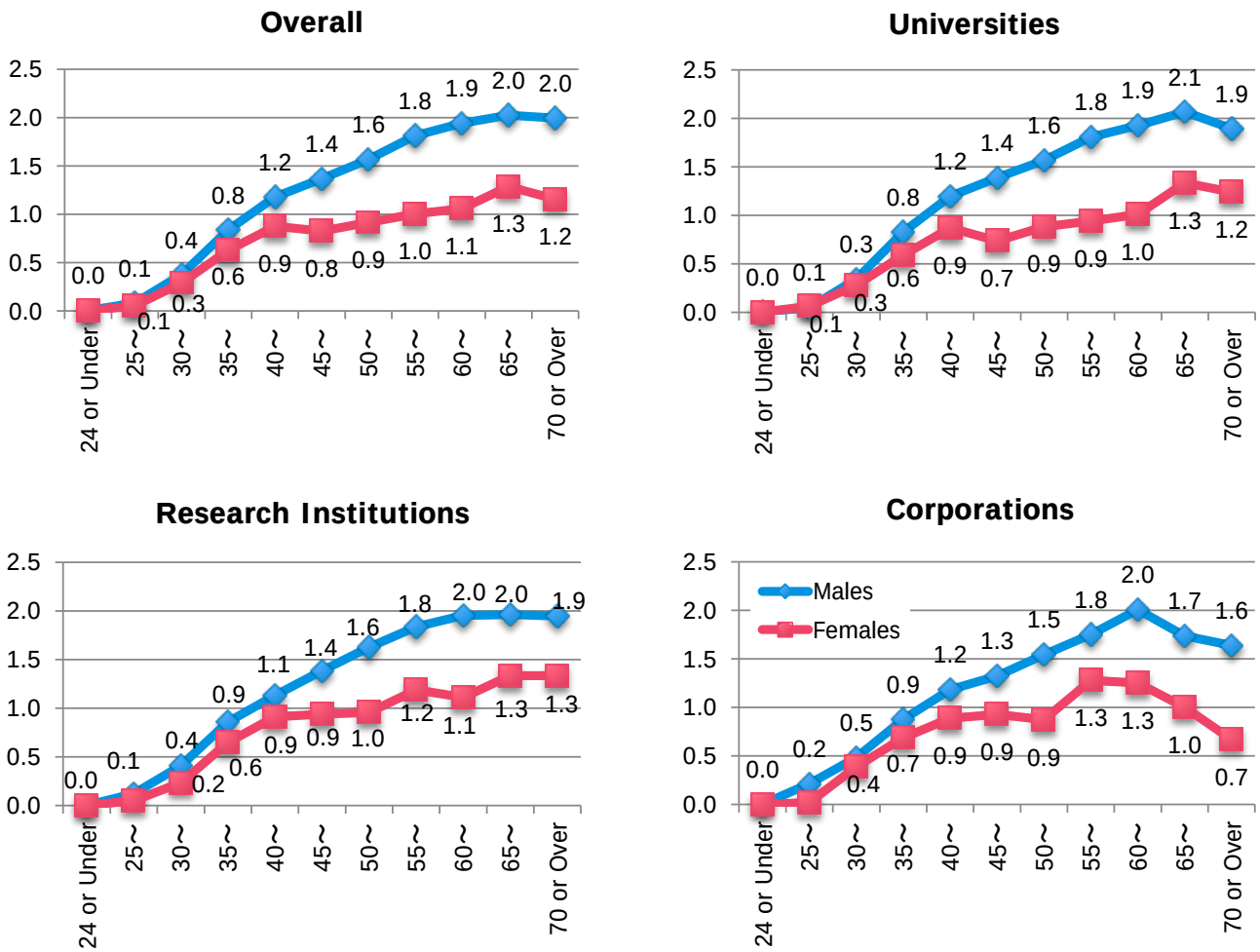


Figure 1.74 Numbers of Children by Age Group for Each Institution

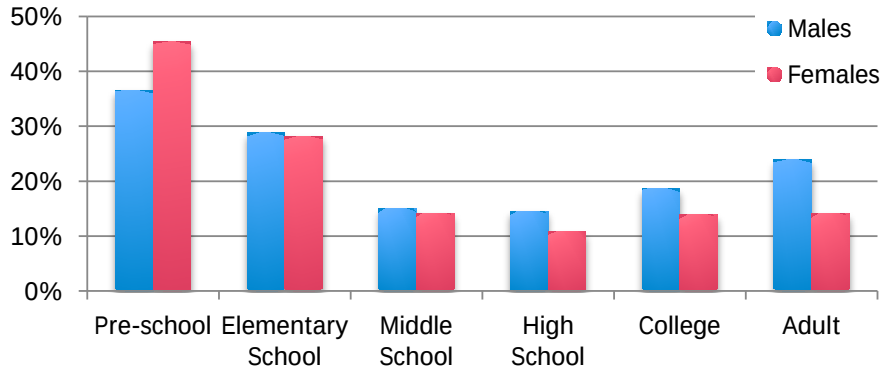


Figure 1.75 Age of Children (for those with children)

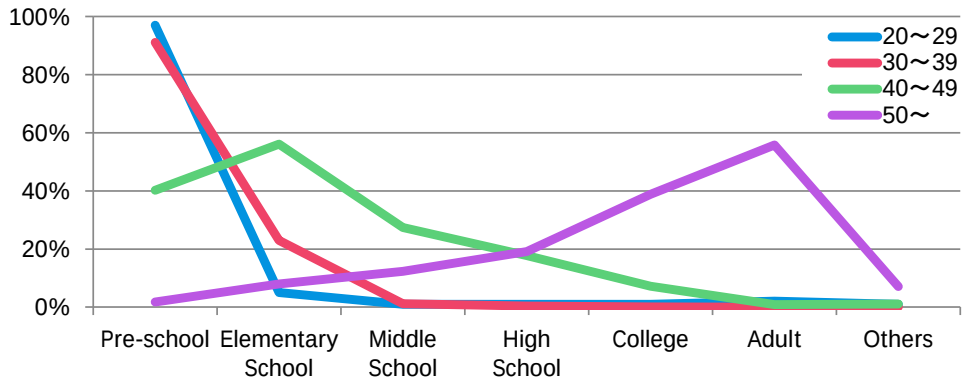


Figure 1.76 Age Relation of Respondents and Their Children

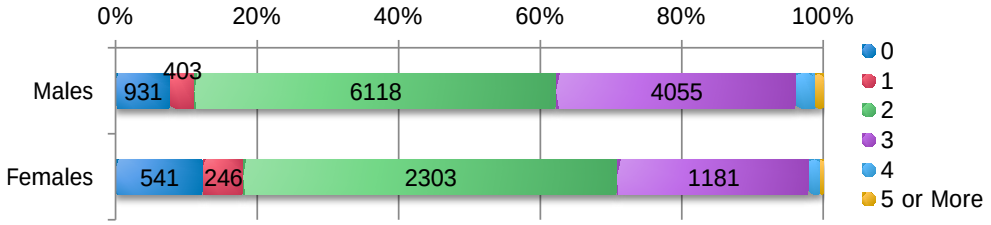


Figure 1.77 Ideal Number of Children

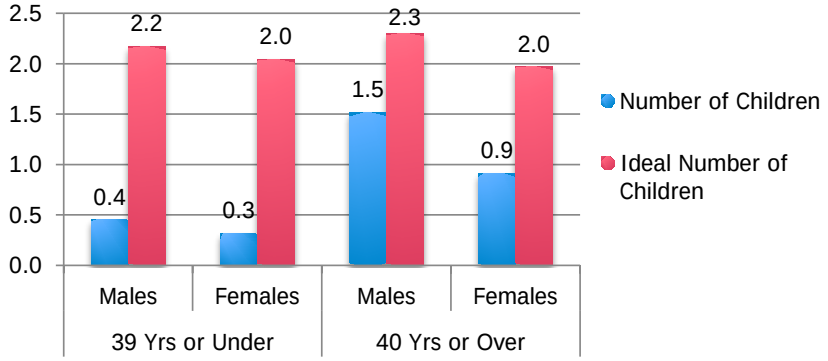


Figure 1.78 Actual and Ideal Number of Children

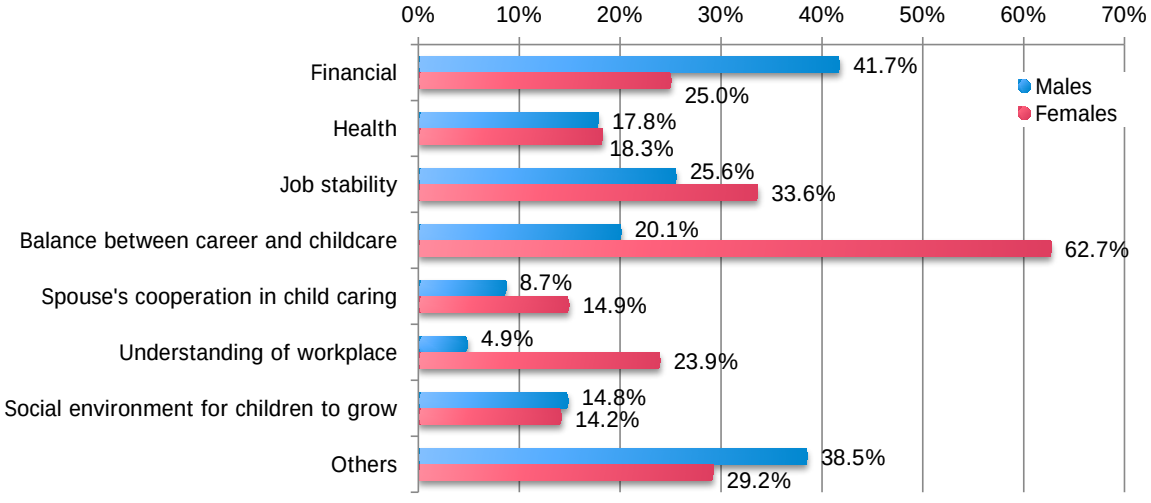


Figure 1.79 Reasons Why Number of Children Are Less Than Ideal

Childcare and Childcare Leave (Questions 29.3, 29.4, 30-35; Figures 1.80-85)

Person responsible for daytime childcare: For most males, their spouses look after their children. Females mostly rely on day-care centers (for pre-school children) or after school day-care centers (for elementary school children).

Childcare leave: Those that took leave were mostly female.

Length of childcare leave: Many of the female respondents took 6 to 12-months leave. Leave taken by male repondents were mostly less than one month.

Reasons for not taking childcare leave: Over 50% of female responses were “Workplace environment” and “no provision existed”. In the case of male respondents, over 50% responded “was not necessary”.

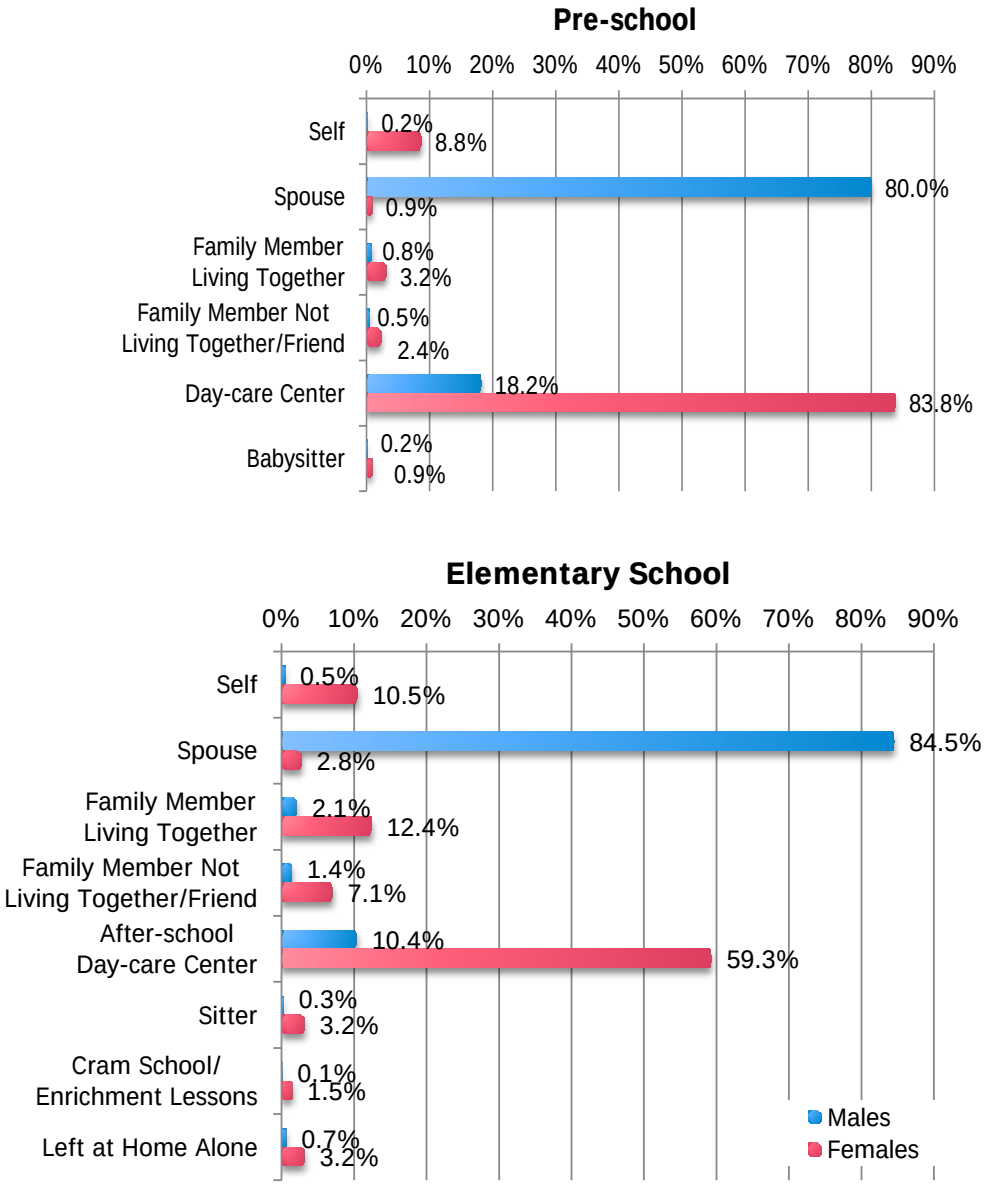


Figure 1.80 Person Responsible for Daytime Childcare

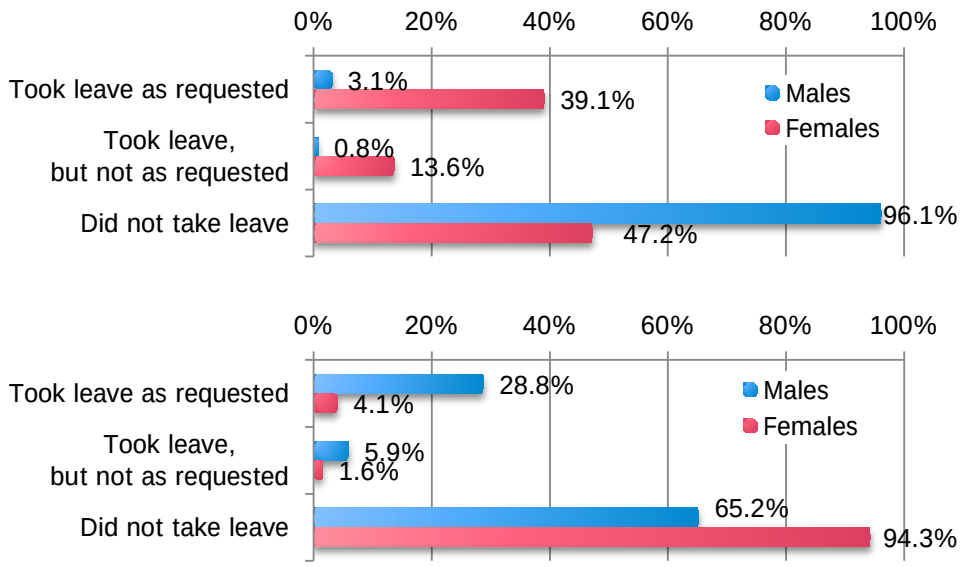


Figure 1.81 Status of Childcare Leave (Top: Self, Bottom: Spouse)

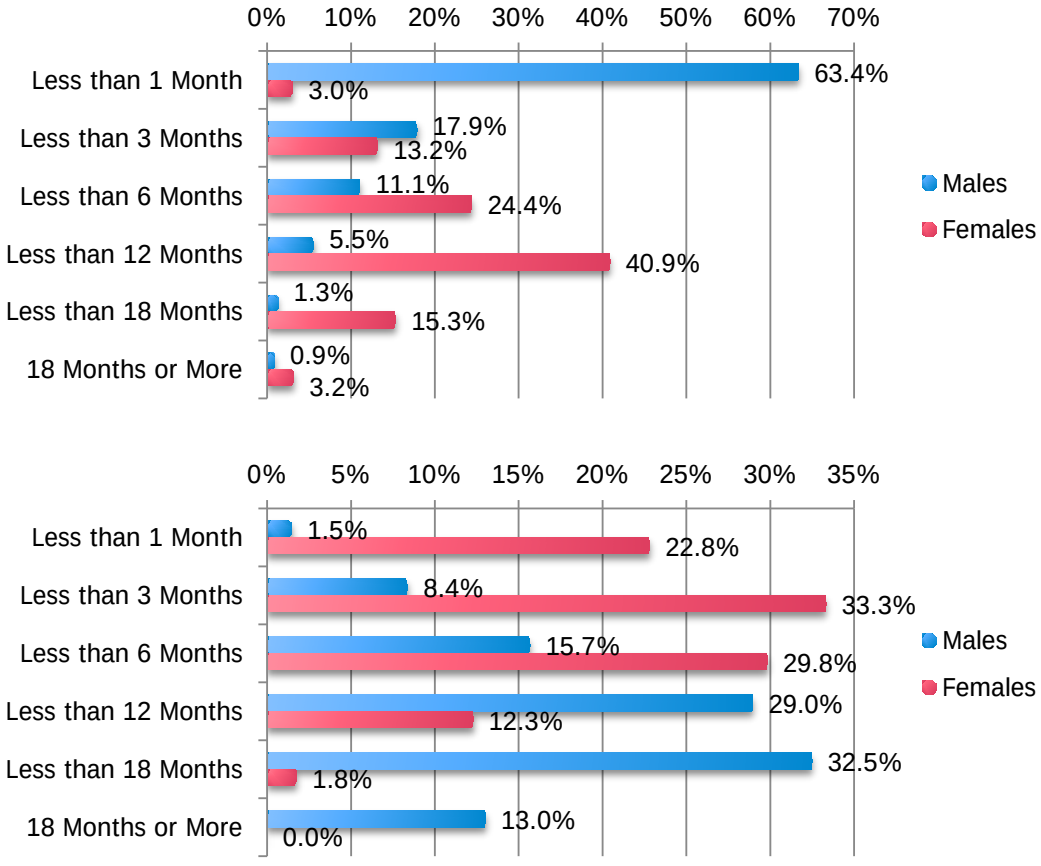


Figure 1.82 Length of Childcare Leave
(Top: Respondent, Bottom: Spouse (Note: by respondents' gender))

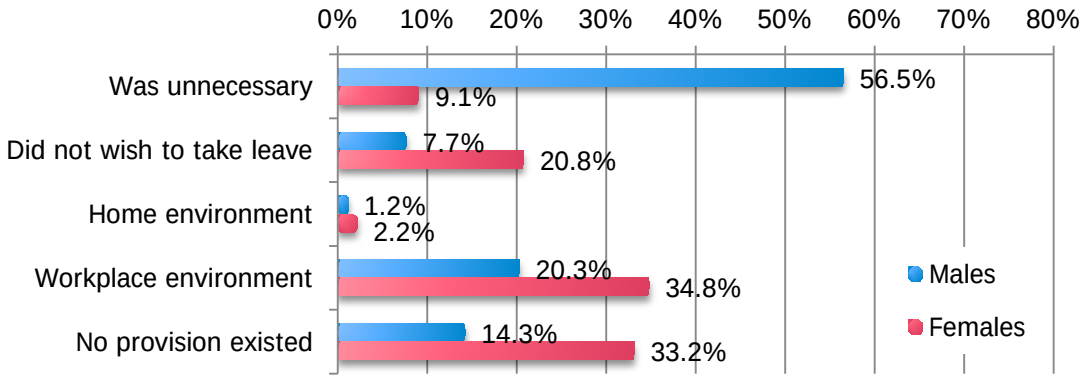


Figure 1.83 Reasons for Not Taking Leave (as requested) (Respondent)

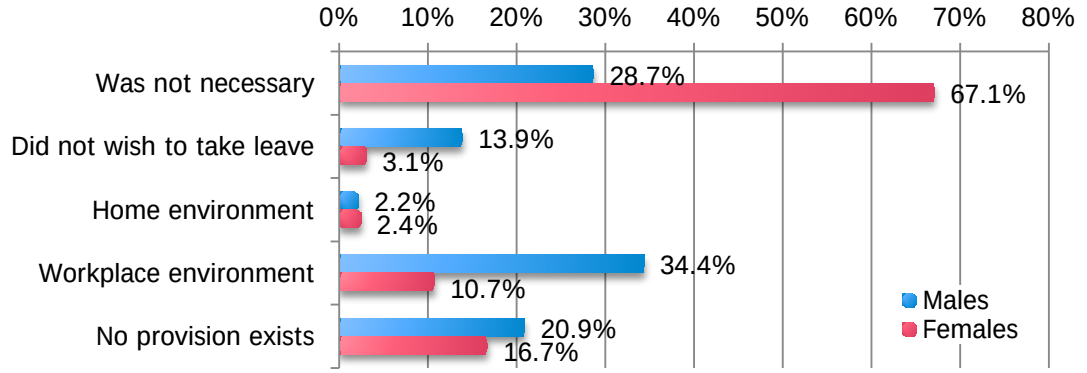


Figure 1.84 Reasons for Not Taking Leave (as requested) (Spouse: by respondents' gender)

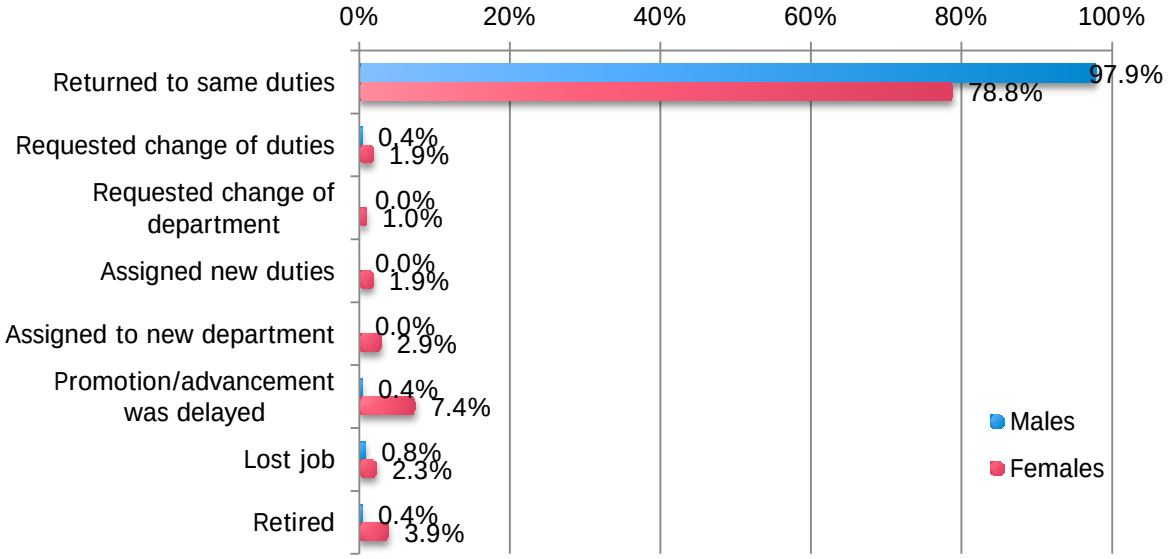


Figure 1.85 Status After Childcare Leave

Nursing Care (Question 37; Figures 1.86-89) (New Topic)

About 30% of both males and females indicated they have a family member that requires nursing care.

There was no difference between males and females as about 50% of both answered “expansion of nursing-care service is required” for balancing family and work. However, in contrast to nearly 50% of males being “aware of nursing-care leave”, female awareness was 10% higher.

Provision for nursing-care leave: Overall, about 80% of workplaces provide nursing-care leave (percentage slightly lower at universities).

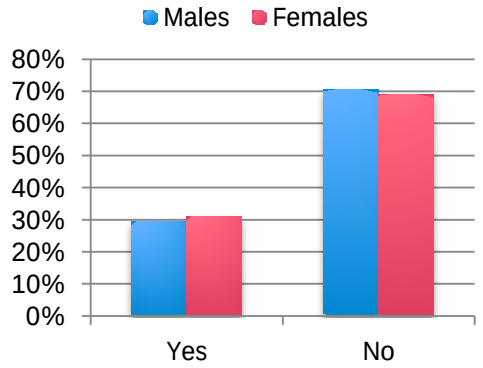


Figure 1.86 Need for Nursing Care of Family Member

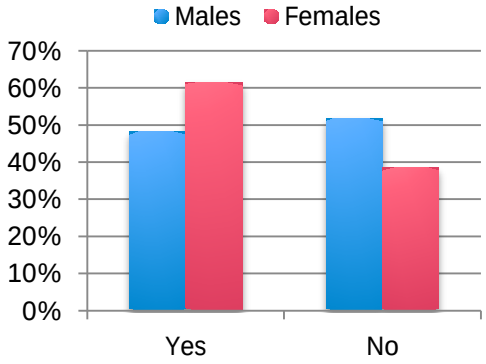


Figure 1.87 Awareness of Nursing-Care Leave

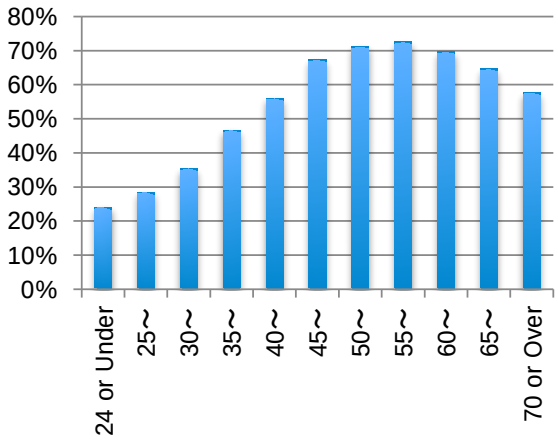


Figure 1.88 Percentage of Respondents Aware of Nursing-Care Leave by Age Group

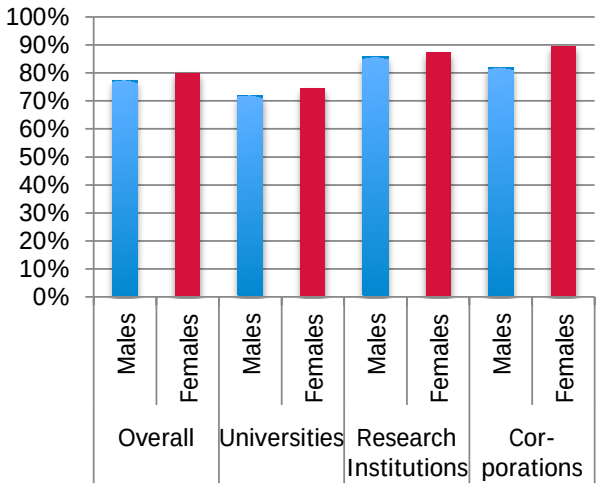


Figure 1.89 Provision for Nursing-Care Leave at Respondent’s or Spouse’s Workplace (Percentage of respondents that replied “Yes”)

Balancing Family and Work (Question 38; Figures 1.90-91)

For both males and females, the top 5 requirements for balancing family and work included selections over a broad perspective including thing related to the workplace environment, society support, gender roles and approach to life

Selection of “Sick child care” showed a large difference between males and females. For respondents with children, the number of responses from females with elementary school or younger children was extremely high, and the number of responses from males with elementary school or younger children was half that of females (Figure 1.91).

As with the previous survey, the selections of "expanded nursery service" and "expanded after-school care for children" were popular, especially from females with elementary school or younger children.

About 50% of both genders selected “expand nursing-care services”, which is a significant increase from the previous survey.

While 50% of female respondents selected “changes in male in female roles”, only 30% of males made a similar selection. A gap between genders was also seen with 40% of female respondents selecting “various ways of working and career paths” versus only 20% for males.

Only “changes in ‘work as center’ concept”, “increased paid vacations” and “financial support for child and nursing care” had higher selectivity with males than females (Figure 1.91).

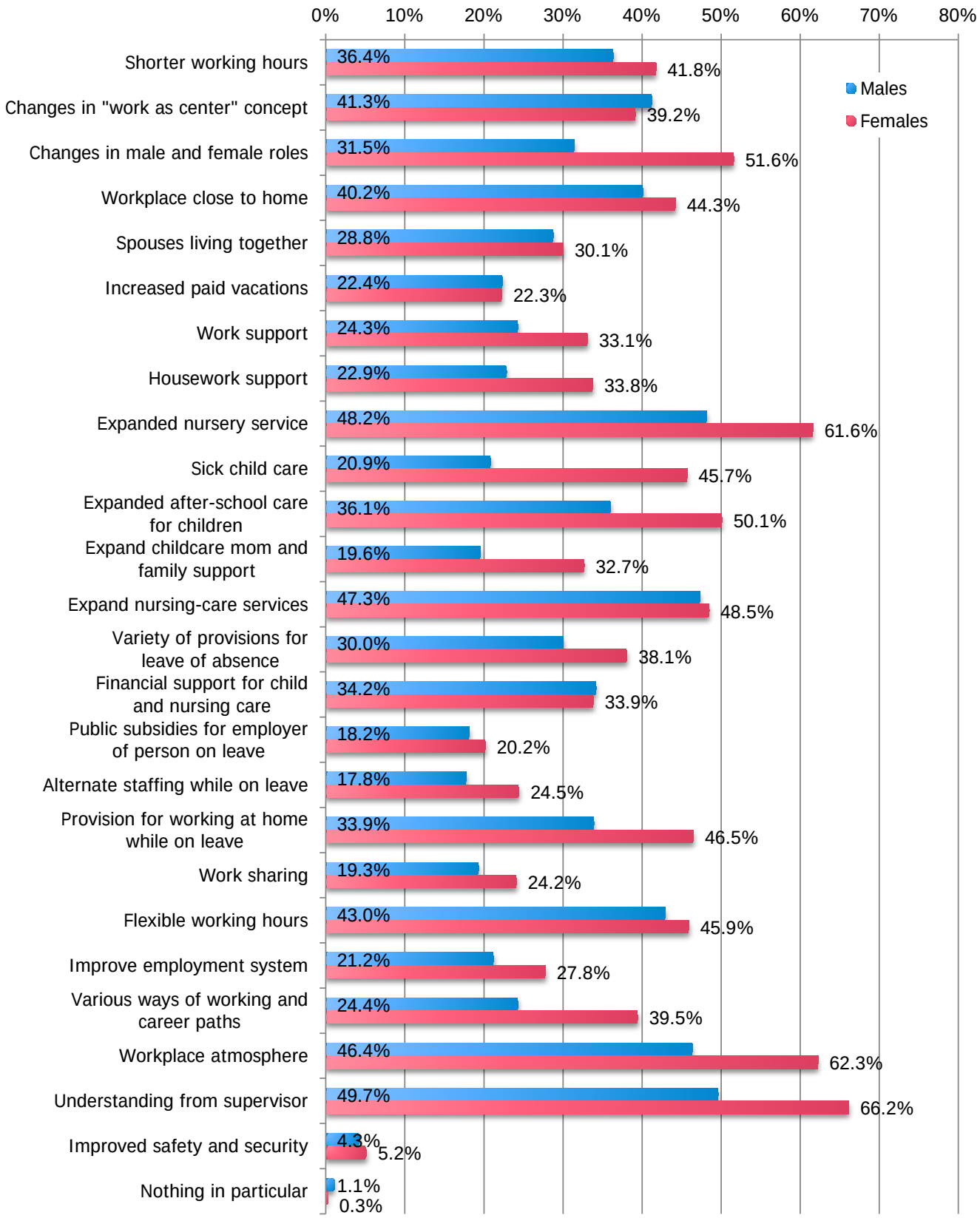


Figure 1.90 Requirements for Balancing Family and Work

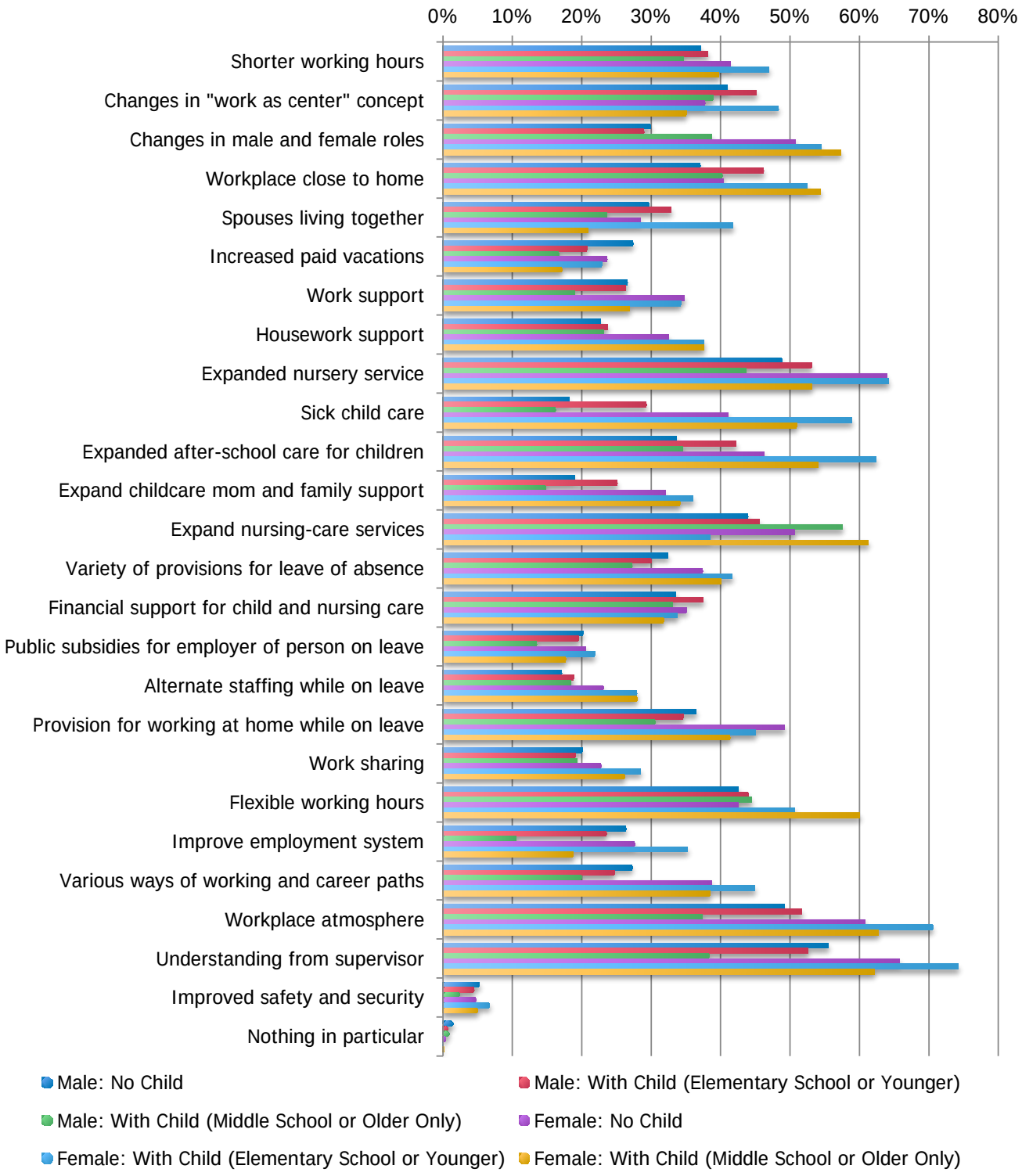


Figure 1.91 Requirements for Balancing Family and Work by Presence of Children

Environment Required for R&D (Question 39; Figure 1.92)

About 70% of respondents report that they require “R&D time” and “R&D funds (including maintenance)”. “Streamline or separate administrative and odd jobs” and “environment for long-term research” were also selected by many of the respondents. There were no visible gaps between genders, and trends mirrorrs results obtained in the previous survey.

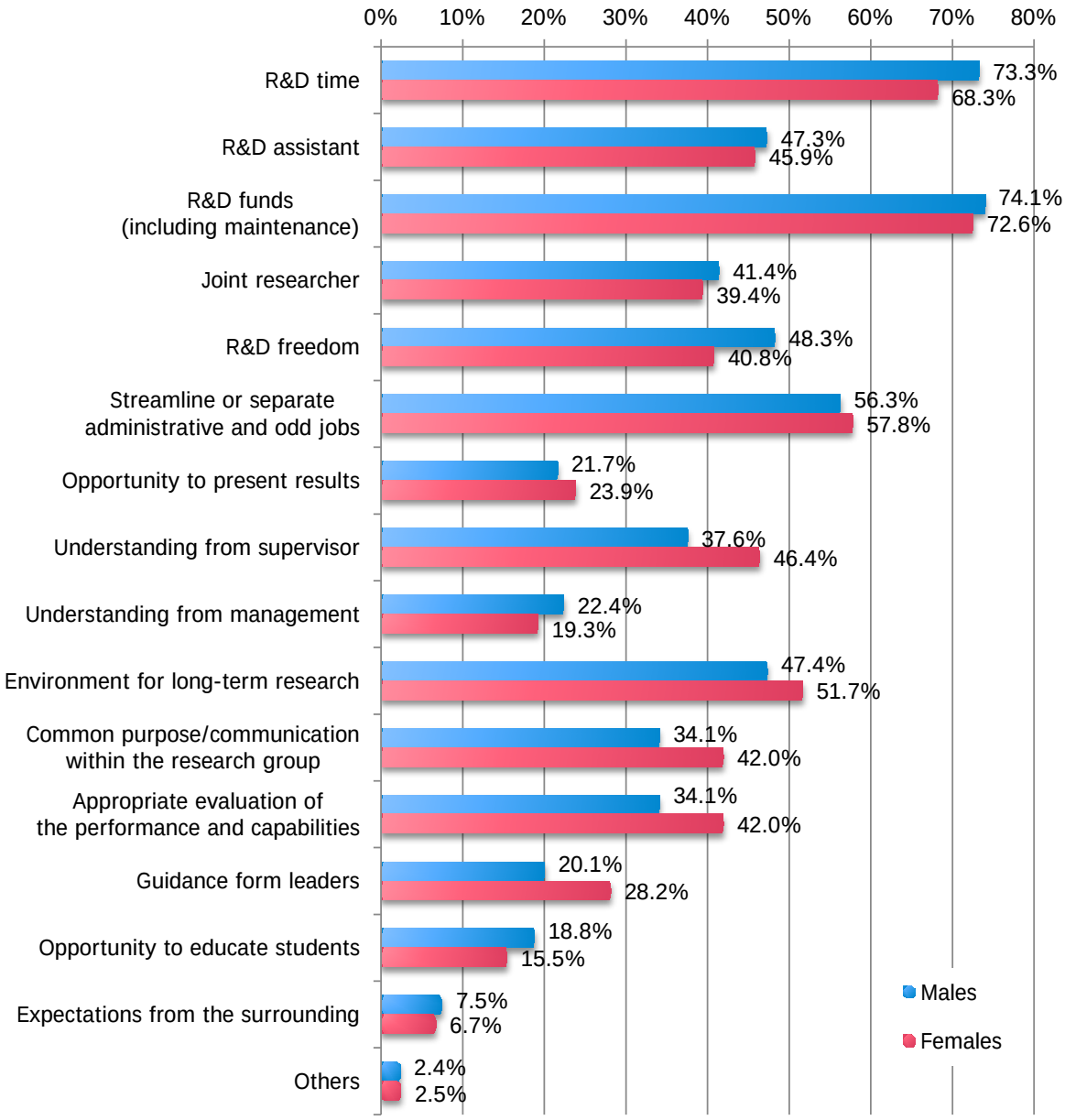


Figure 1.92 Environment Required for R&D

1.4 Gender Equality

Percentage of Female Researchers (Question 40; Figures 1.93–95)

The top reason indicated by both genders for the low percentage of female researchers was “balancing family and work is difficult” receiving over 50% of responses (Figure 1.93). This was followed by “returning after childcare leave is difficult” and “workplace environment”, combining for over 30% of the responses from both male and female respondents.

Similarly, the top reason for the low percentage of females in leadership positions was “balancing family and work is difficult” again receiving over 50% of responses from both genders (Figure 1.94). This response was followed by “frequent early retirement or leave of absence”, “females currently in leadership position is low” and “lack of consideration for child and family care in performance evaluation” combining for over 30% of responses.

To remedy the situation, most respondents suggested more “aggressive hiring” of females. This response was followed by “employ research assistants”, “consideration of life events in performance evaluations” and “reduce non-research workload” (Figure 1.95).

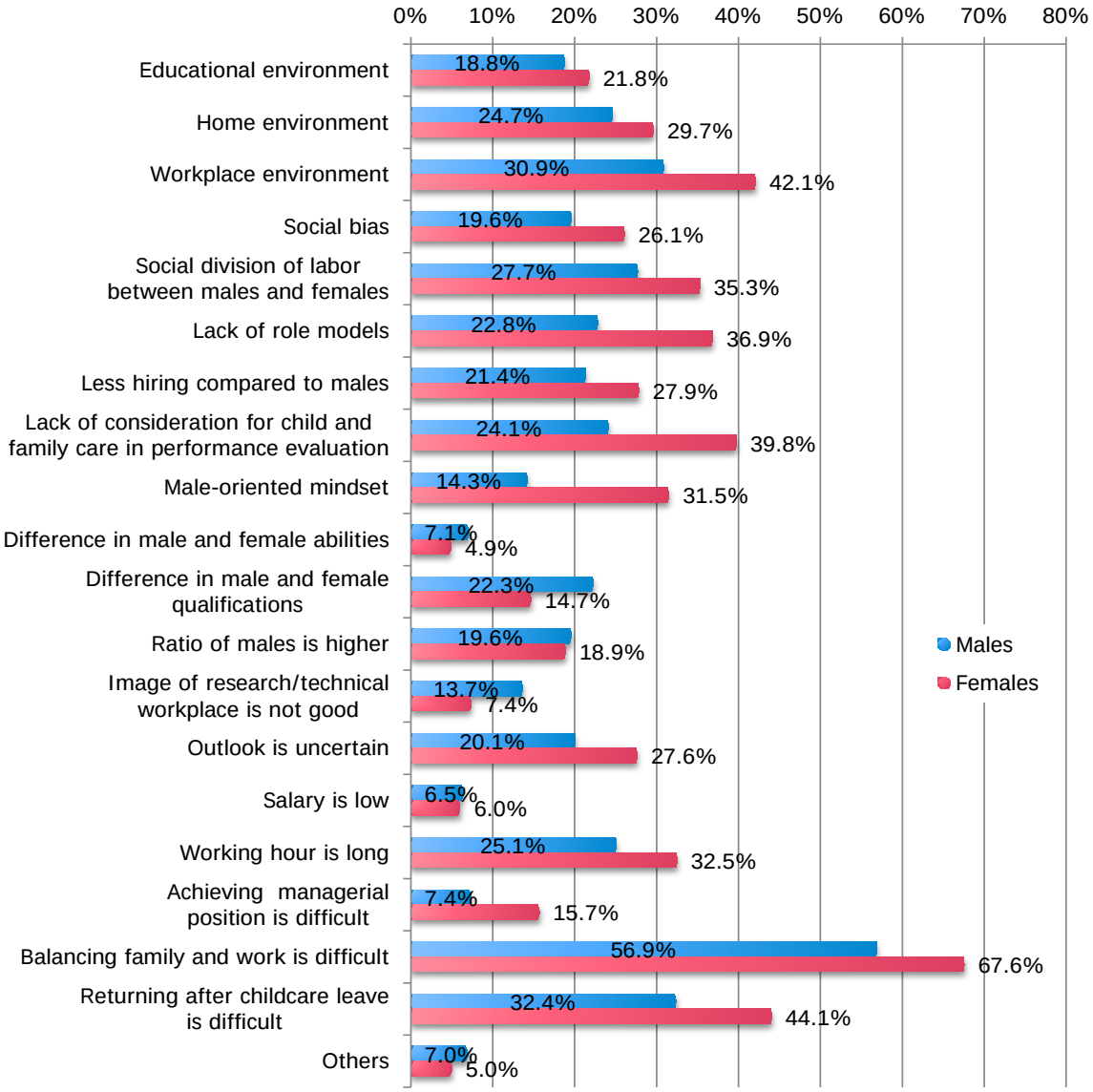


Figure 1.93 Reasons for Low Percentage of Female Researchers

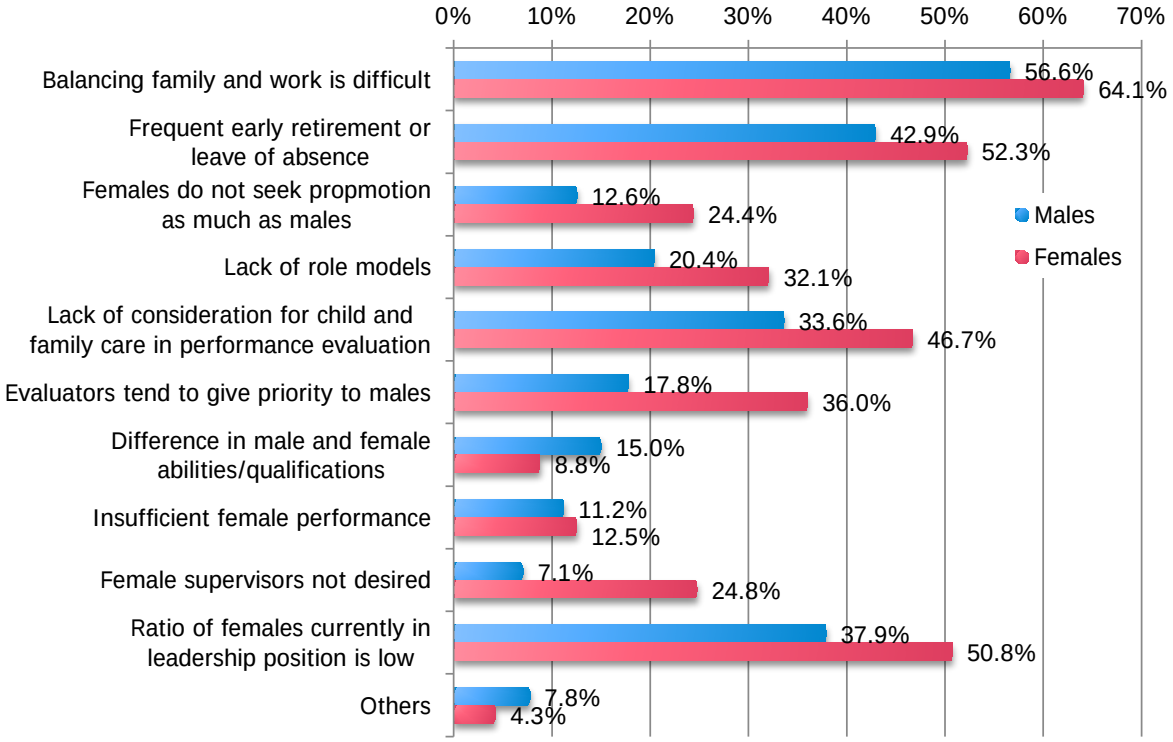


Figure 1.94 Reasons for Low Percentage of Females in Leadership Position

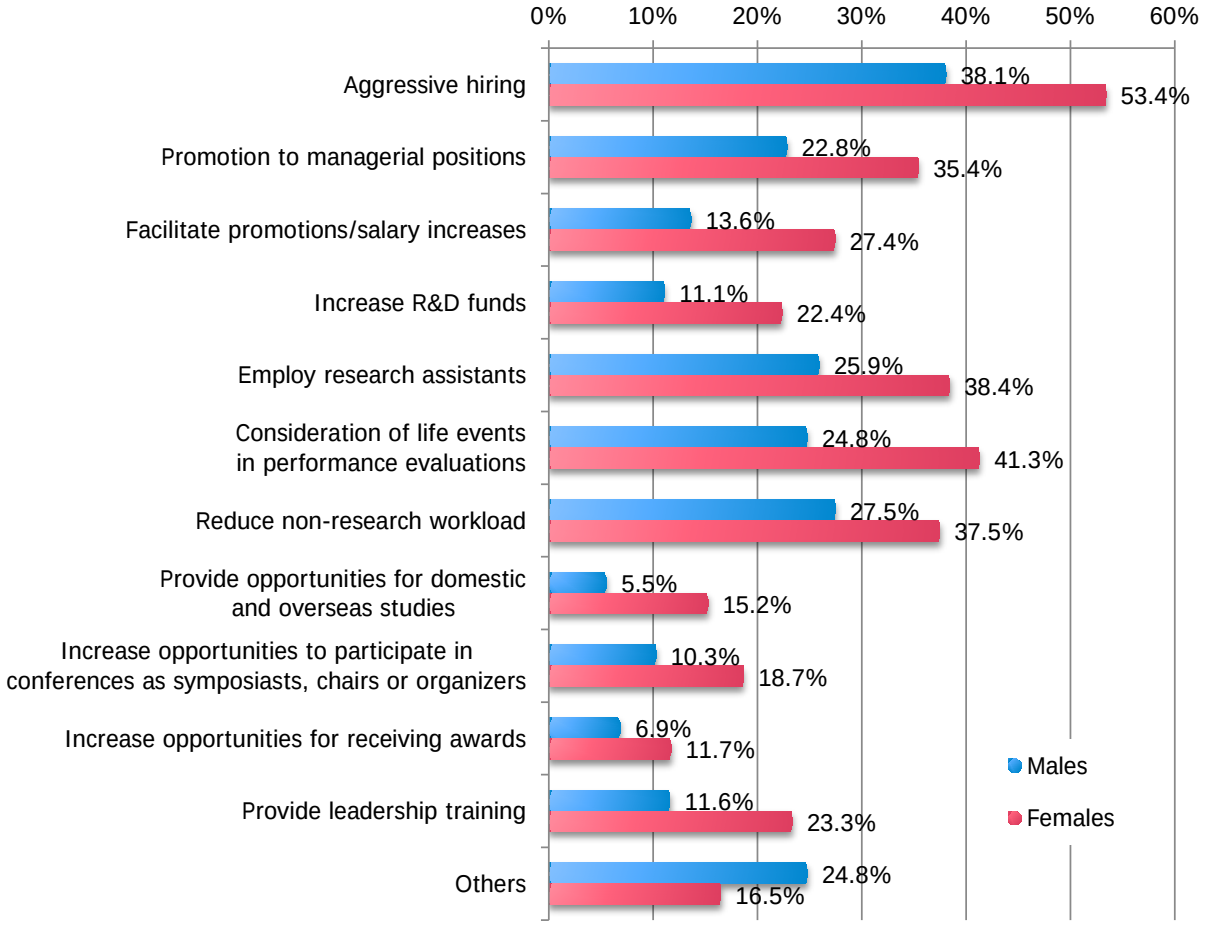


Figure 1.95 Remedies for Improving Female Ratio

Awareness of New Policies (Questions 41, 42; Figures 1.96-98)

A large percentage of younger respondents “did not know” about the existence of laws and basic policies.

Awareness and significance of national policies and support for female researchers: Overall, the awareness of female respondents was greater and the percentage of those that thought the policies were “meaningful” was high.

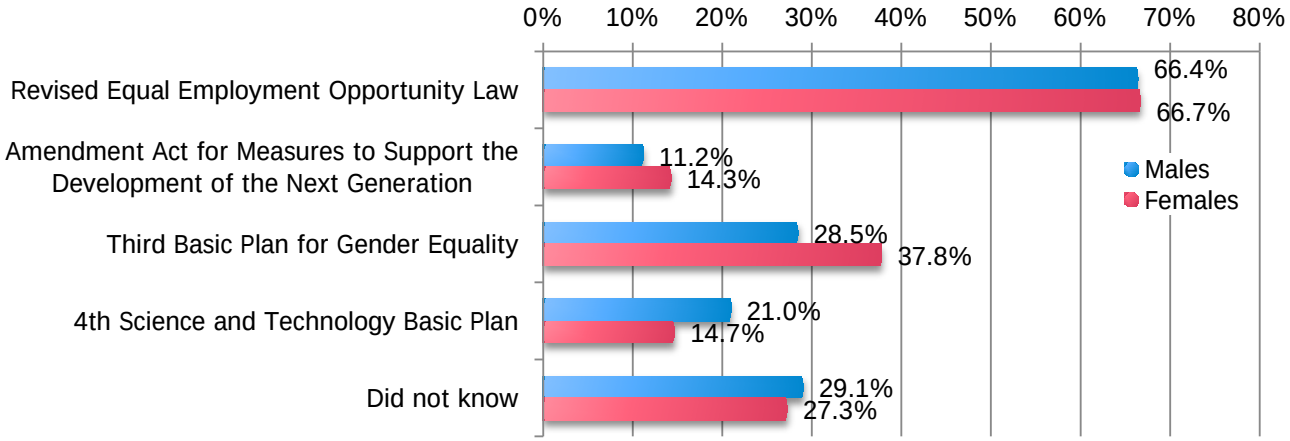


Figure 1.96 Awareness of Policies

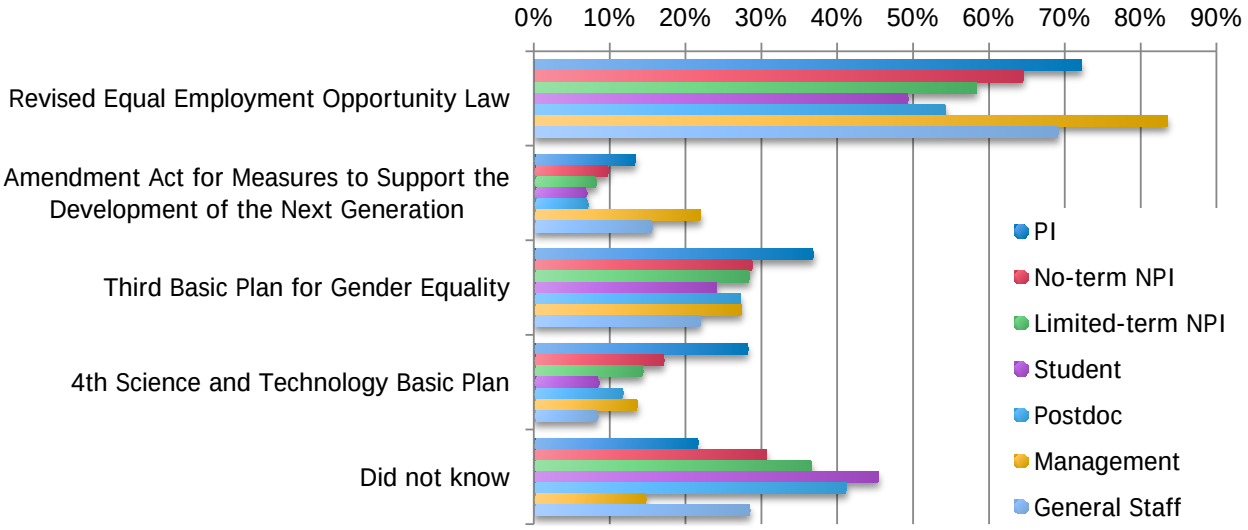


Figure 1.97 Awareness of Policies by Occupational Field

Figure 1.98 Awareness and Significance of National Policies and Support for Female Researchers

Awareness and Significance of Numerical Target (Question 43; Figures 1.99-103)

60% of males and 50% of females were not aware of a numerical target for the hiring of female employees.

In case of the males, there were more who think a numerical target is “not meaningful” as opposed to “meaningful”. The opposite was true for females, with more believing a numerical target is “meaningful” than “not meaningful”.

The “should be expanded and promoted” response dropped drastically from the previous survey (males: 15%→4%, females: 37%→10%) (Figure 1.100).

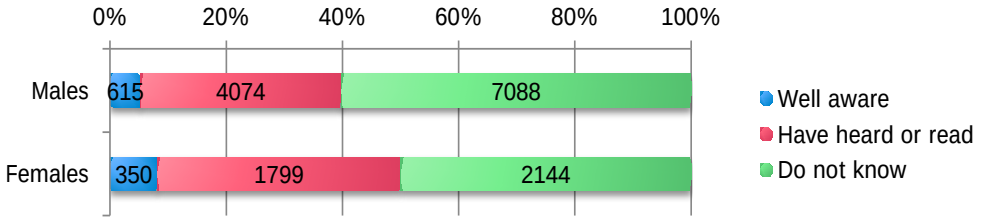


Figure 1.99 Awareness of Numerical Target for Female Hiring

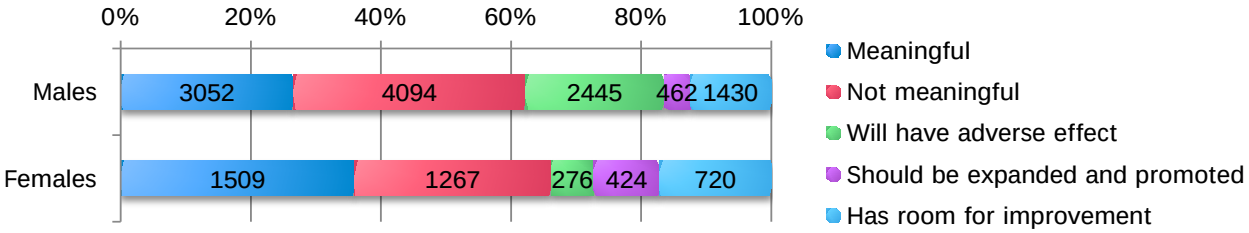


Figure 1.100 Significance of Setting a Numerical Target for Female Hiring

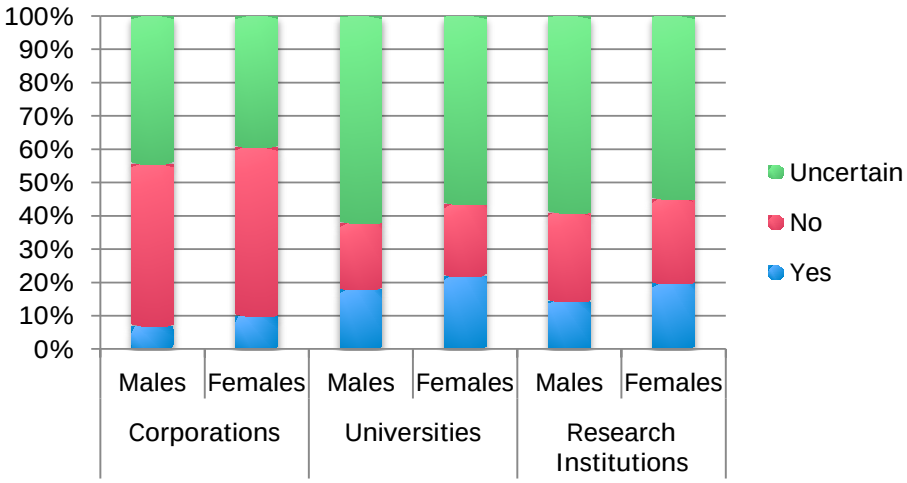


Figure 1.101 Is There a Set of Numerical Target for Female Hiring?

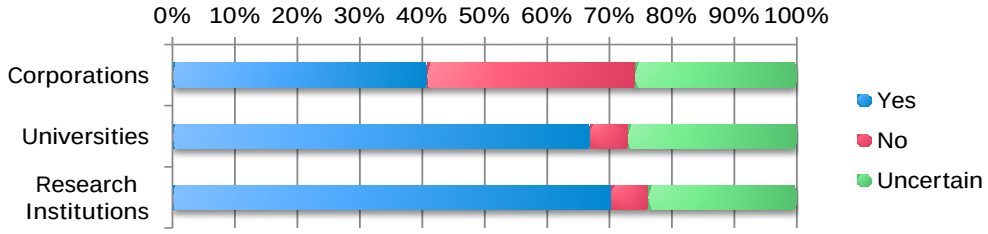


Figure 1.102 Is Numerical Target Publicized? (for those who replied yes to set target)

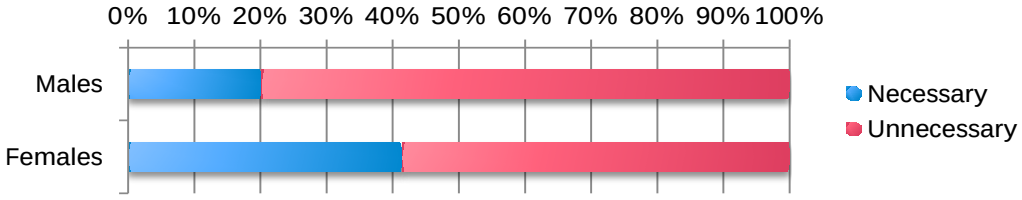


Figure 1.103 Need for a Set of Numerical Target (for those who replied no to set target)

Promotion of Gender Equality (Question 44; Figures 1.104-107)

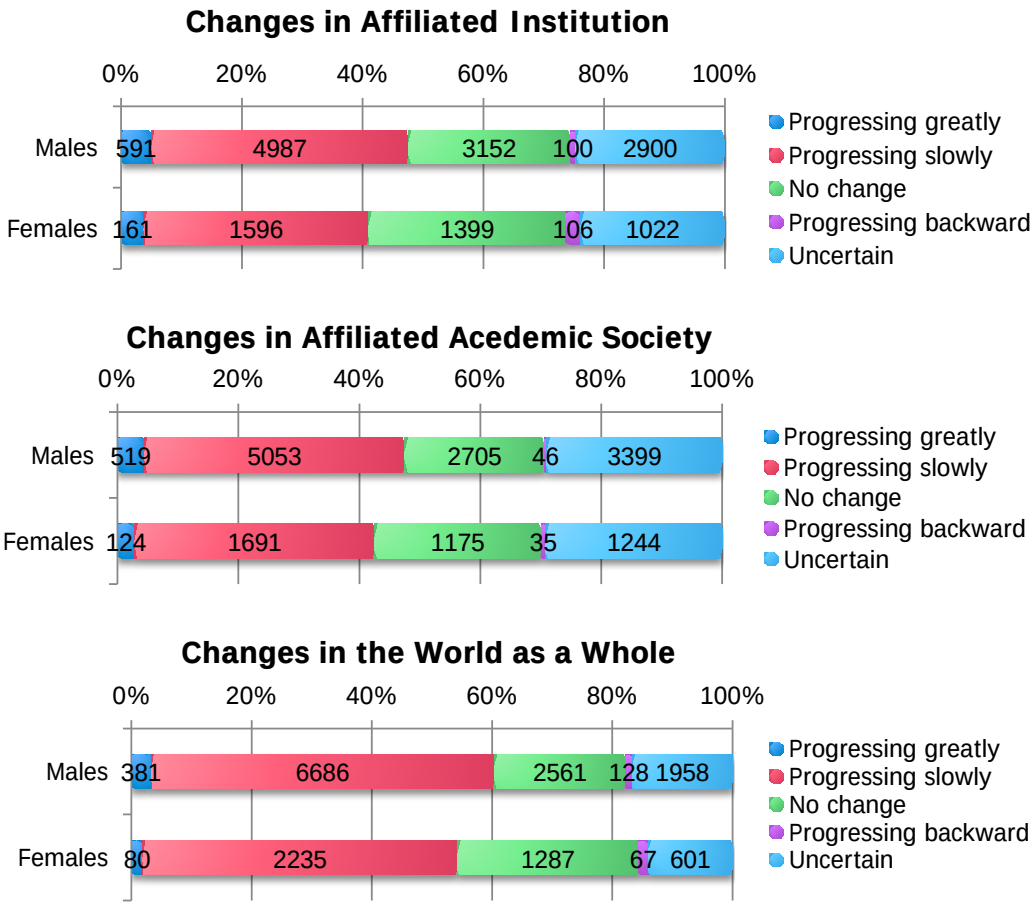


Figure 1.104 Progress in the Promotion of Gender Equality

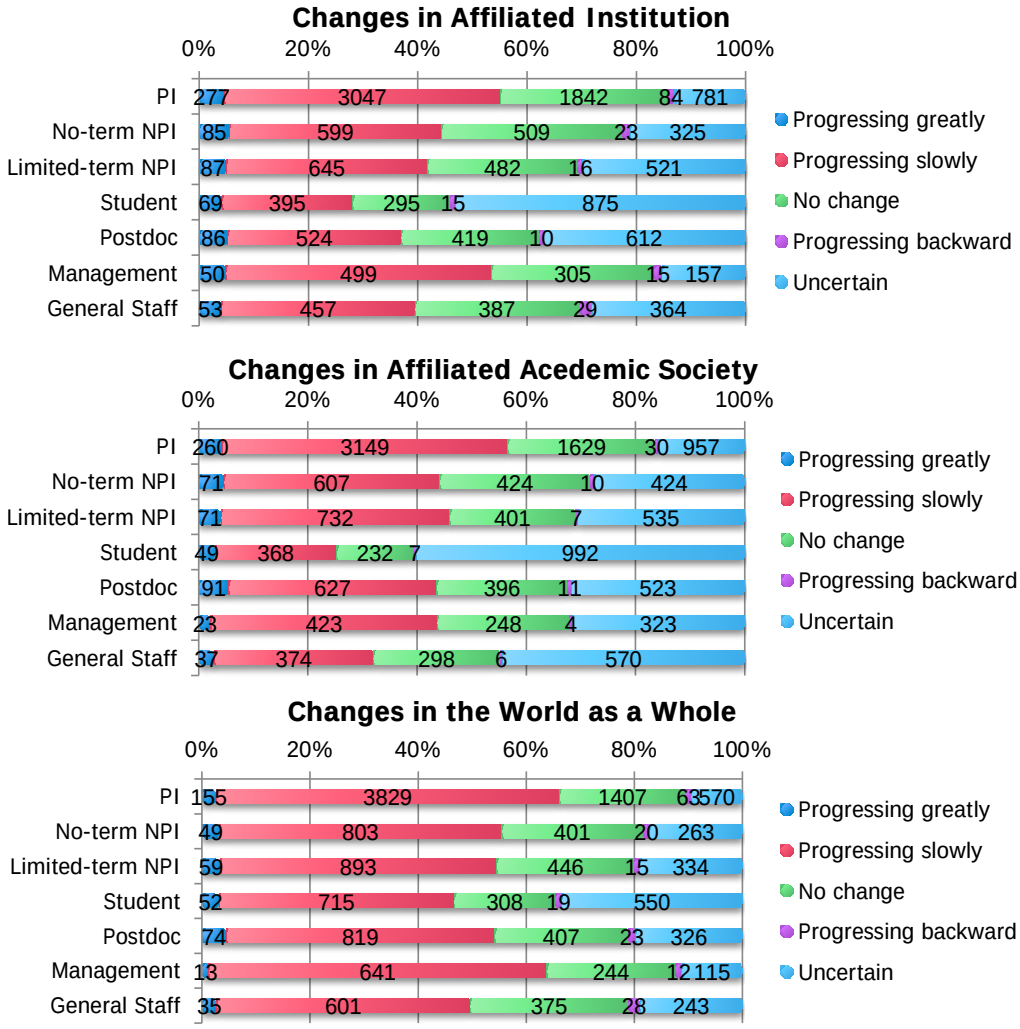


Figure 1.105 Progress in the Promotion of Gender Equality by Occupational Field

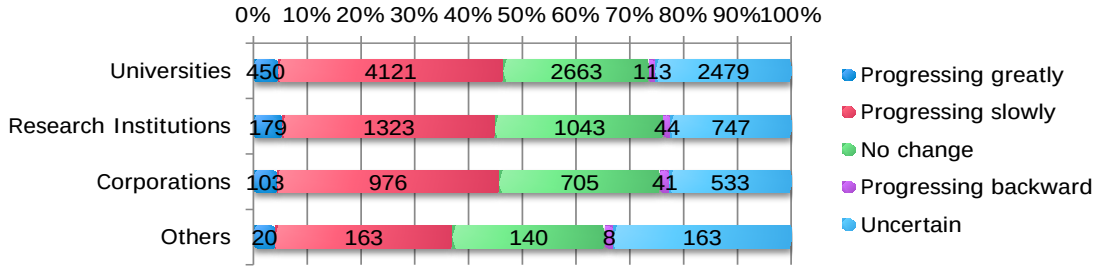


Figure 1.106 Progress in the Promotion of Gender Equality by Institution

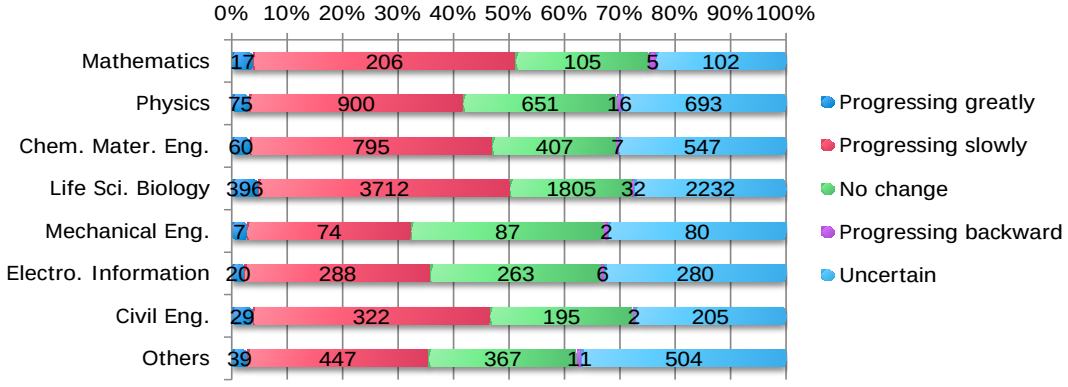


Figure 1.107 Progress in the Promotion of Gender Equality by Profession

Future Requirements for Gender Equality (Question 45; Figure 1.108)

The top requirement in the promotion of gender equality was reforming awareness of both genders followed by “expand support of child and nursing care”. “Increase male participation in housework and childcare” also had a high percentage of responses.

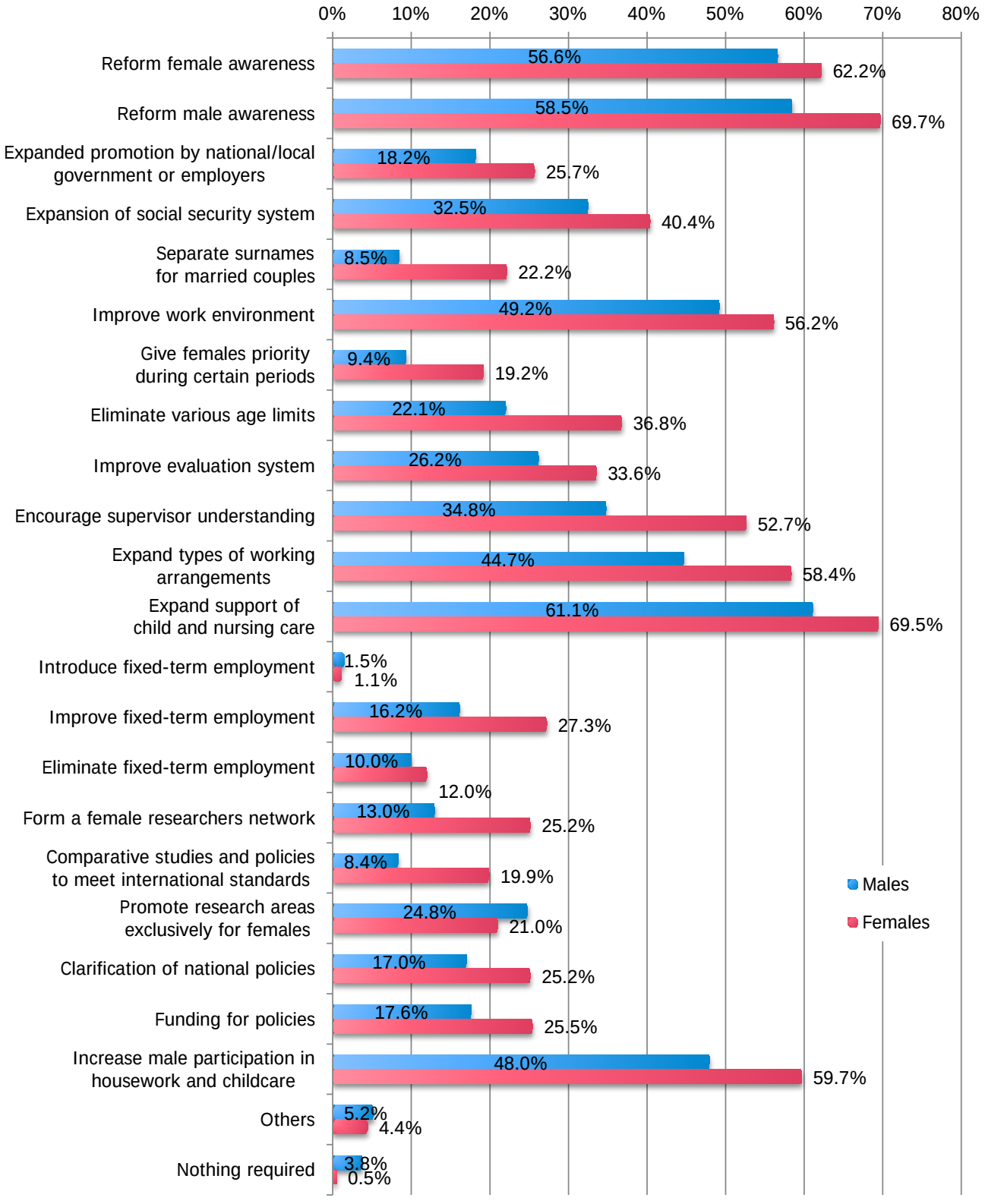


Figure 1.108 Future Requirements for Gender Equality

1.5 Summary of This Chapter

1.1 Basic Data

- Number of respondents: males 11,958, females 4,356 (26.7%). There was an increase in the percentage of those with a doctoral degree.
- The number of respondents affiliated with corporations decreased from the previous survey. By overall ratio, those associated with biology/life science increased.
- Females had the higher ratio of biology/life science-associated respondents, but the gender gaps in composite ratio for each field overall were smaller than the previous survey.
- Same as the last time, the higher the job position, the smaller the ratio of females to males.
- As before, a gender gap exists in average annual salary.

1.2 Work

- Hours spent at workplace and hours spent in R&D have gone down considerably since the last survey. The percentage of those working under 20 hours has also greatly increased. It was males in the 40's and females in the 60's that had longer working hours. Respondents associated with life science spent the longest hours at their workplace, but the average was down substantially. Average hours spent working at home increased for males, but decreased slightly for females.
- Females had a smaller number of subordinates and a lower R&D funds. The percentage of those with no R&D funds has decreased.
- Many respondents answered, "make full use of my abilities" as the reason for selecting their jobs. A popular response from those affiliated with universities and research institutions was "academic satisfaction/intellectual stimulation" while those affiliated with corporations often answered "benefit society".
- The ratio of no-term employment was particularly high with males age 40 to 55. However, there was a percentage increase in limited-term employment with males age 30 to 40. The percentage of "no contracted working hours" dropped to half of what it was in the last survey. The percentage of those on limited-term employment for more than 10 years increased dramatically. Although the ratio of "childcare leave not allowed" decreased, 20% of respondents answered as such.
- Respondents who have changed jobs, transferred or left the work force was 60% for both genders. The top reasons were "further my career", "change in job content" and "end of contract". Respondents that selected "unhappy with previous workplace" and "concern for future" was down half. Females that selected "gender discrimination" also decreased.
- There was no difference between genders in the use of recruitment services. (new topic. 50% to 60% have experience. Nearly 5% used services more than 21 times.)
- Both males and females feel there is a benefit to conducting research activities overseas. A clear gender gap exists as 30% of males and 20% of females have actual overseas research experience (new topic).
- There was a huge increase in the too many/too few perception ratio regarding the number of postdocs since the last survey. Benefits of postdoc were said to be "can test my ability as a researcher" and "can concentrate on research" while problems were "few positions available after postdoc" and "life planning is difficult".

1.3 Family and Work

- Thirty percent of males and 50% of females have experience living and working away from their families. This was a decrease for males and an increase for females.
- For males, the maximum number of children was about 2. While this number for females in their 60's was 1.3, it does not reach 1 for females in their late 40's, a clear indication that the number of children is decreasing. Even at age 40, the percentage of parents with pre-school children was about 40%.

- The ideal number of children for respondents is 2, significantly different from the reality. A large percentage of females gave “difficulty balancing” as the reason while the males cited “financial reasons”. Job stability was another major reason given by the respondents.
- Most males leave daytime childcare to their spouse while females rely on daycare centers (preschoolers) or afterschool daycare centers (elementary school children). The length of a typical childcare leave was 6 to 12 months for females and less than a month for males. However a slight improvement was noticed as males taking 2 to 3 months of leave increased 150%. Females gave “workplace environment” and “no provision existed” as reasons for not taking childcare leave while males indicated it was “not necessary”.
- The percentage of families needing nursing care for a family member was 30% (new topic). Females had better knowledge of leave plans for nursing care, and among females, those between ages of 55 and 60 were the most knowledgable. Existence of said plans was about 80% overall with universities showing a slightly lower percentage.
- Most important requirements from respondents for balancing work with family were “understanding from supervisor” and “workplace atmosphere”. Compared with the previous survey, respondents who answered “nursery service” decreased greatly, but “afterschool care” was still a popular answer. The need for more “nursing care service” increased this time as well.

1.4 Gender Equality

- The most popular responses for the low percentage of female researchers were “difficult balancing work with family” and “difficult returning after leave”. Remedies suggested were “aggressive hiring” and “consideration of life events”.
- There was improvement in the awareness of support programs for females. Positive opinion for numerical hiring targets has decreased. However respondents, especially males, show an increased sense that promotion of gender equality was progressing in their institutions.

Chapter 2 Important Issues: Gender Gap in Job Positions

As evident from Figure 1.17 in Chapter 1 and also from the results of the past two surveys, the tendency of the percentage of females to drop as job position gets higher has not changed. For the reason a job position index (similar to that in the last survey) was incorporated, and transitions were studied by age. Furthermore, for each affiliated institution, changes in the number of subordinates and R&D funds were analyzed according to age and job position.

Job Position Index (Figures 2.1-5)

Job position index was defined from the position distribution of each institution affiliated with the respondents in this survey and following the analysis method of the previous two surveys (intermediate cumulative value of each job position when the respondents are arranged from the lowest to highest job position between 0 and 10 for each of the affiliated institutions). The result is shown in Figure 2.1.

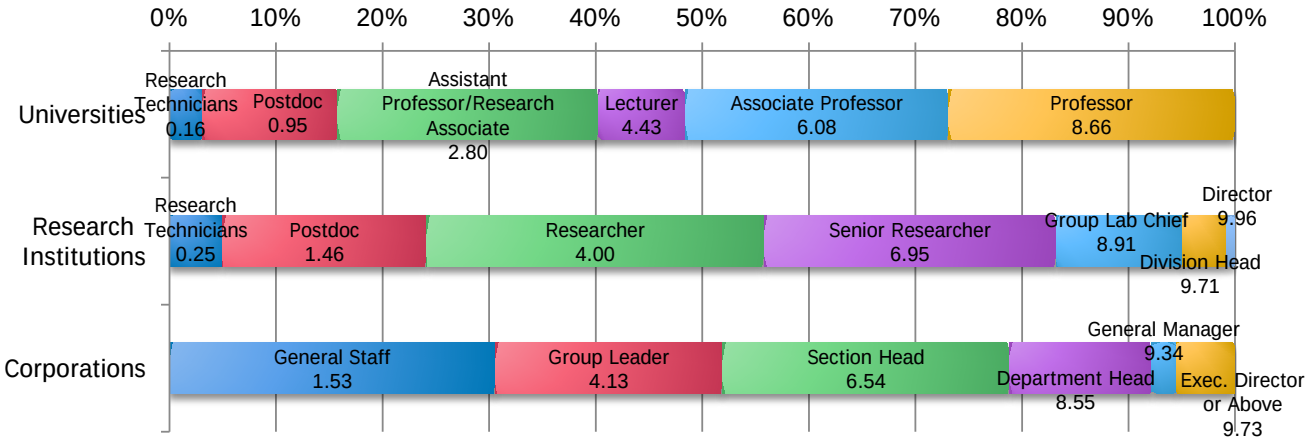


Figure 2.1 Definition of Job Position Index

Regardless of institution, the job position index of males was higher in every age group. The same gender gap seen in previous surveys still exists, indicating the promotion of females is lagging. Same as last time, the gender gap in universities was higher than in corporations, but there is an improving trend with the peak rise in job position index of females in research institutions.

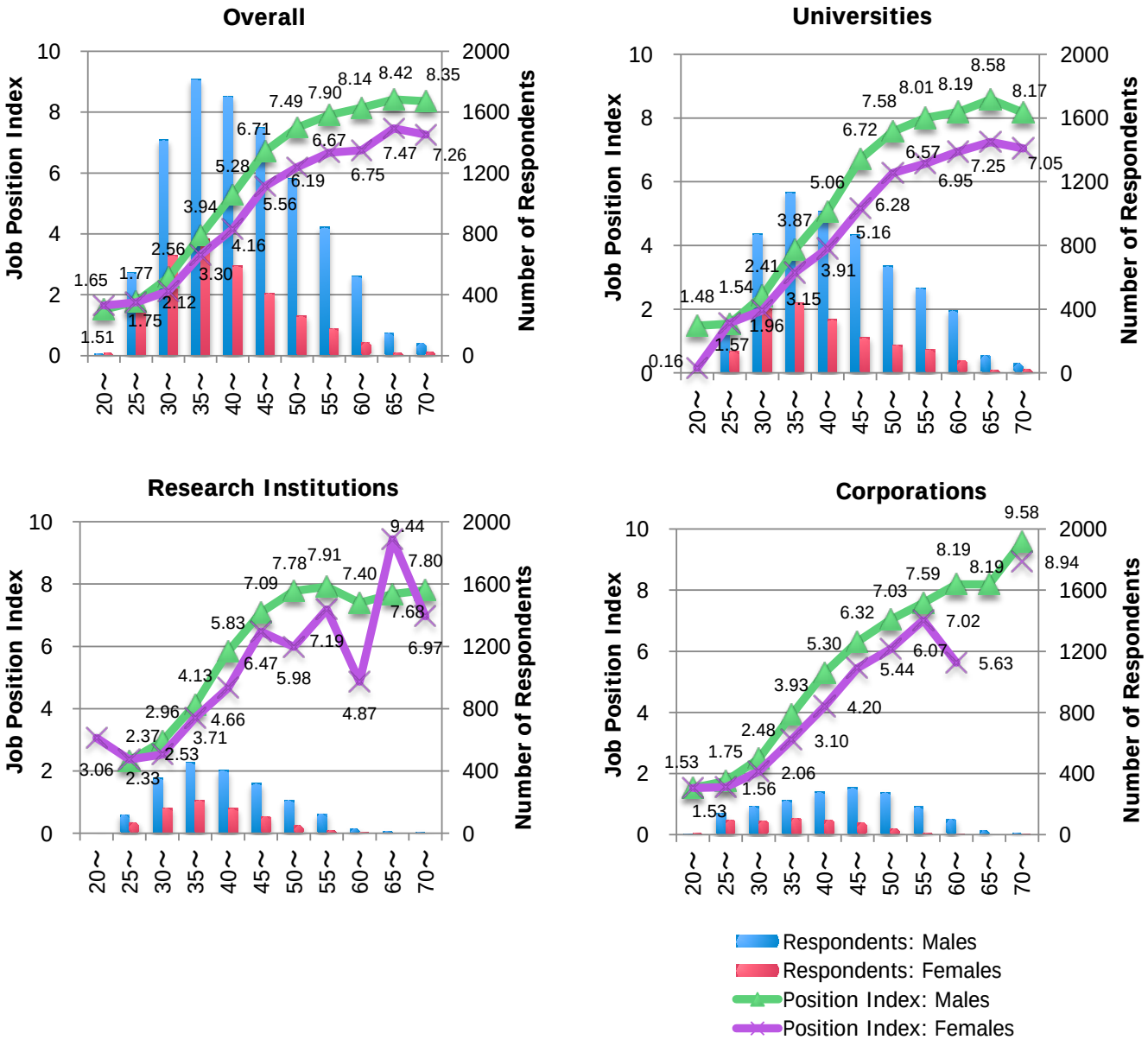


Figure 2.2 Job Position Index by Age for Each Institution

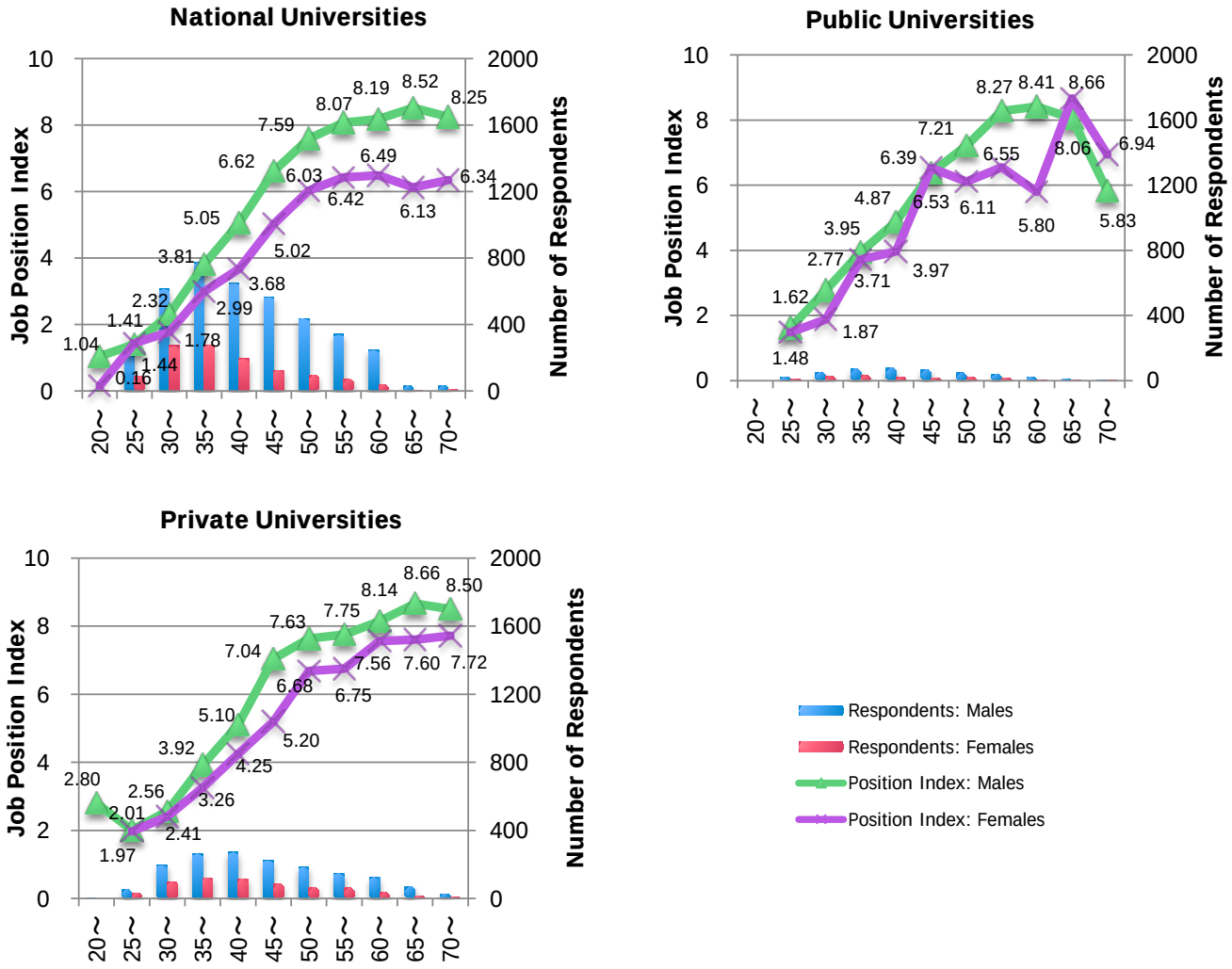


Figure 2.3 Job Position Index by Age for Universities

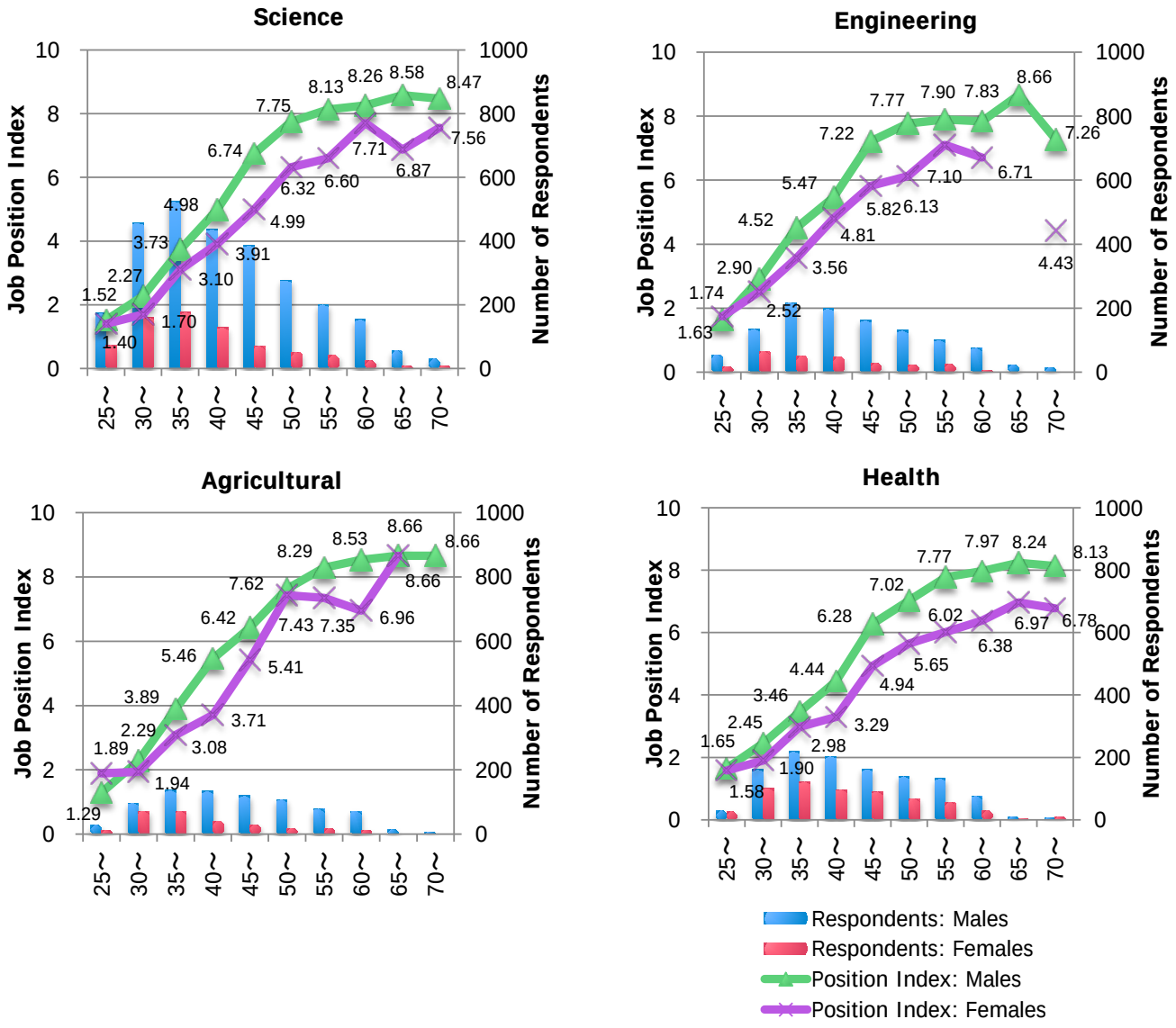


Figure 2.4 Job Position Index by Age for Each University Academic Field

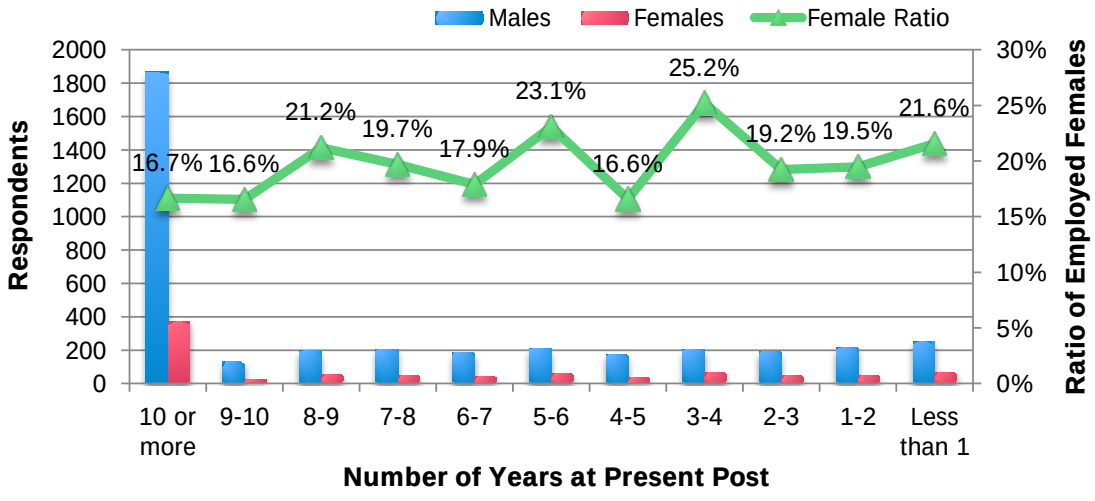


Figure 2.5 Percentage of Female Faculties (Lecturer or above) in Universities

Number of Subordinates and R&D Funds (Figures 2.6-9)

Females have substantially less subordinates and R&D funds compared to males. The difference is smaller at lower positions, but as position gets higher, the gap widens. However, the gender gap in R&D funds at national/public universities and research institutions is becoming narrower.

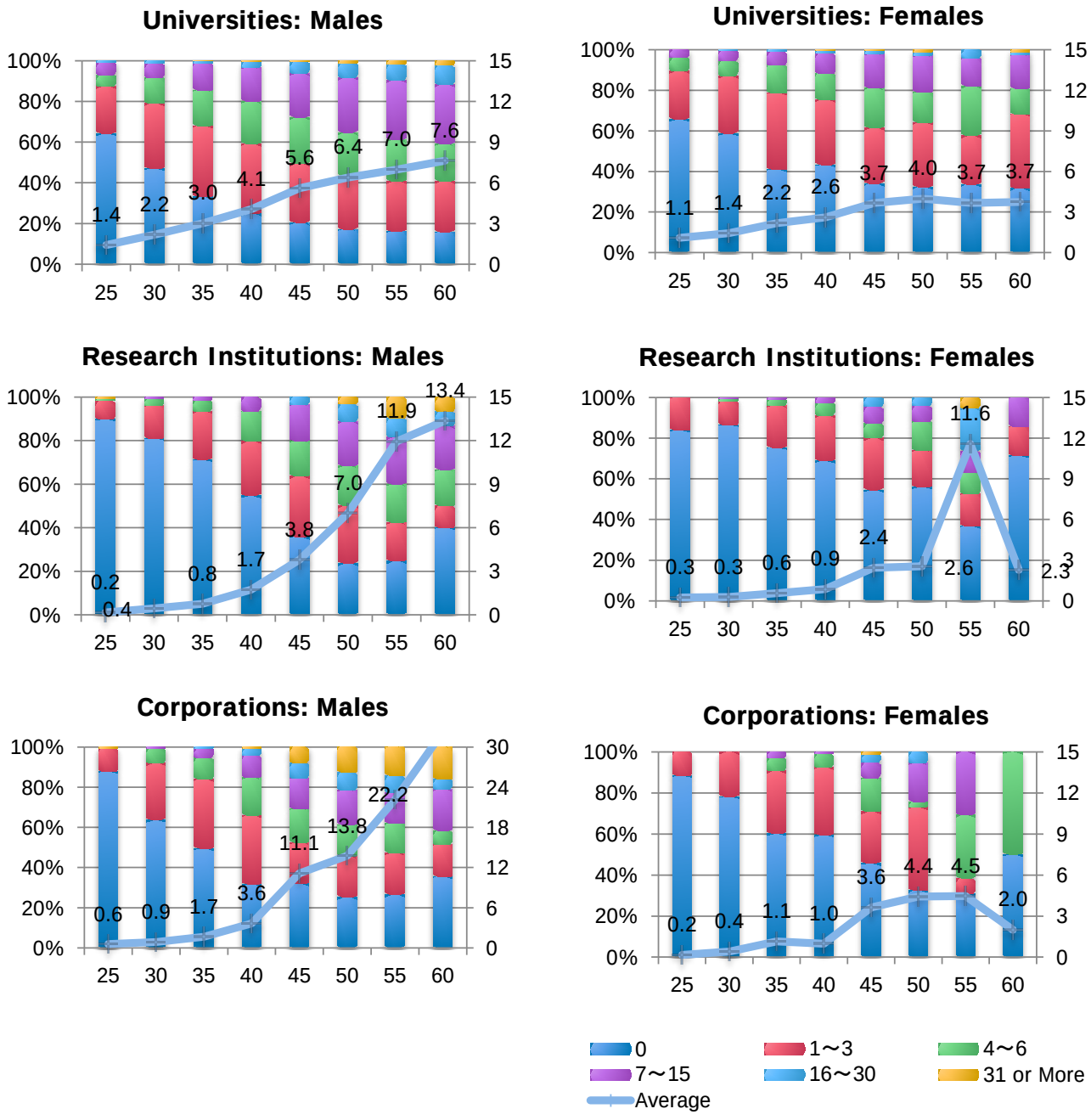


Figure 2.6　Number of Subordinates by Age for Each Institution

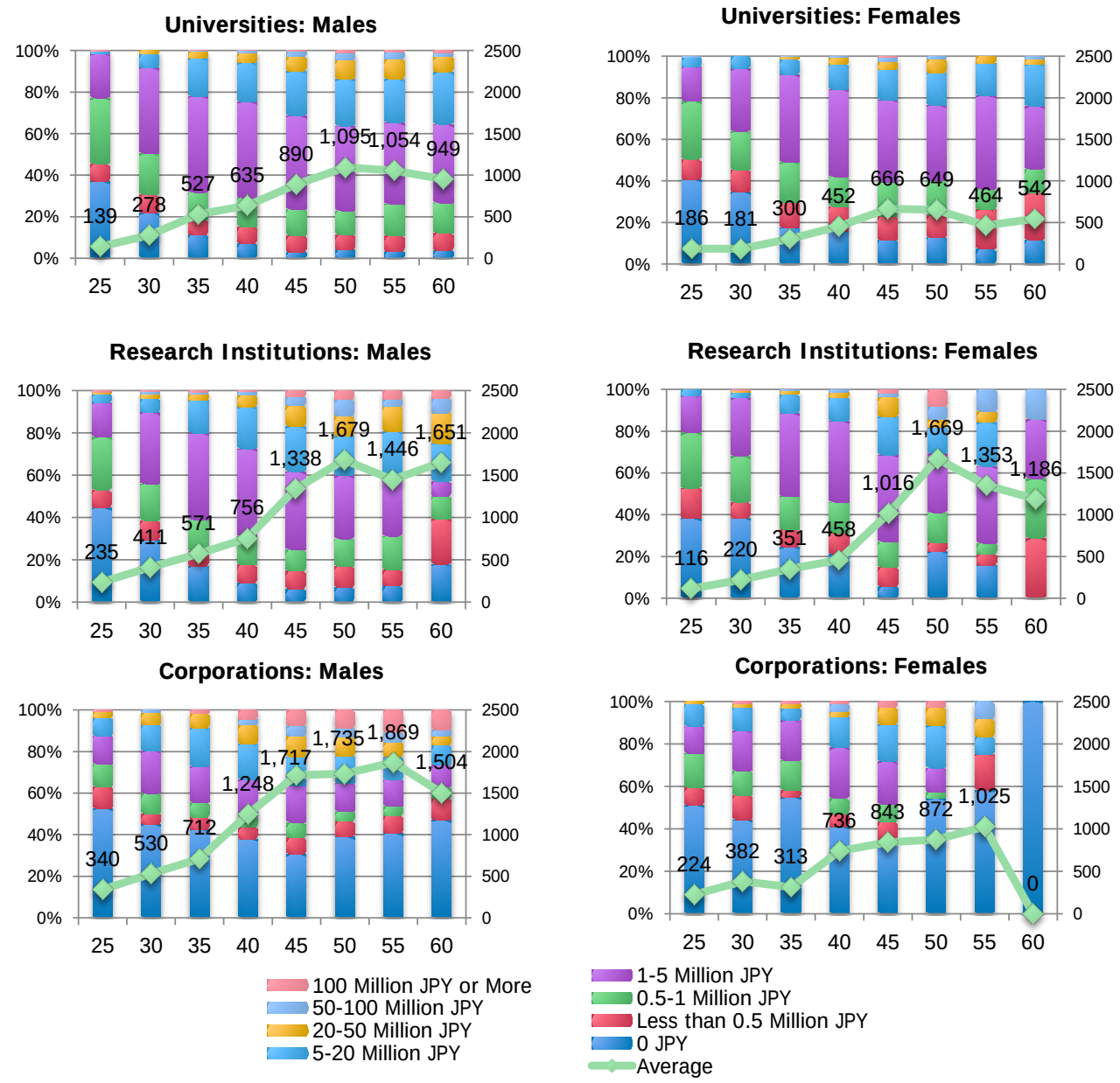


Figure 2.7 R&D Funds by Age for Each Institution

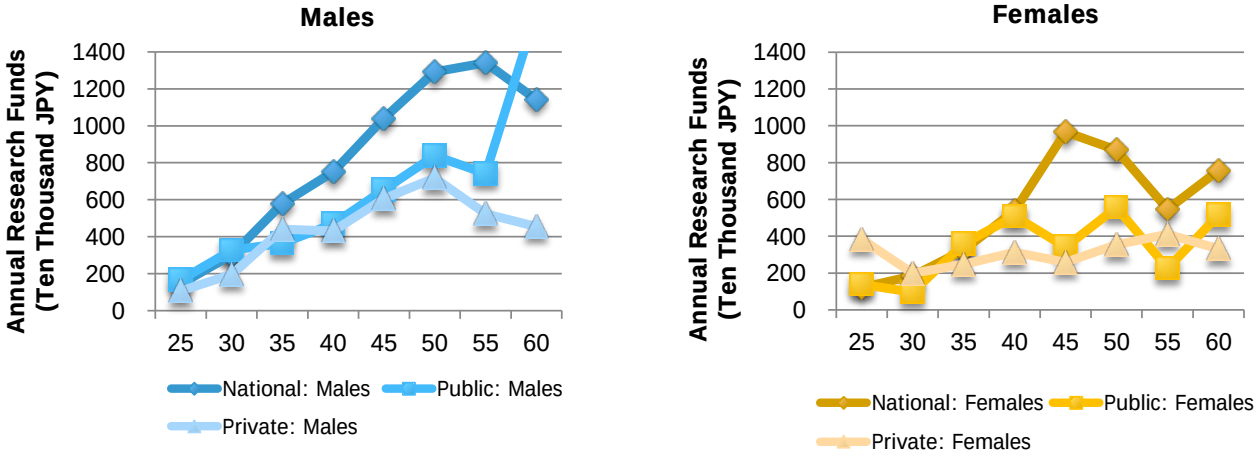


Figure 2.8 R&D Funds by Age for Universities

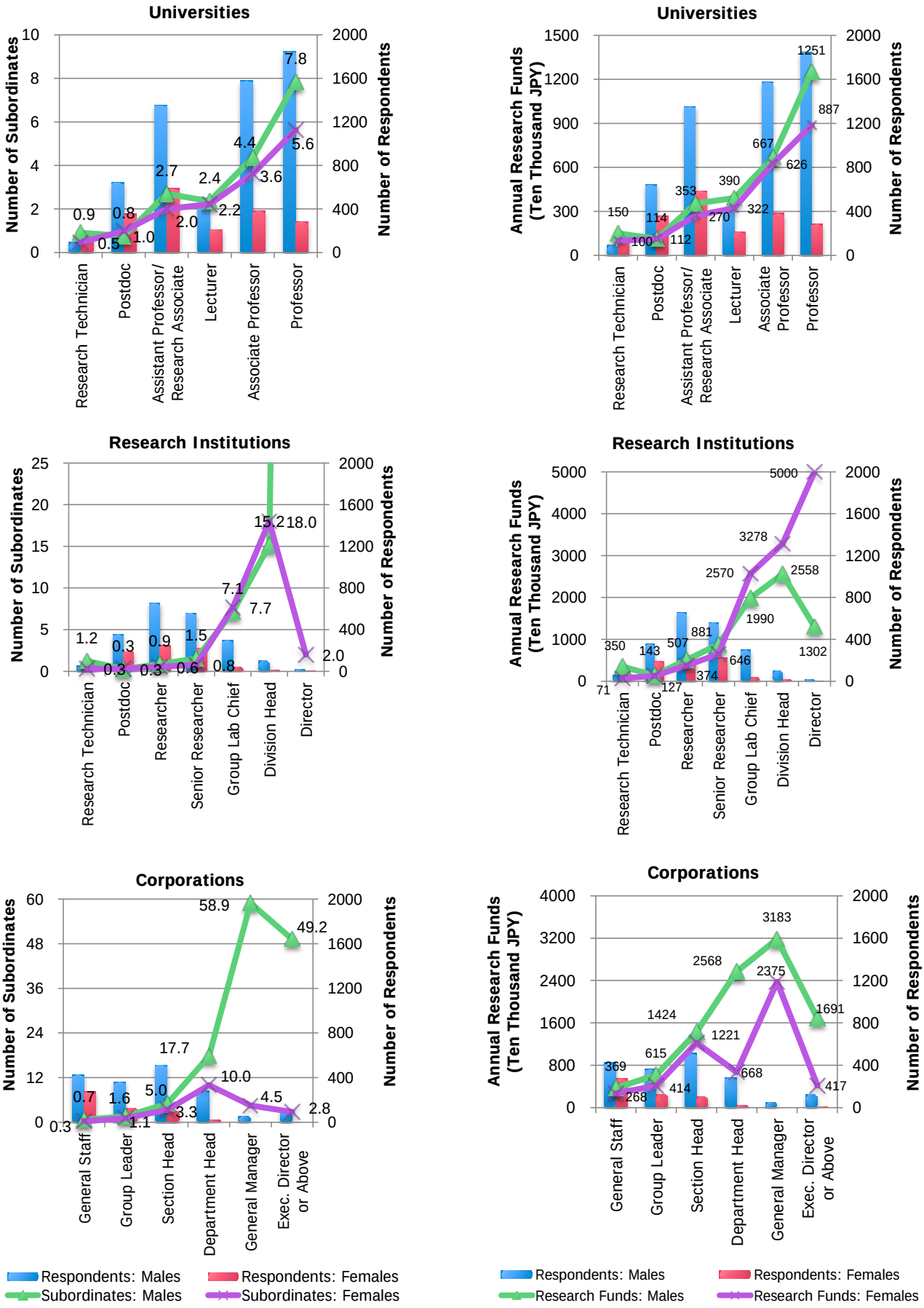


Figure 2.9 Number of Subordinates (Left) and R&D Funds (Ten Thousand JPY: Right) by Position

Summary of This Chapter

- There was slight improvement with the peak rise in job position index at age 50, but gender gap still exists.
- Gender gap in job position index was higher at national universities than at public or private universities (same as last time).
- There was no significant change seen in the percentage of female hiring (a slight increase).
- The number of subordinates and R&D funds for females are much lower than their male counterparts. Trends in R&D funds for various universities show the gender gap narrowing at national universities.
- Observing the number of subordinates and R&D funds by job position, gender gap is smaller at lower positions, but as positions get higher, the gap widens. At national/public universities and research institutions, the gap in R&D funds is beginning to narrow.

Chapter 3 Important Issues: Child and Nursing Care

There is a big difference between males and females when it comes to taking responsibility for child or nursing care, and it has strong influence on science and technology professionals' family formation and nature of work. This chapter analyzes that reality in more detail.

Number of Children (Figures 3.1-2)

Both males and females have fewer children than what they believe to be the ideal number (Figure 1.78). The top female reason for this was "balance between career and childcare", whereas most males cited "financial" as the reason. The second highest reason for both was "job stability" (Figure 1.79).

Among parents with pre-school to middle school children, females clearly spent the shortest hours at their workplace (Figure 3.1).

For females, there is very little correlation between salary and number of children. On the other hand, for males making more than 1 million JPY per year, the number of children increased in proportion to annual salary (Figure 3.2).

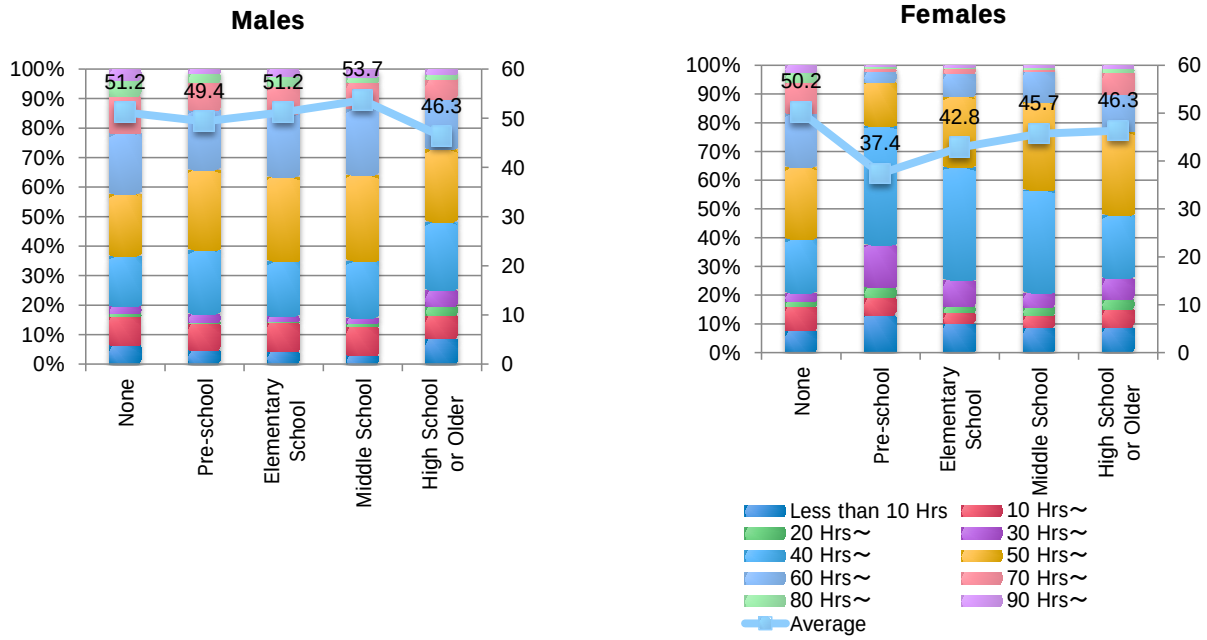


Figure 3.1 Hours Spent at Workplace by Children's Age Group

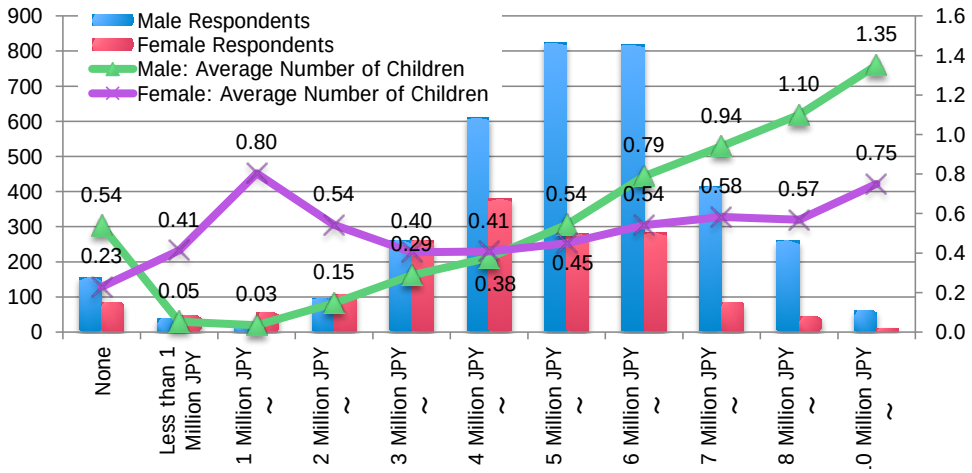


Figure 3.2 Annual Salary and Number of Children (respondents in their late 30's)

Childcare Leave (Figures 3.3-6)

Overall, the percentage of respondents that took childcare leave increased, suggesting a gradual improvement in its accessibility.

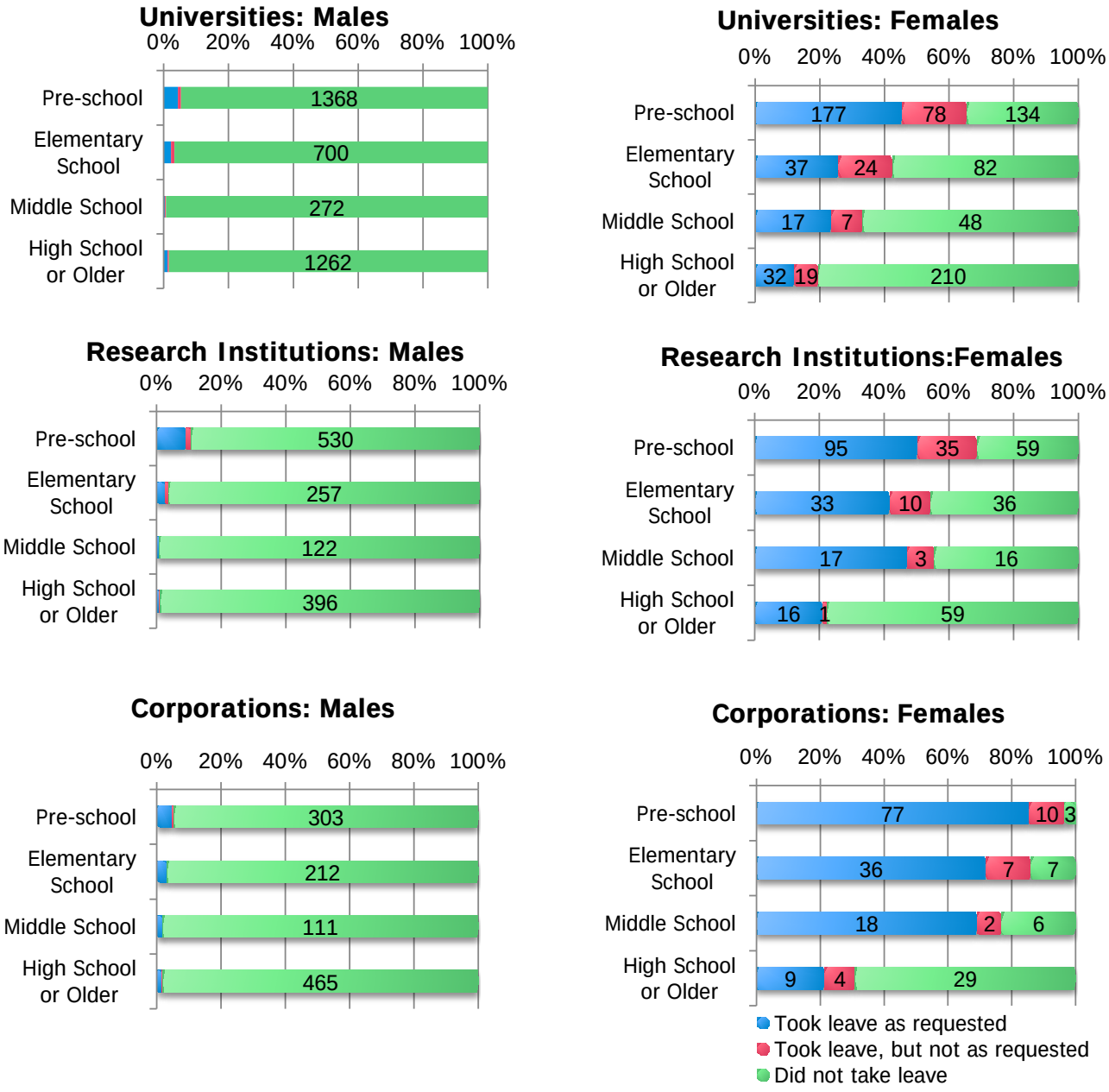


Figure 3.3 Taking Childcare Leave by Institution

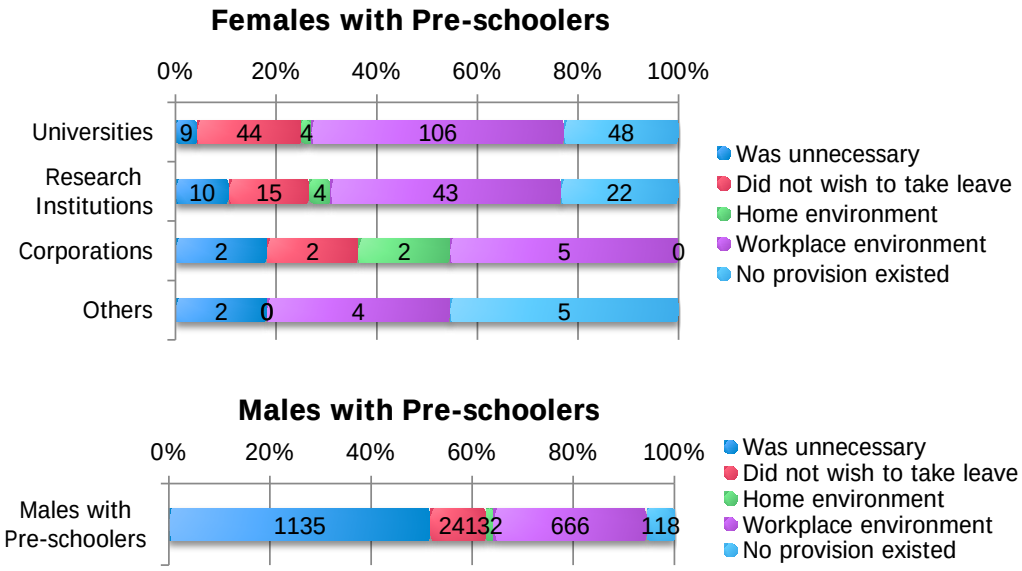


Figure 3.4 Why Parents with Pre-school Children Did Not Take Leave (as requested)

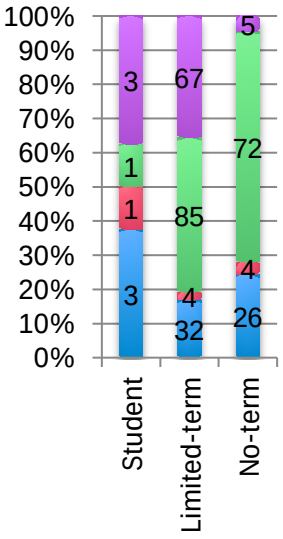


Figure 3.5 Why Females with Pre-school Children Did Not Take Leave (as requested) by Employment Status

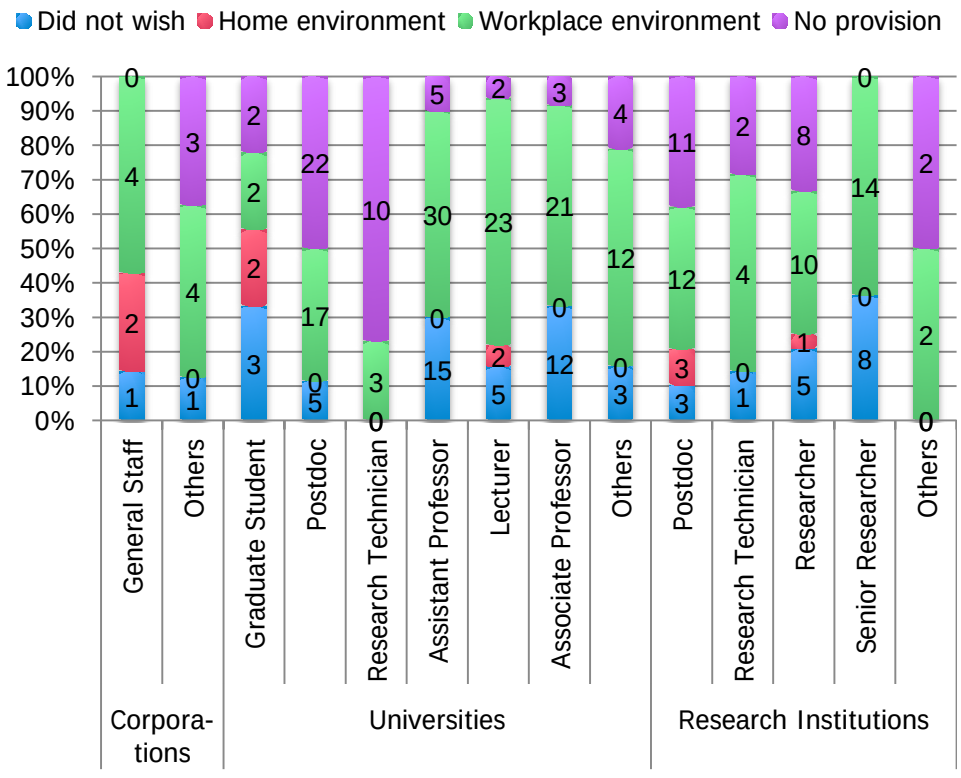


Figure 3.6 Why Females with Pre-school Children Did Not Take Leave (as requested) by Institution
(Note: Overall total for Figure 3.6 and 3.4 differ due to different questions used in the analysis)

Childcare Support (Figure3.7-9)

With respect to childcare for pre-school children, over 70% of males leave the caring to their spouse. On the other hand, females mostly leave the care to a day-care center or care for the children themselves (Figure 3.7).

When it comes to caring for elementary school children after school hours, again over 80% of males leave the caring to their spouse, whereas females rely on after-school day-care centers, family members living together or family members not living together/friends (Figure 3.8).

Childcare when attending academic society functions: Contrary to more than 95% of males who report leaving childcare to their spouse for care, only about 40% of females rely on their spouse. Ratios of females that requested care from family members not living together/friends and family members living together were also high. About 10% of females with pre-school children either care for children themselves or use the childcare service provided by their respective academic society.

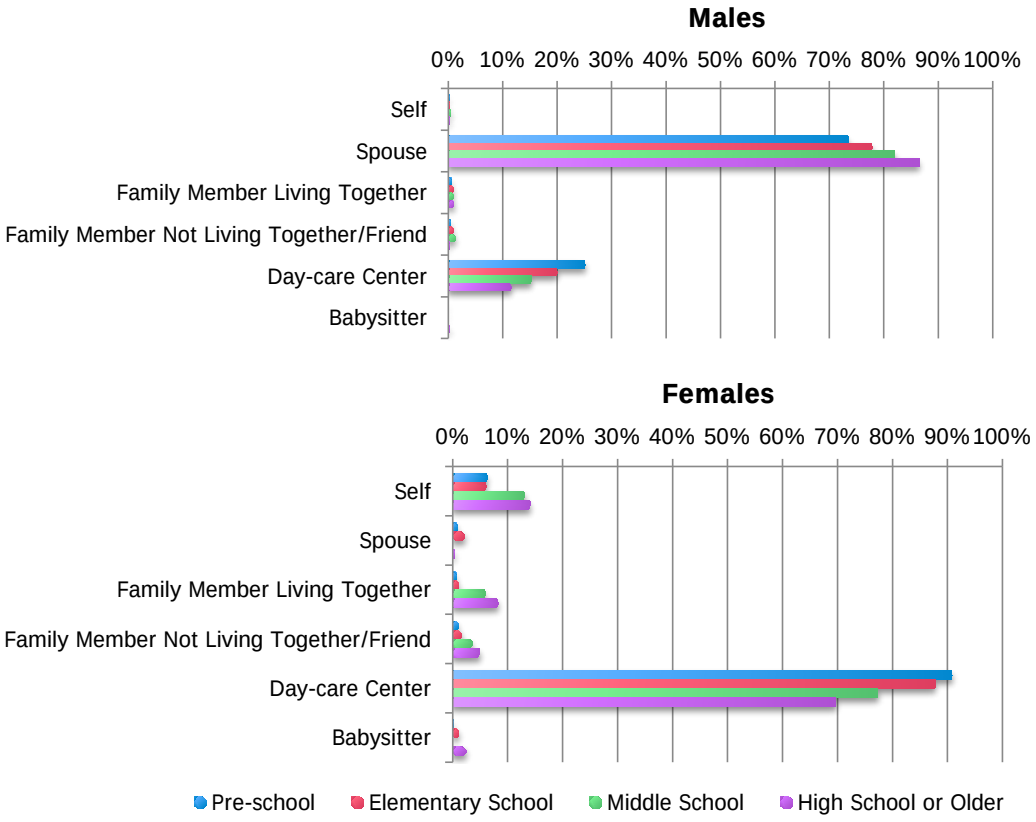


Figure 3.7 Daytime Care Giver of Pre-school Children by Age of Youngest Child

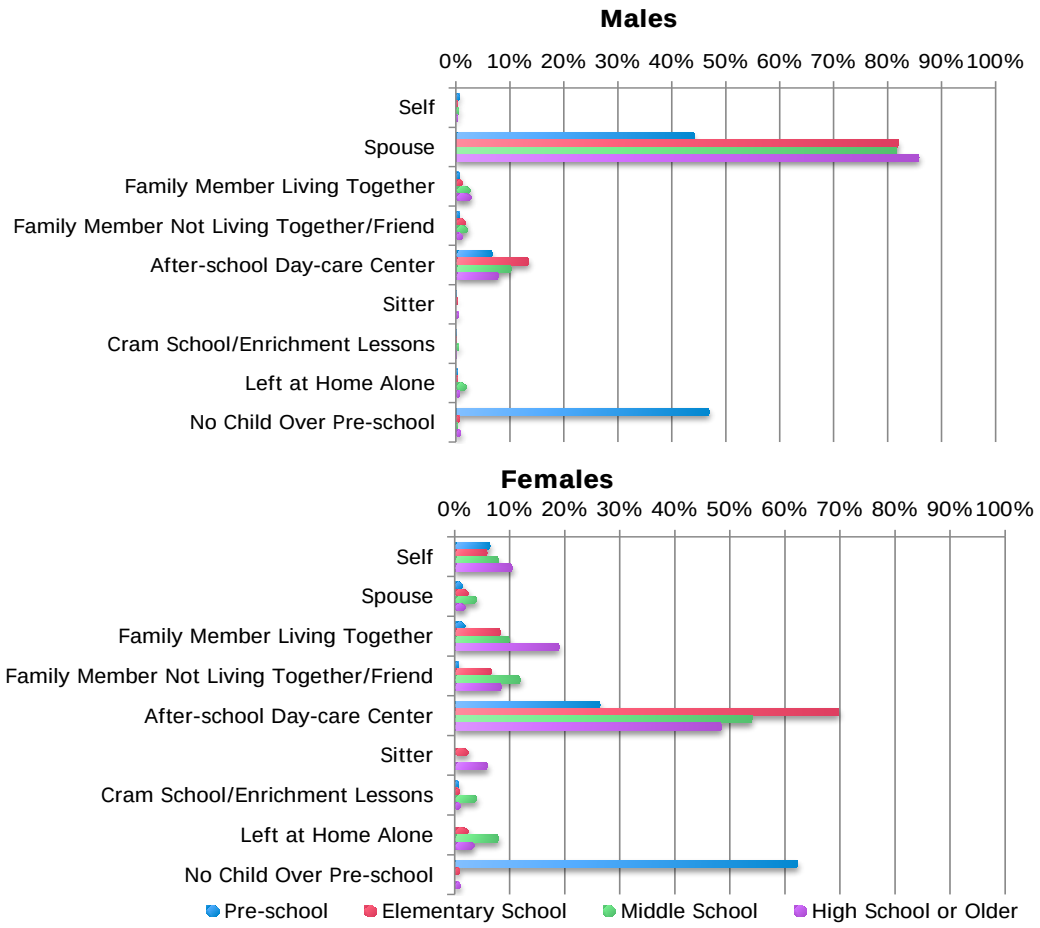


Figure 3.8 After-school Care Giver of Elementary School Children by Age of Youngest Child

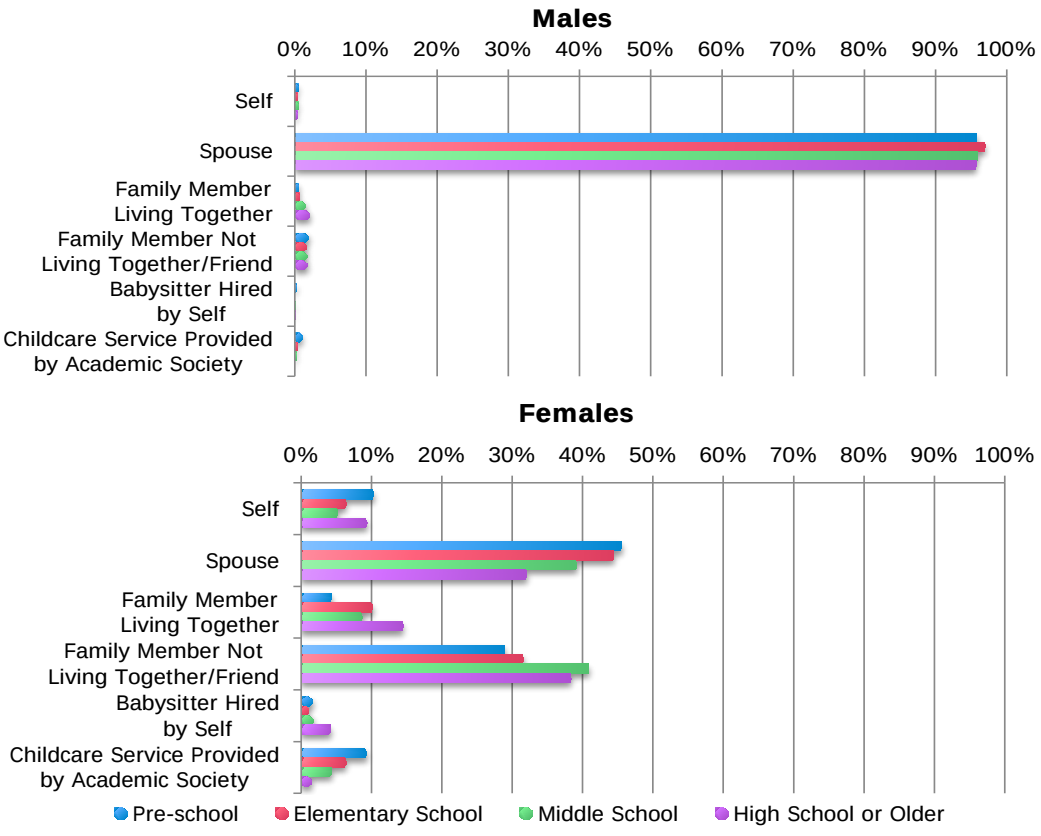


Figure 3.9 Care Giver During Academic Society Functions by Age of Youngest Child

Experience Living Separately (Figures 3.10-13)

Among married respondents, 26.8% of males and 49.4% of females have had experience living separately from their spouse. Furthermore, the percentage of respondents who have experienced long-term separation (five or more years apart) were also high, with 8.5% of males and 18.1% of females reporting. There seems to be no correlation between length of separation and number of children with males, while a correlation was evident with females (Figure 3.10).

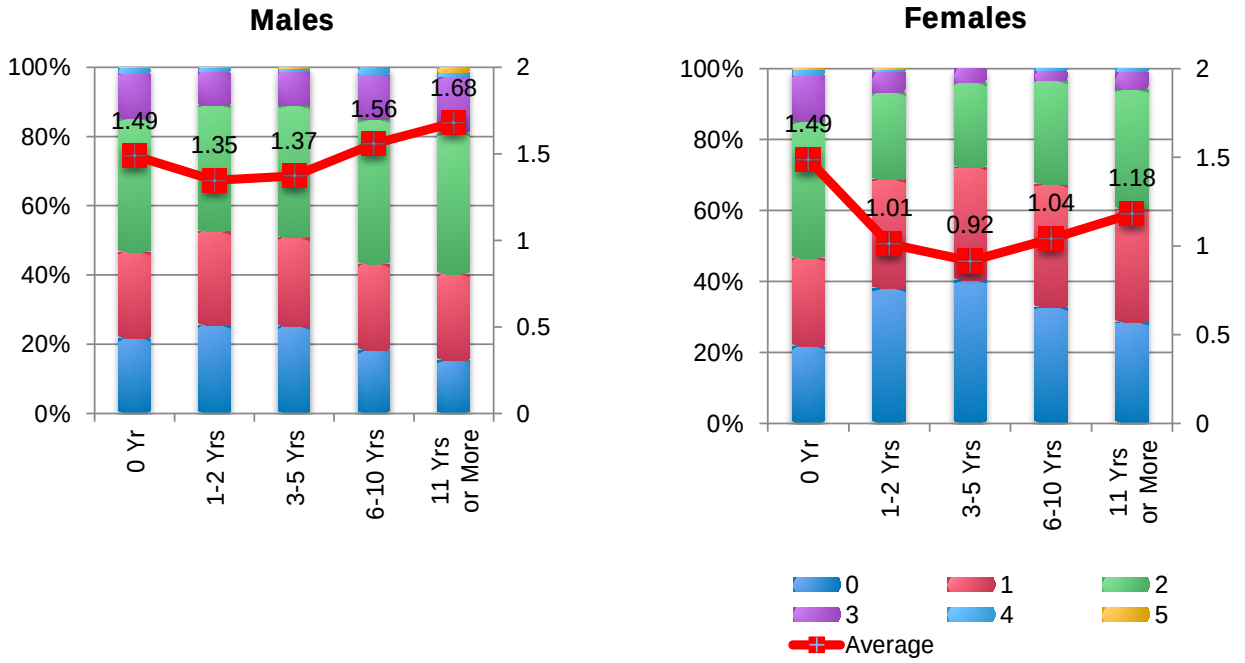


Figure 3.10 Length of Separation and Number of Children

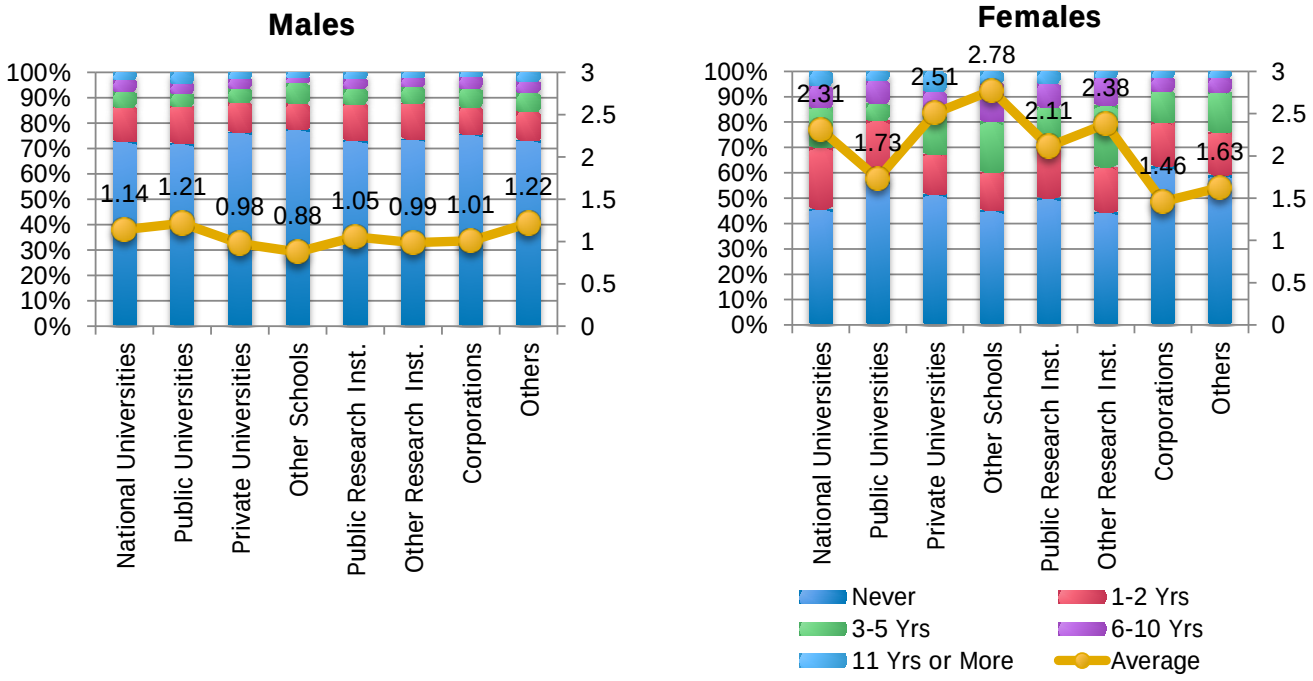


Figure 3.11 Length of Separation by Institution

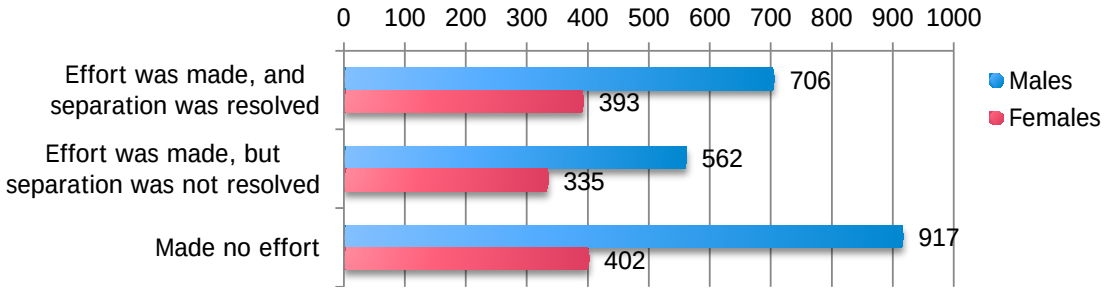


Figure 3.12 Effort to Eliminate Separation

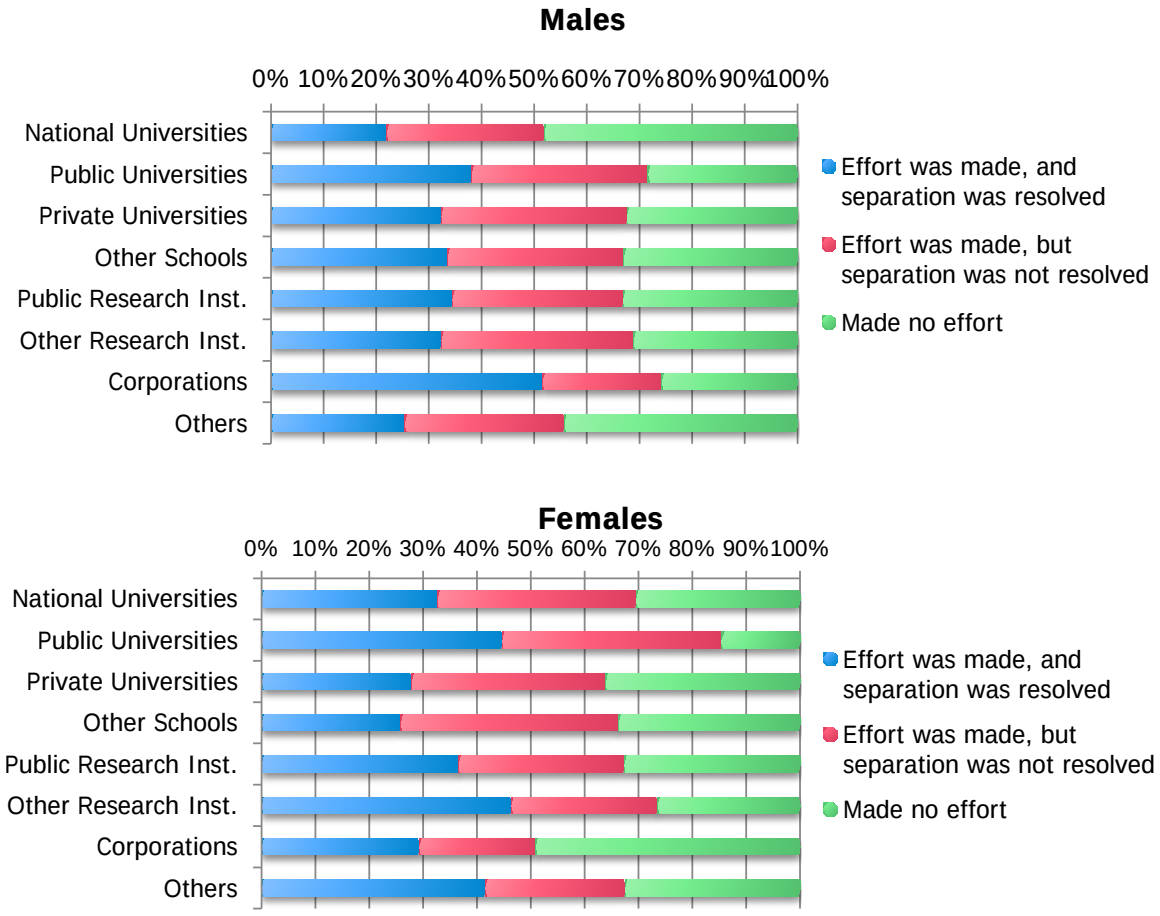


Figure 3.13 Effort to Eliminate Separation by Institution

Summary of This Chapter

- Among parents with preschool to middle school children, females clearly spend fewer hours at the workplace. For males, there is a strong correlation between annual salary and number of children.
- Overall, the percentage of respondents who have taken childcare leave has risen (especially for those in corporations). Though small, trend shows improvement for males.
- The reason why fathers of preschoolers do not take childcare leave is not only consciousness, but also problems with environment and systems. When analyzed by type of employment, provisions do not exist for those on limited-term employment. For those with no term limits, there are provisions, but often due to workplace environment, employees are unable to take leave.
- When it comes to childcare for preschoolers, there was a clear separation with the males leaving the care to their spouse and females relying on nursery schools. For elementary school children, there were reductions in “enrichment lessons” and being “left at home alone”.
- When attending seminars or other society functions, males left childcare to their spouse while females left care to their spouse, relative or friend. A certain number of respondents also utilized private childcare services.
- The number of children was clearly less for respondents who have spent 5 years living separately from the spouses (especially for females). Number of years separated is increasing for females at universities and research institutions.

Chapter 4 Important Issue: Limited-term Employment and Postdocs

4.1 Basic Data for Limited-term Employment

Working Arrangement (Figures 4.1-5)

By age (Figure 4.1): High percentages of limited-term employment were reported from respondents aged 25 to 30, and again at 60 and above.

The percentage of females with limited-term employment tended to be higher at universities, where it was 53% (males: 37%), and also at research institutions, where it was 49% (males: 36%). Limited-term employment at corporations was low with almost no gap between genders.

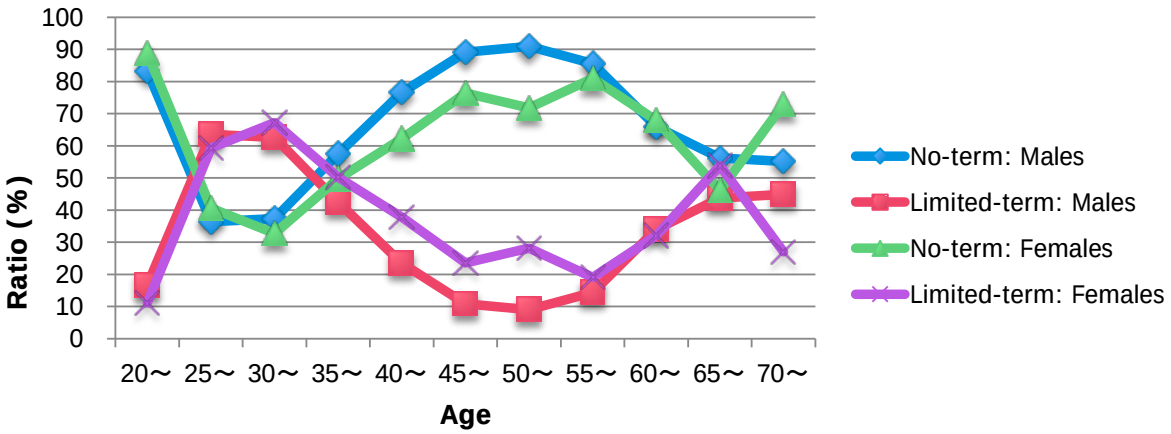


Figure 4.1 Working Arrangement by Age

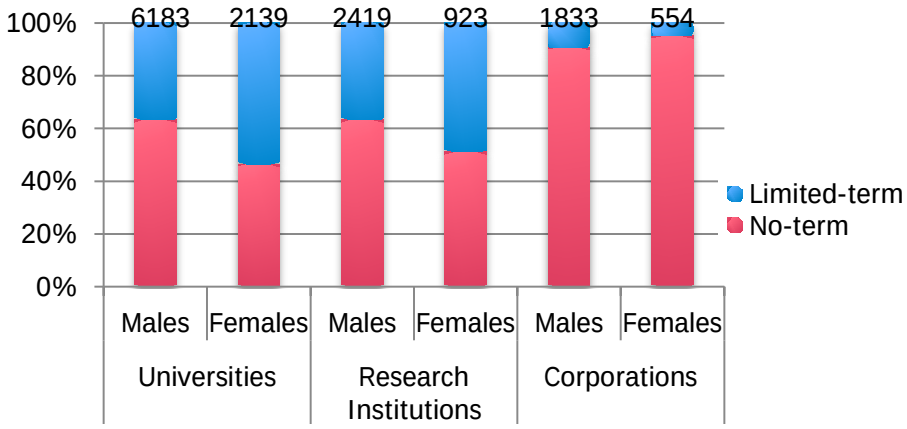


Figure 4.2 Working Arrangement by Institution

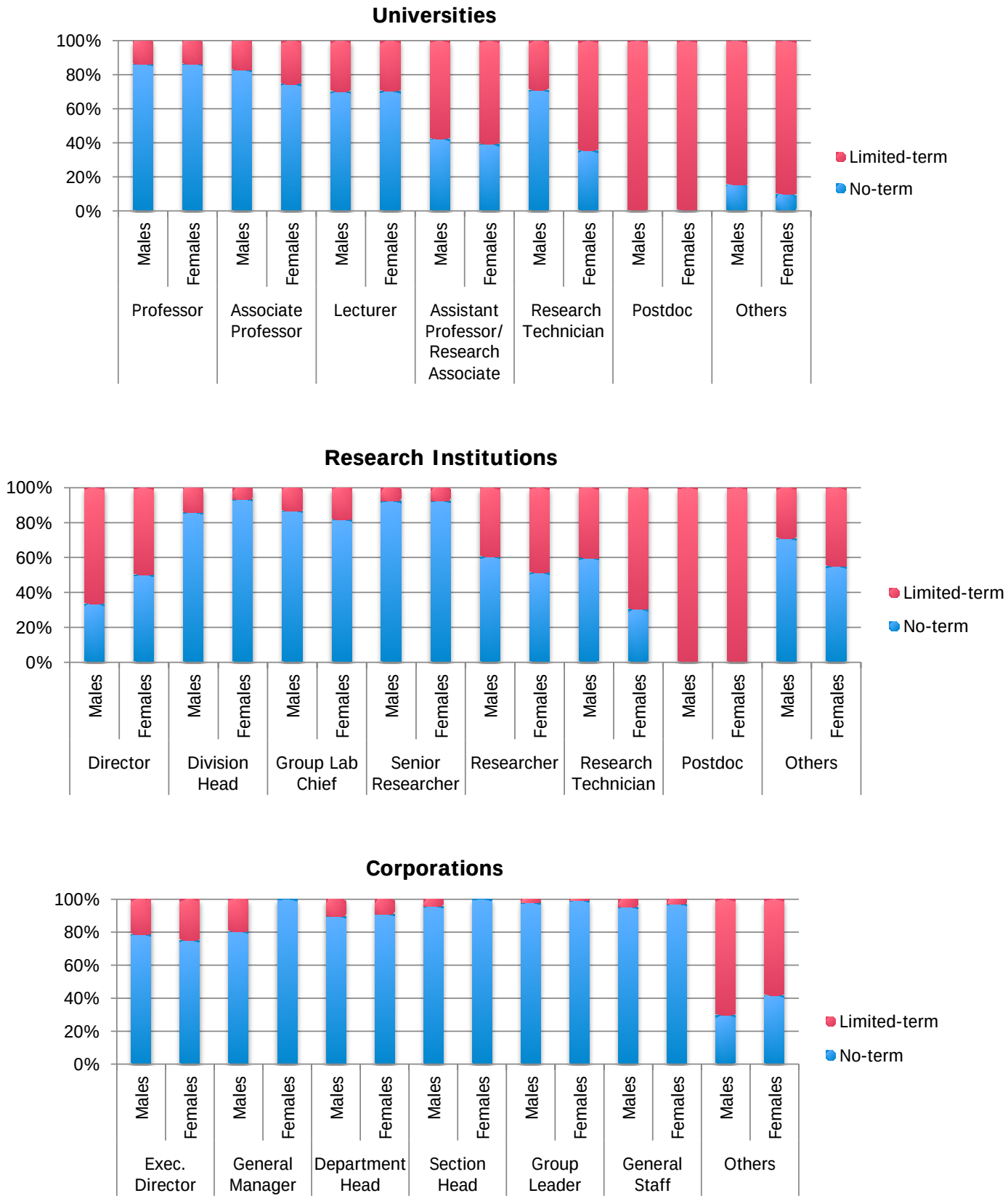


Figure 4.3 Working Arrangement by Job Position

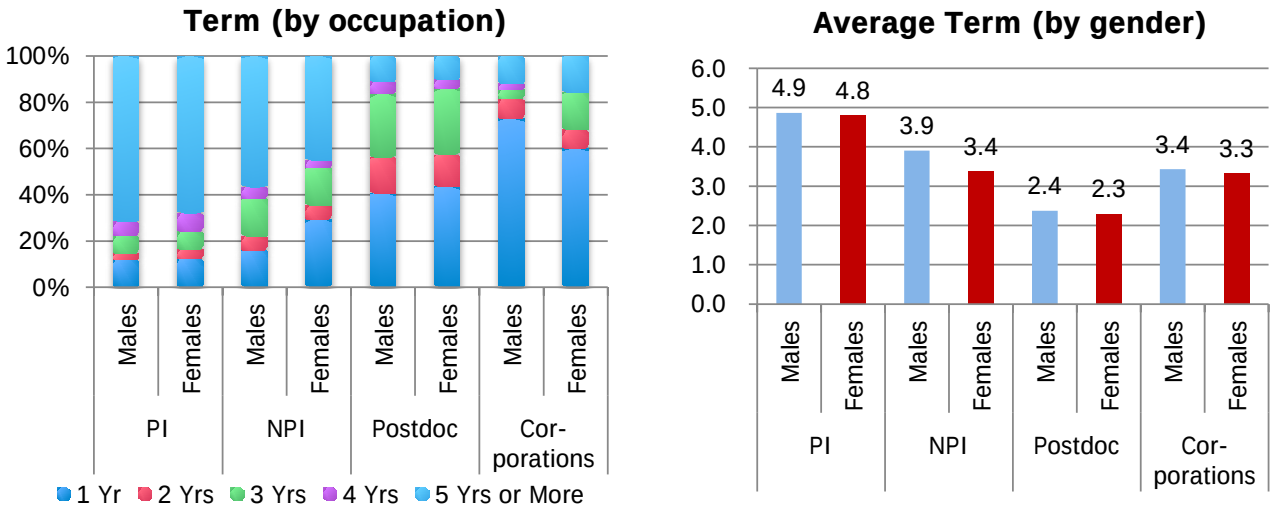


Figure 4.4 Term of Limited Employment by Occupational Field and Average Term by Gender

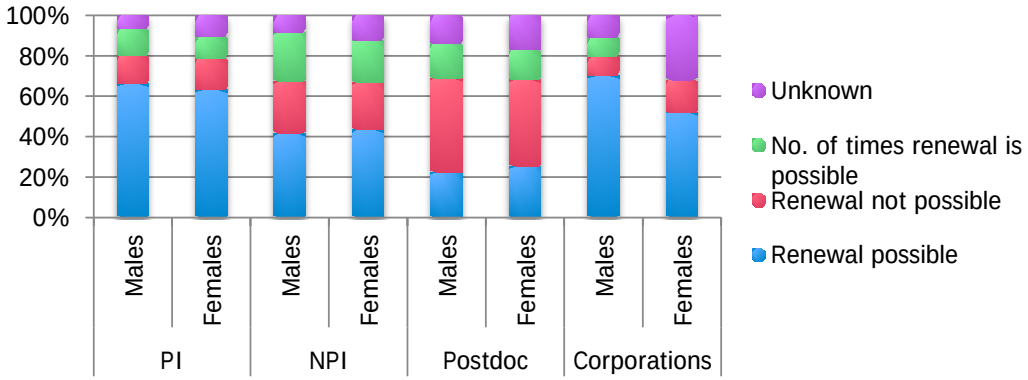


Figure 4.5 Probability of Extending Limited-term Employment

Annual Salaries for Limited-term Employment (Figure 4.6)

Average annual salaries at universities and research institutions are shown by occupational field, working arrangement and gender in Figure 4.6. To exclude respondents with short working hours, only those that spend more than 40 hours per week at the workplace were considered for this analysis. In all occupational fields, salary for limited-term employment was lower than no-term employment. When comparing genders, there was no dependence on occupational field or working arrangement, and in general, female salaries were lower.

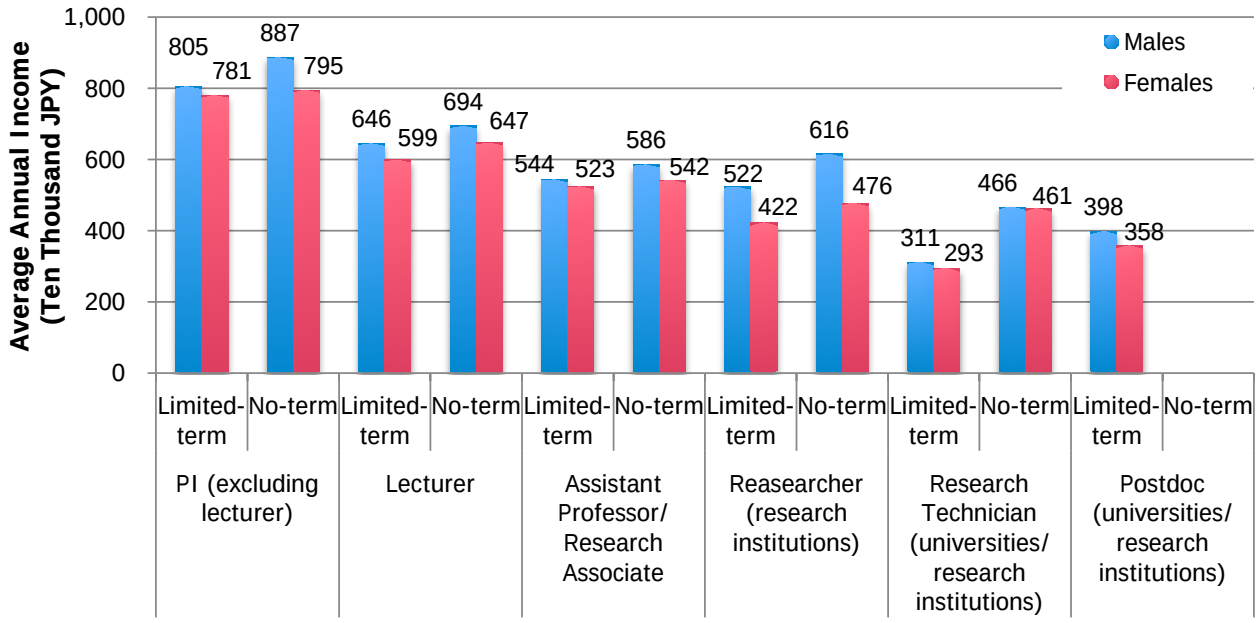


Figure 4.6　Working Arrangement and Average Annual Salary by Occupational Field/Gender (only those spending more than 40 hours per week at the workplace)
Note: No-term employment parameter for postdoc is 0.

Social Securities for Limited-term Employment (Figures 4.7-8)

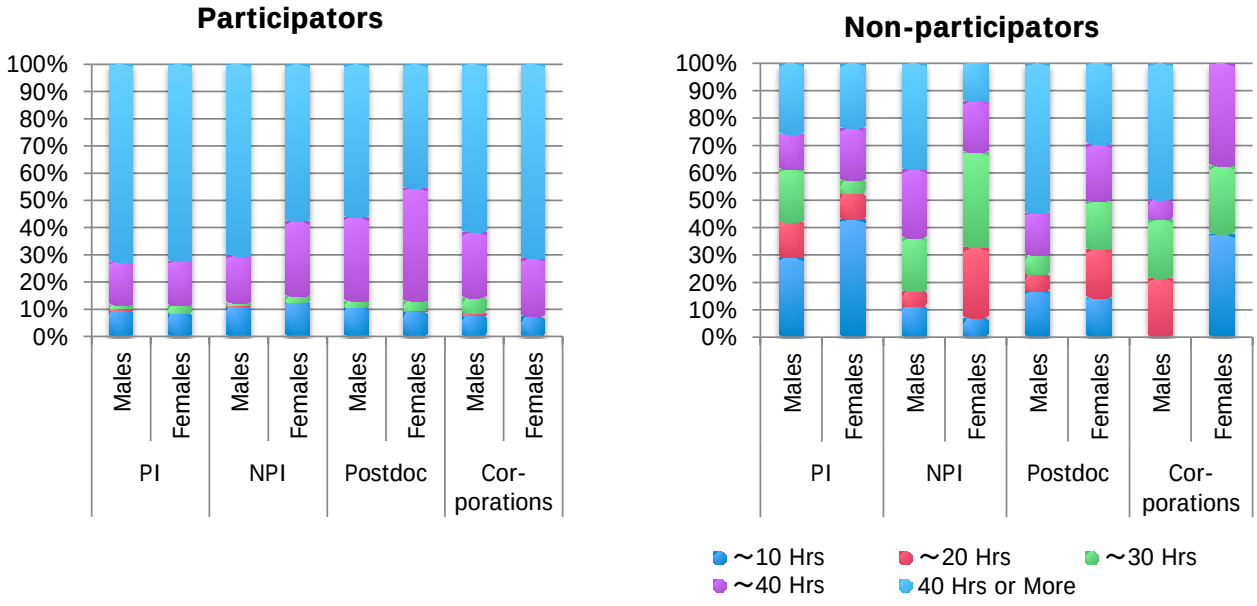


Figure 4.7　Health Plan Participation (in relation to contract hours, occupational field and gender)

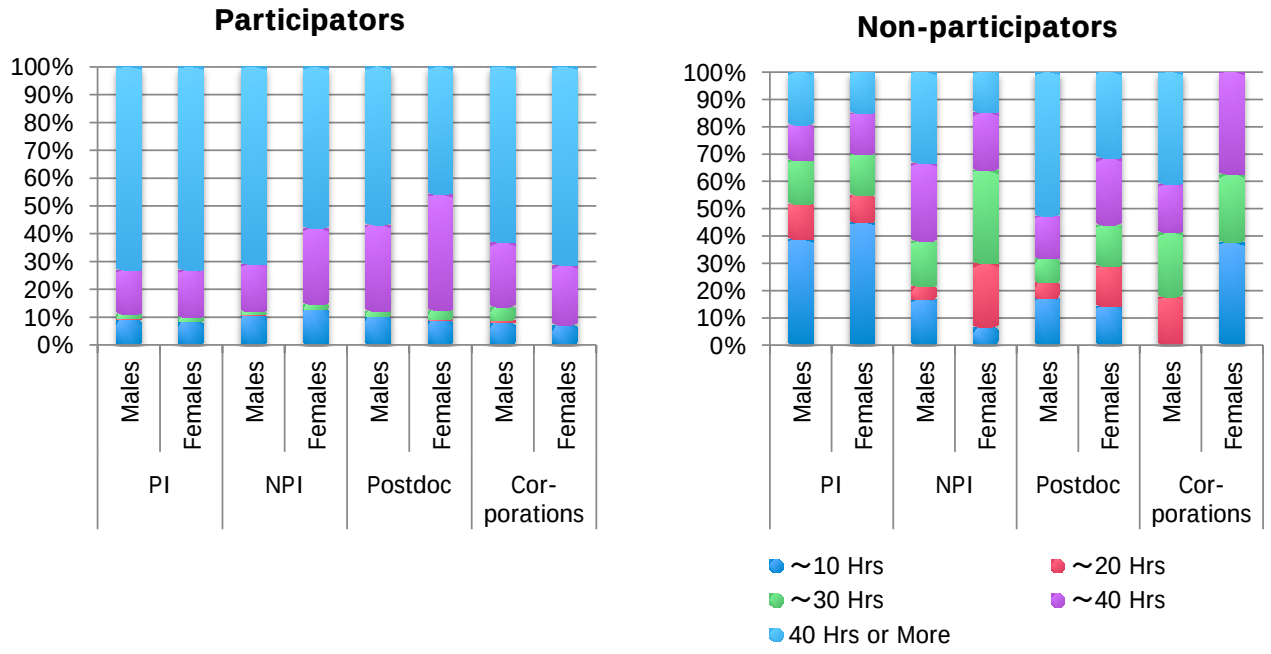


Figure 4.8 Welfare/Mutual Pension Plan Participation (in relation to contract hours, occupational field and gender)

Limited-term Employment and Raising Children (Figure 4.9)

The relationship between employment term and number of children was analyzed by gender, focusing on respondents between the ages of 35 to 39 (Figure 4.9). For males with term limits (postdocs in particular,), the percentage of those with children and the average number of children declined. On the female side, regardless of term limit or job position, the percentage of those with children was about 40% and most reported to have one child.

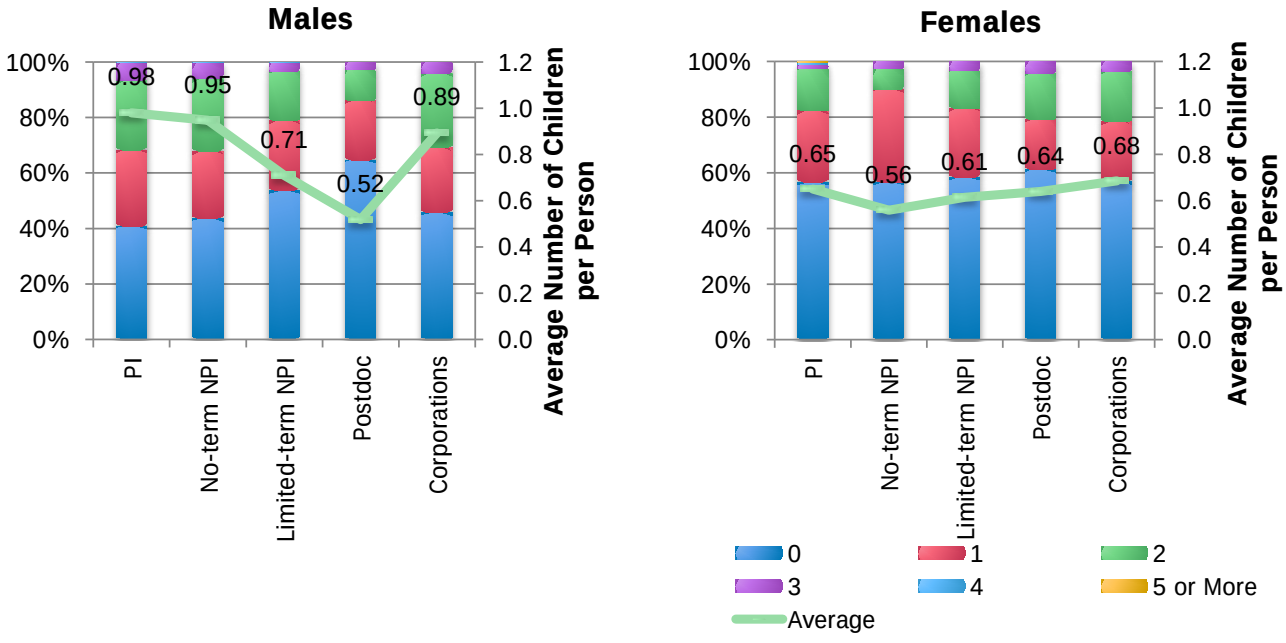


Figure 4.9 Number of Children by Gender/Job Position (for ages 35 to 39 only)

4.2 Postdoc Employment Status

Male-to-Female Ratios for Postdocs (Figure 4.10)

The ratio of postdocs for female in their twenties and the 30 to 32 age group was 27% and 32%, respectively, which were both slightly lower than the 36% female ratio for undergraduate, graduate and research students. (Figure 1.17, male-to-female ratio by job position). There is clearly an age-related upward trend in the ratio of female postdocs, where the figure surpasses 40% for the 36 to 38 age group.

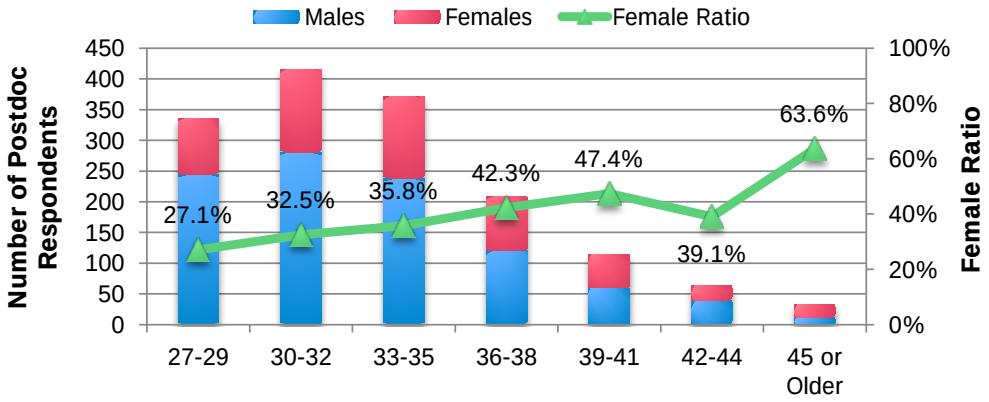


Figure 4.10 Postdocs by Age Group and Percentage of Females

Working Hours for Postdocs (Figures 4.11-14)

Observing the correlation between contract hours and hours spent at the workplace for postdocs (Figure 4.13, left), even though the agreement is for less than 30 hours, about half of both genders spend over 50 hours at the workplace. Males in particular spend over 60 hours at the workplace, which is twice their contract hours.

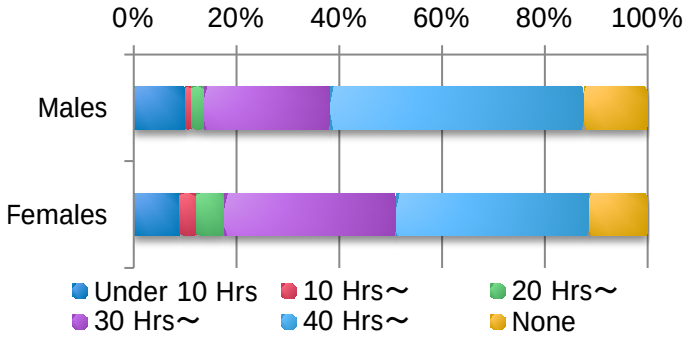


Figure 4.11 Contract Working Hours of Postdocs

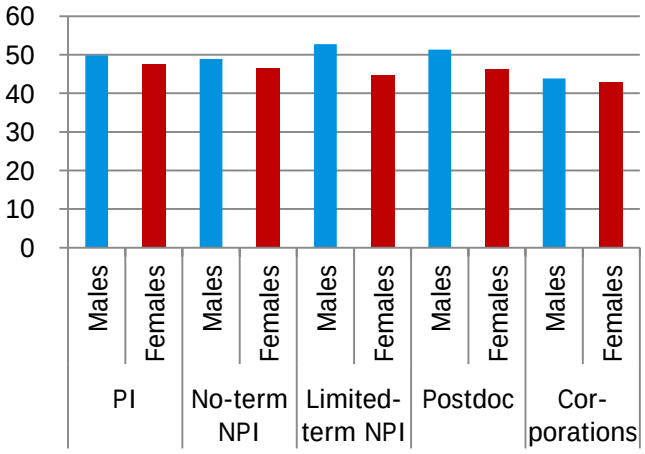


Figure 4.12 Weekly Hours Spent at Workplace by Occupational Field

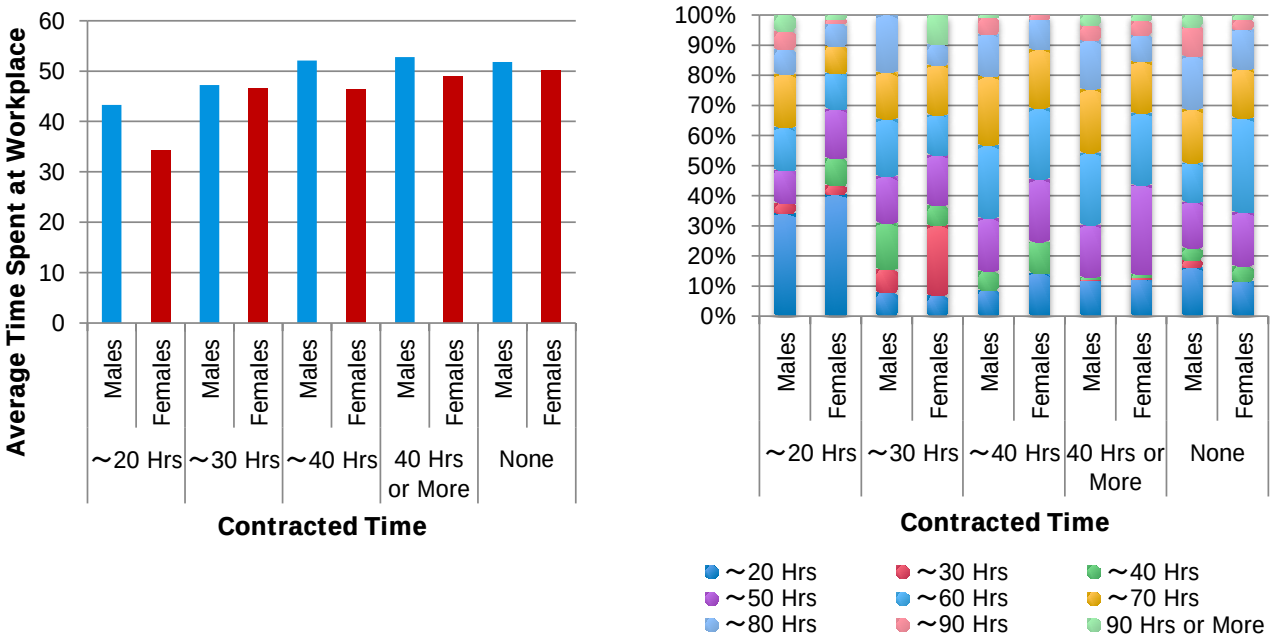


Figure 4.13 Average Hours (left) and Breakdown of Hours (right) Spent at Workplace

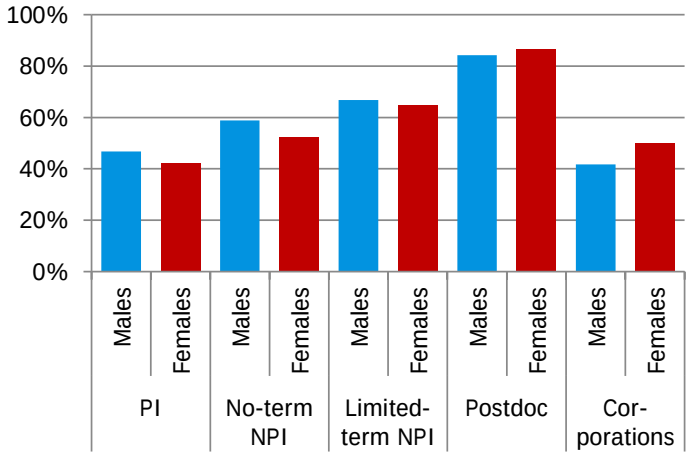


Figure 4.14 Average Hours Spent in Research While at Workplace

Annual Salaries for Postdocs (Figures 4.15-16)

Independent of age, annual salaries of postdocs were concentrated between 3 and 5 million JPY with 60% of the total falling into this range. Comparing males and females, no difference was seen in respondents between the ages of 25 and 29 who recently received their doctoral degree, but female salaries were about 10% lower for those respondents in their 30's.

Among the respondents who have a doctoral degree and spend more than 40 hours per week at the workplace, a higher percentage of females have annual salaries of less than 4 million JPY (Figure 4.16).

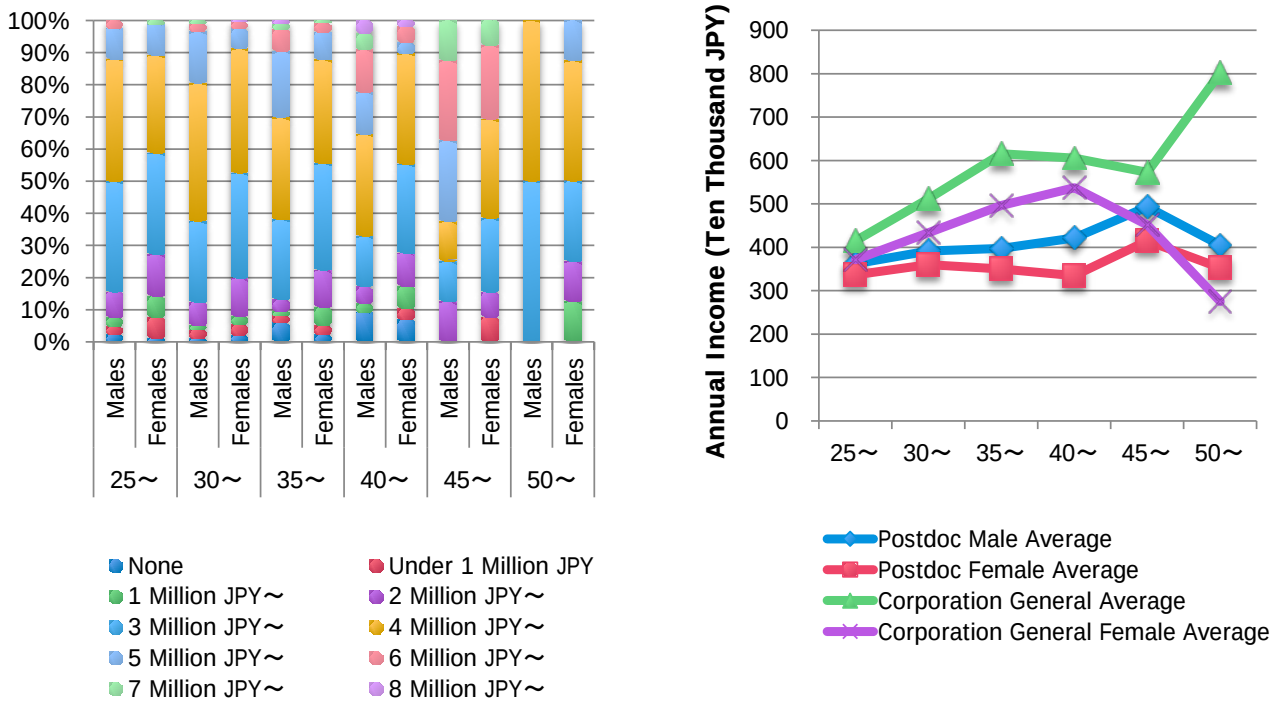


Figure 4.15 Salaries for Postdocs by Age and Gender

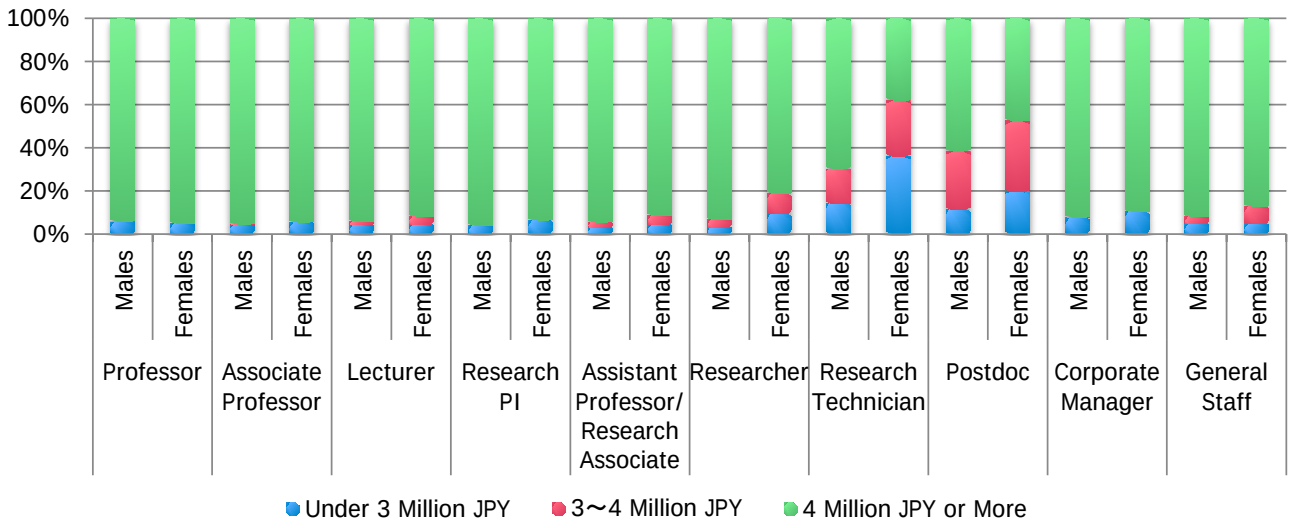


Figure 4.16 Salaries for Respondents with a Doctoral Degree that Spend Over 40 Hours/Week at Workplace

Childcare Leave for Postdocs (Figures 4.17-18)

At 41%, the ratio of female postdocs that responded “no” to availability of childcare leave is high.

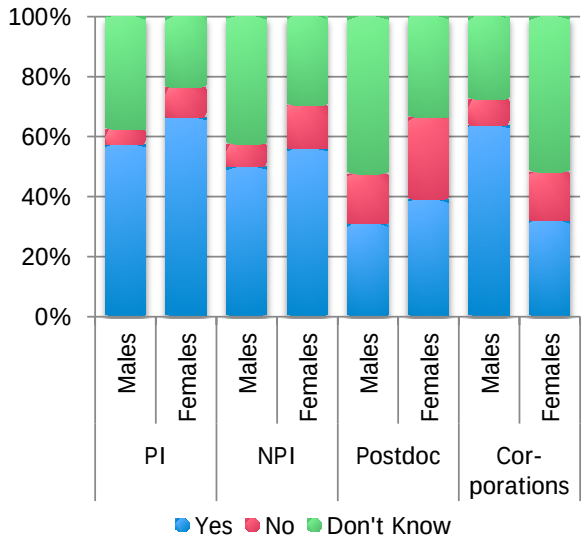


Figure 4.17 Childcare Leave for Limited-term Employment by Occupational Field

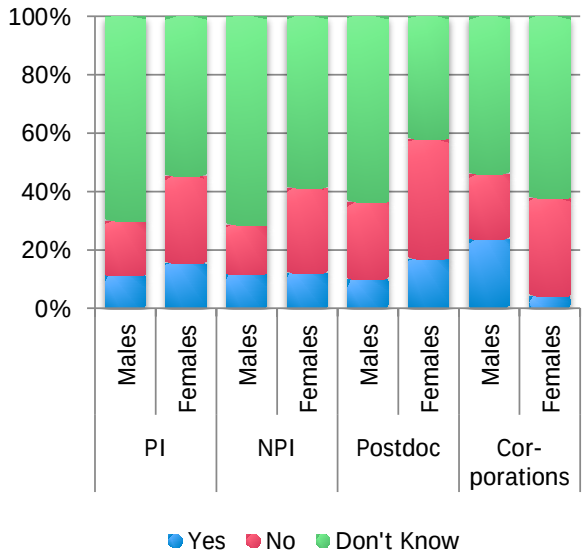


Figure 4.18 Term Extension Due to Childcare Leave for Limited-term Employment by Occupational Field

4.3 Postdoc Perception

Reasons (multiple choices) why the respondents chose their current jobs were analyzed by occupational field. Seventy-five percent of postdocs selected “academic satisfaction/intellectual stimulation” as the reason (multiple choices) for their current job choice (Figure 4.1).

According to the overall average and responses from the postdocs themselves (multiple choices, Figure 1.64), “Few positions available after postdoc” (85%, 90%, overall average and postdocs, respectively) is the most prominent issue with the postdoctoral position. This was followed by “life planning is difficult” (71%, 79%, respectively), “outlook is difficult since term is affected by research funding” (58%, 65%, respectively) and “unable to work on consistent topic” (53%, 63%, respectively).

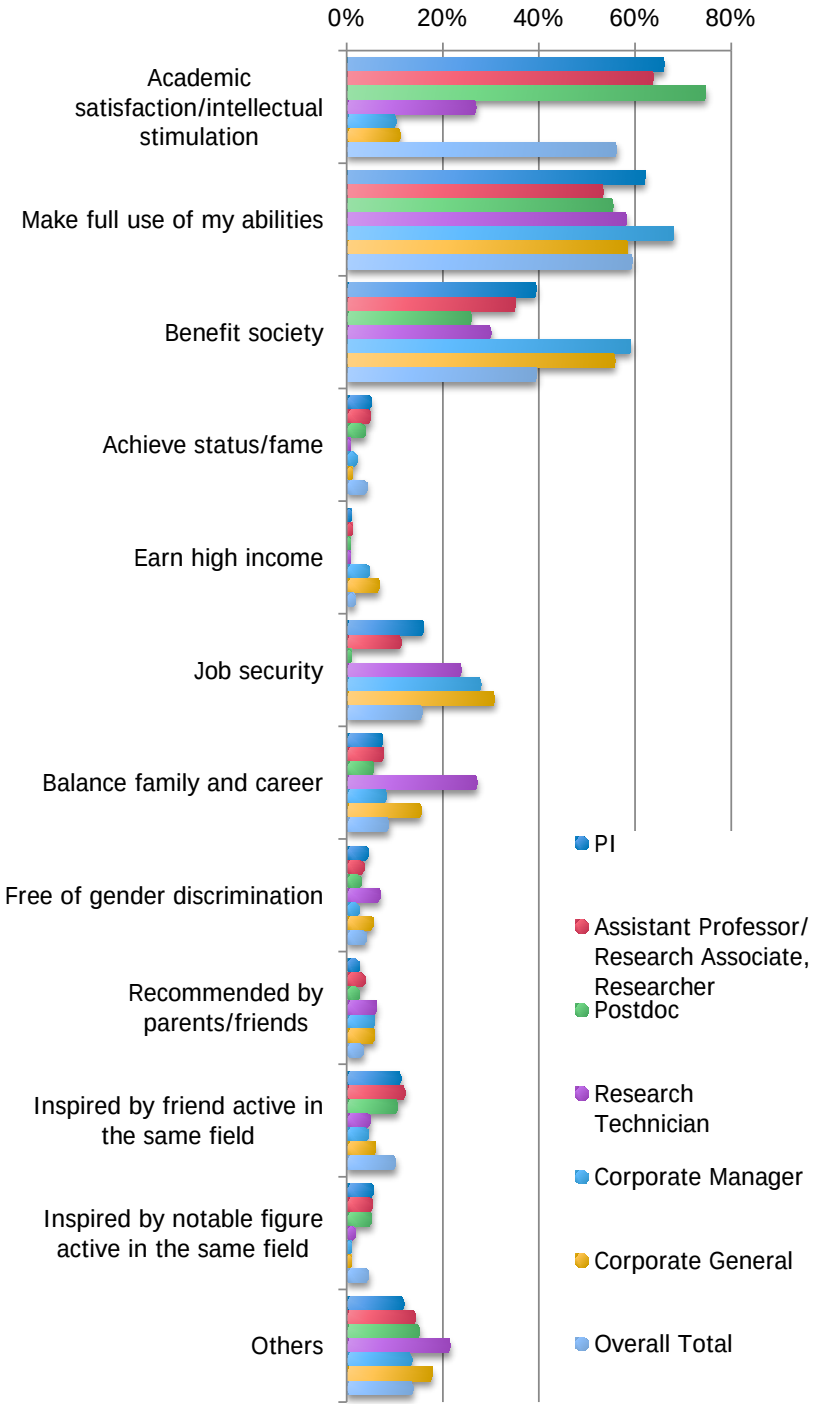


Figure 4.19 Reasons for Choosing Current Job by Occupational Field

4.4 Summary of This Chapter

4.1 Basic Data

- The percentage of no-term employment for females is low. Even by age group, increaseis sluggish for females. For research technicians (high female ratio), the ratio gap of limited-term employment between genders is double.
- Salaries for limited-term female employees (researchers) are low. Especially in research institutions, the gender gap is significant.
- Health and pension plans for limited-term employment have improved.
- The number of children of limited-term employees is especially low with male postdocs. Although job position does not make much difference for females, the ratio of those with children is under 40%.

4.2 Postdoc Employment Status

- The percentage of female postdocs increases with age. Hours spent at workplace by females do not change between occupational fields, but those employed at universities and research institutions work slightly longer. Many of those contracted to work only 30 hours/week were found to actually spend more than 50.
- Over 60% of postdoc annual salaries are below 5 million yen, and a gender gap definitely exists (males > females). Forty percent of male and over 50% of female postdocs that have a doctoral degree and spend over 40 hours at the workplace make less than 4 million yen per year.
- The percentage of those able to extend their term limit after childcare leave is low at under 25% for both genders. However, the ratio for postdoc females exceeds 17% suggesting the availability of such provisions is progressing to some extent.

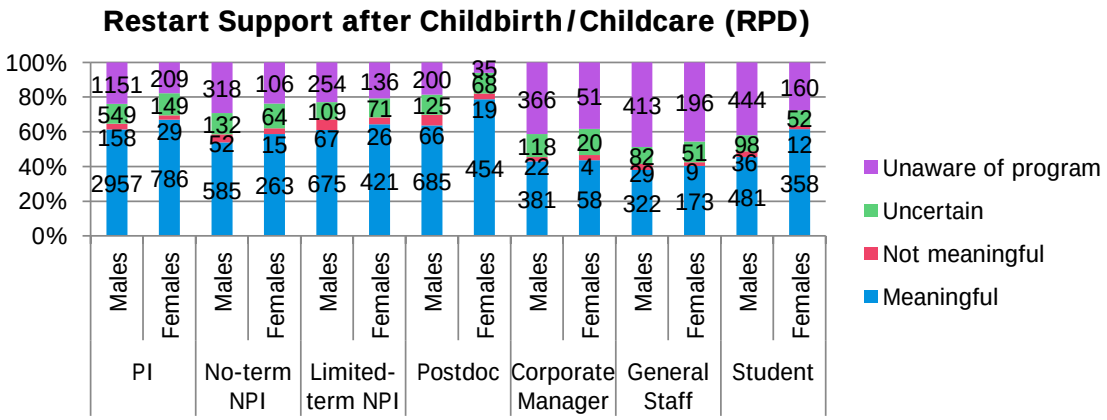
4.3 Postdoc Perception

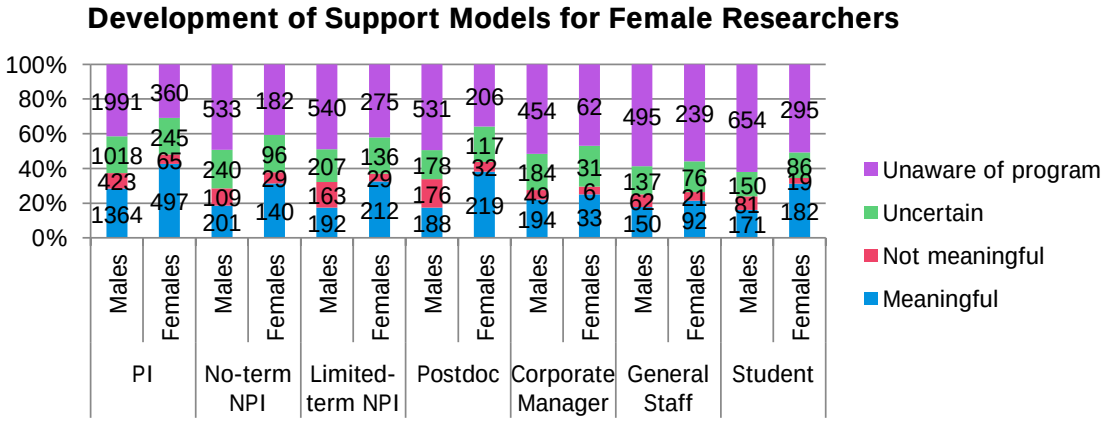
- The percentage of postdocs that gave “academic satisfaction/intellectual stimulation” as the reason for choosing their current jobs was higher than the total average. On the other hand, “benefit society” and “job stability” were clearly lower than the total average. This trend has not changed greatly since the last survey.
- Those who selected “few positions available after postdoc” and “life planning is difficult” as problems of the postdoc system were extremely high in number and suggest that career paths are not clear. Results were unchanged from the last survey.

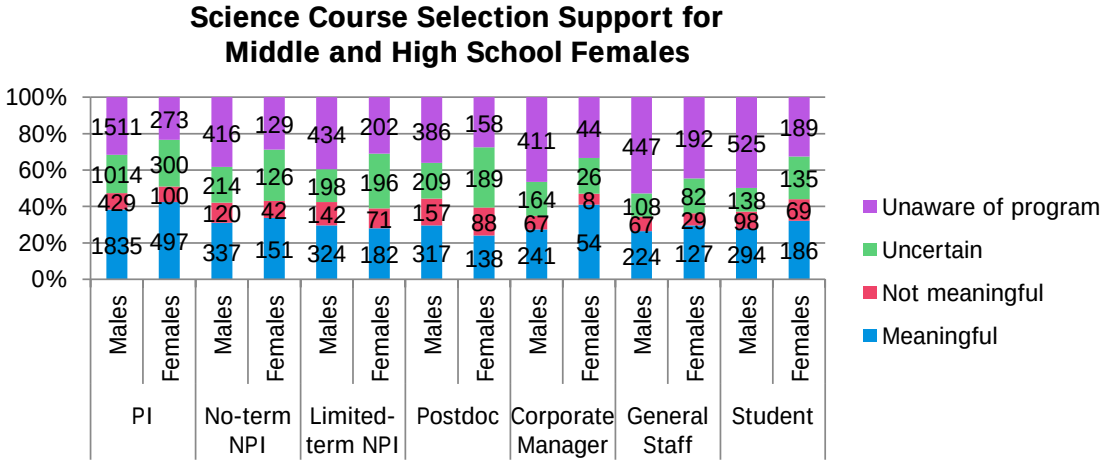
Chapter 5 Important Issue: Programs and Policies

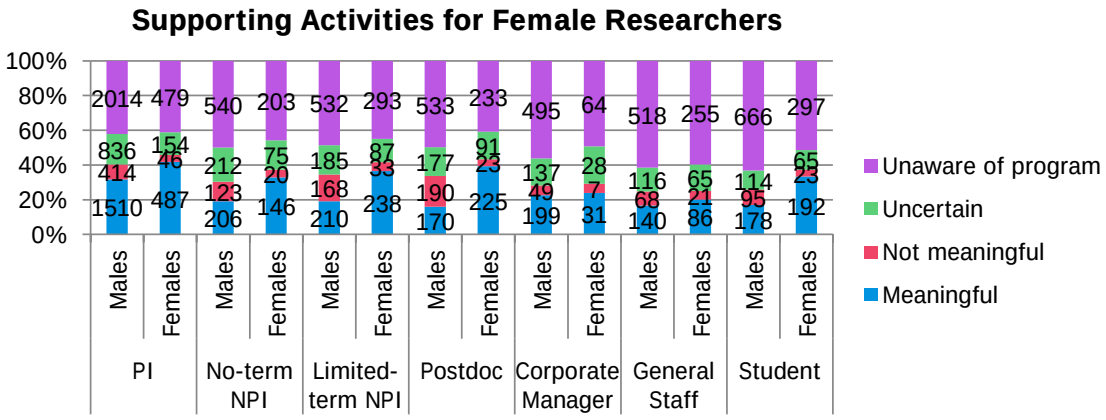
5.1 Familiarity with Recent Programs (Figure 5.1)

Respondents were asked about the significance (and familiarity) of programs that help promote gender equality. Familiarity with the programs was found to be low, and in many cases, knowledge of their existence was inadequate even within institutions that have adopted the programs.








Supporting Activities for Female Researchers
100%
80%
60%
40%
20%
0%
2014 479 540 203 532 293 533 233 495 64 518 255 666 297
836 154 212 75 185 87 177 91 137 28 116 65 114 65
414 46 123 20 168 33 190 23 49 7 68 21 95 23
1510 487 206 146 210 238 170 225 199 31 140 86 178 192
Males Females Males Females Males Females Males Females Males Females Males Females Males Females
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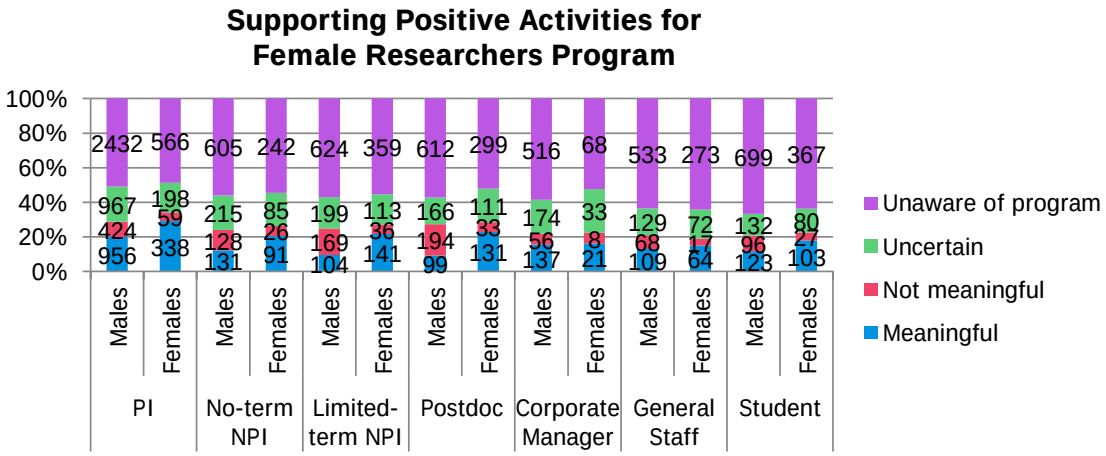
No-term NPI
Limited-term NPI
Postdoc
Corporate Manager
General Staff
Student
Unaware of program
Uncertain
Not meaningful
Meaningful


Supporting Positive Activities for Female Researchers Program
100%
80%
60%
40%
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2432 566 605 242 624 359 612 299 516 68 533 273 699 367
967 198 215 85 199 113 166 111 174 33 129 72 132 80
424 59 128 26 169 36 194 33 56 8 68 17 96 27
956 338 131 91 104 141 99 131 137 21 109 64 123 103
Males Females Males Females Males Females Males Females Males Females Males Females Males Females
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Limited-term NPI
Postdoc
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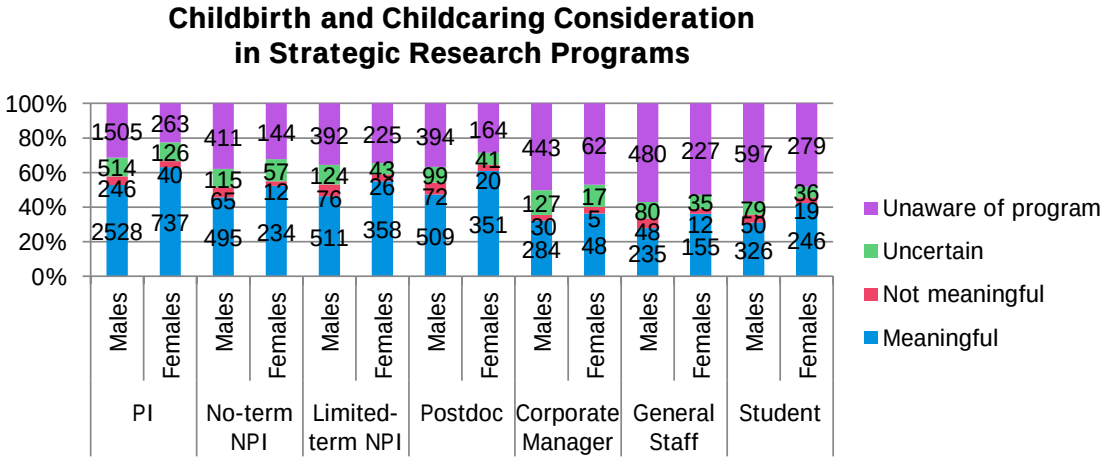
General Staff
Student
Unaware of program
Uncertain
Not meaningful
Meaningful


Childbirth and Childcaring Consideration in Strategic Research Programs
100%
80%
60%
40%
20%
0%
1505 263 411 144 392 225 394 164 443 62 480 227 597 279
514 126 115 57 124 43 99 41 127 17 80 35 79 36
246 40 65 12 76 26 72 20 30 5 48 12 50 19
2528 737 495 234 511 358 509 351 284 48 235 155 326 246
Males Females Males Females Males Females Males Females Males Females Males Females Males Females
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Corporate Manager
General Staff
Student
Unaware of program
Uncertain
Not meaningful
Meaningful

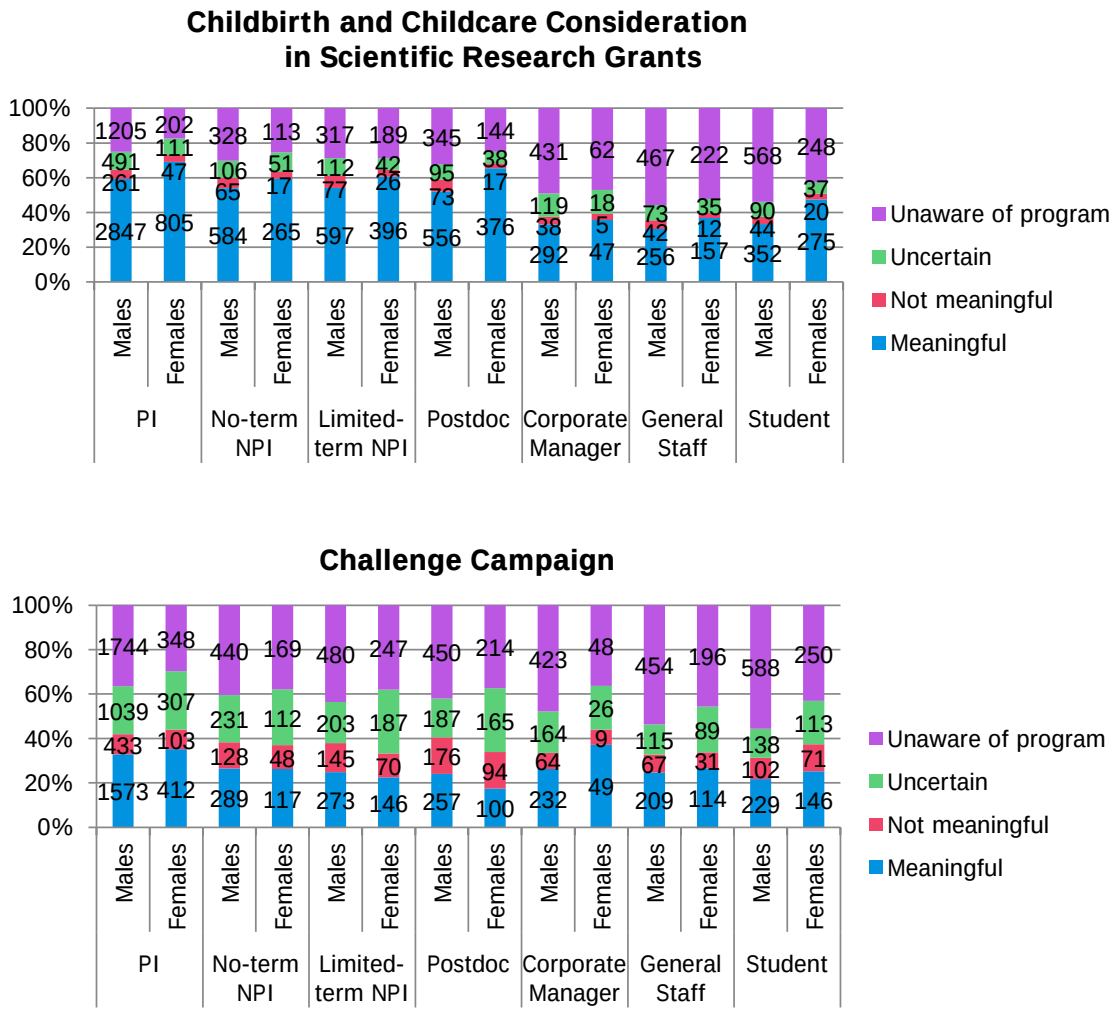

Figure 5.1 Familiarity with Recent Programs

5.2 Numerical Target of Hired Female Researchers

At the PI and NPI level, those familiar with or have heard of “numerical target for newly hired female researchers” was 40 to 50% for both genders. However, familiarity was only 20 to 30% with general corporate staff and students (Figure 5.2). Gender gap in its perception was larger than in other programs, and simultaneously, many were opposed to the practice. While about 30% of males and nearly half of the females responded positively as “meaningful” or “should be expanded and promoted”, about 60% of males and 40% of females indicated negative perceptions with “not meaningful” or “will have adverse effect” responses (Figure 1.100, Figure 5.2).

When observing results according to age group, a high percentage of negative responses came from males in their 30’s with “will have adverse effect”,reaching 30%. However, from the 40’s on upwards, the percentage of both genders that rate the existence of a numerical target positively rises with age. In fact, at age 60 and above, positive responses surpass negative responses for males (Figure 5.3).

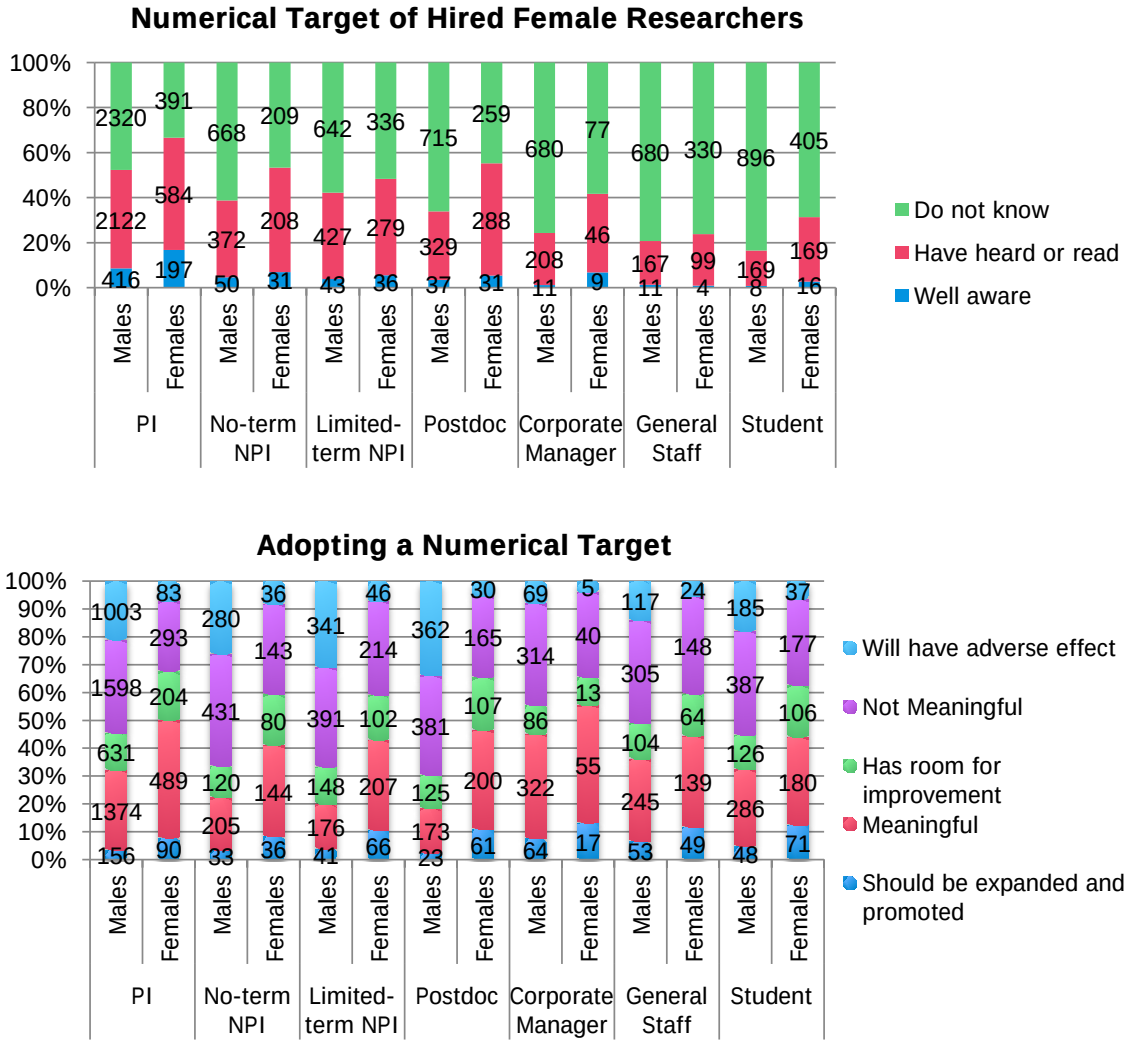

Figure 5.2 Awareness and Perception Regarding Numerical Target for Newly Hired Female Researchers

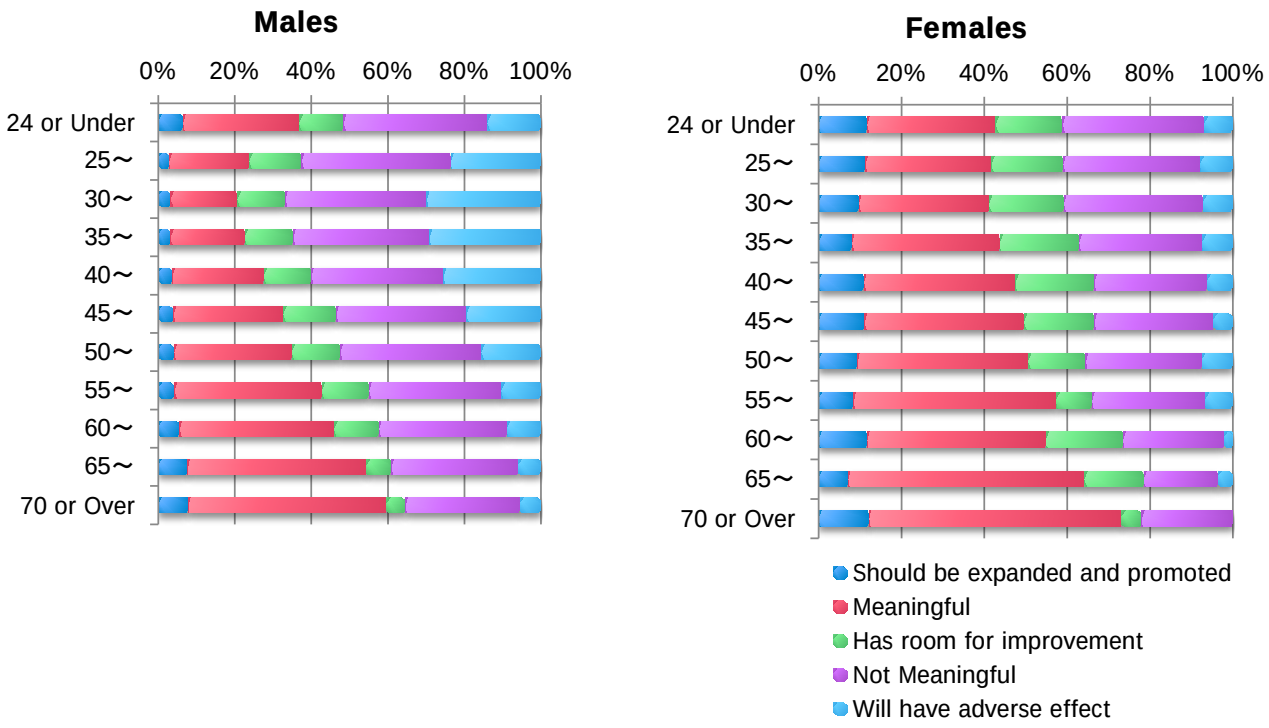

Figure 5.3 Perception of Numerical Target by Age Group

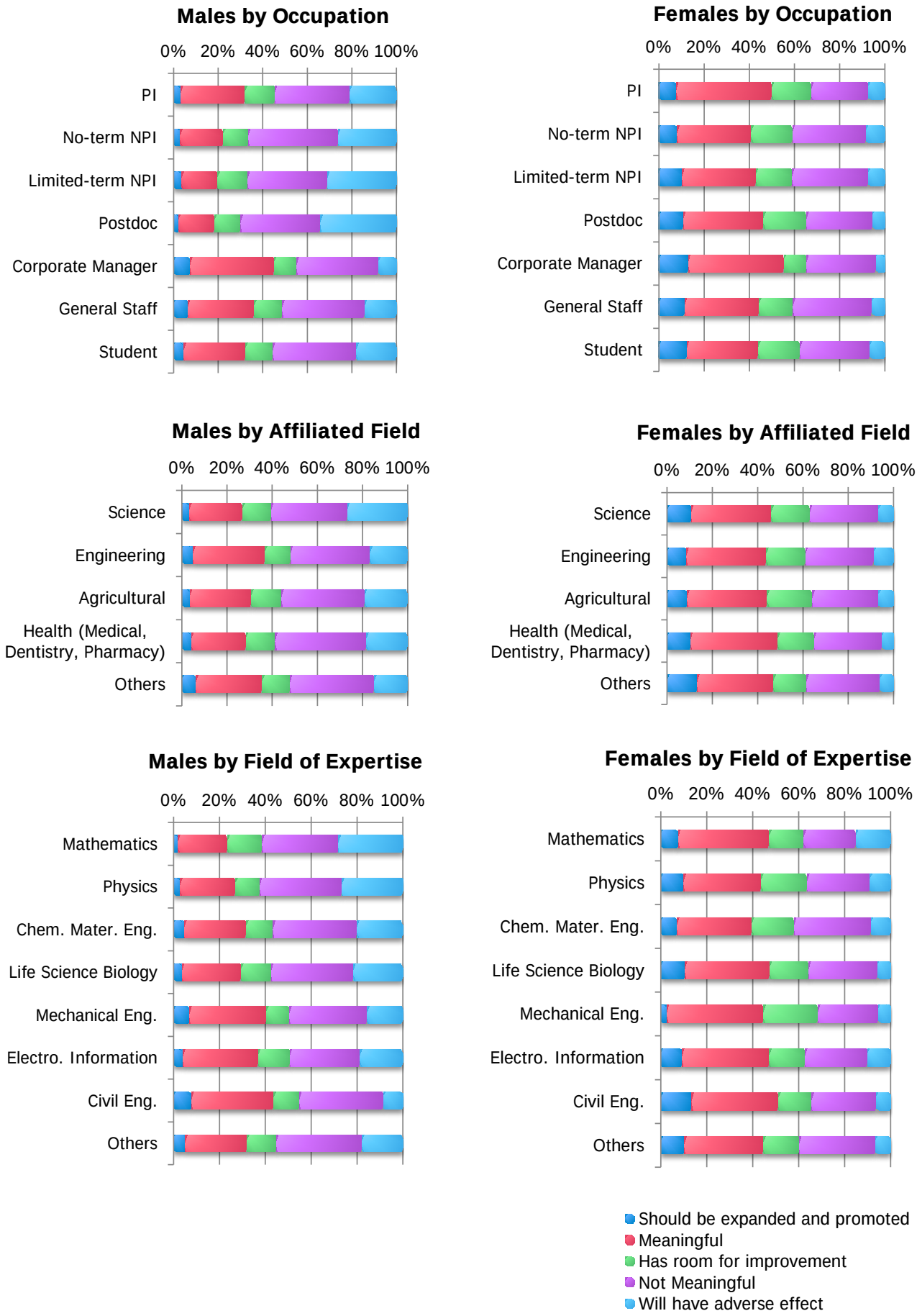

Figure 5.4 Perception of Numerical Target by Occupational, Affiliated and Professional Fields

5.3 Evaluation of Numerical Target from Respondents with High Perception

Percentage of respondents that were “well aware” with the hiring target for female researchers was no more than 6% of the total, whereas 59% males and 49% females were unaware (Figure 1.99).

Figure 5.6 shows hiring numerical target awareness and perception of respondents regarding its significance.

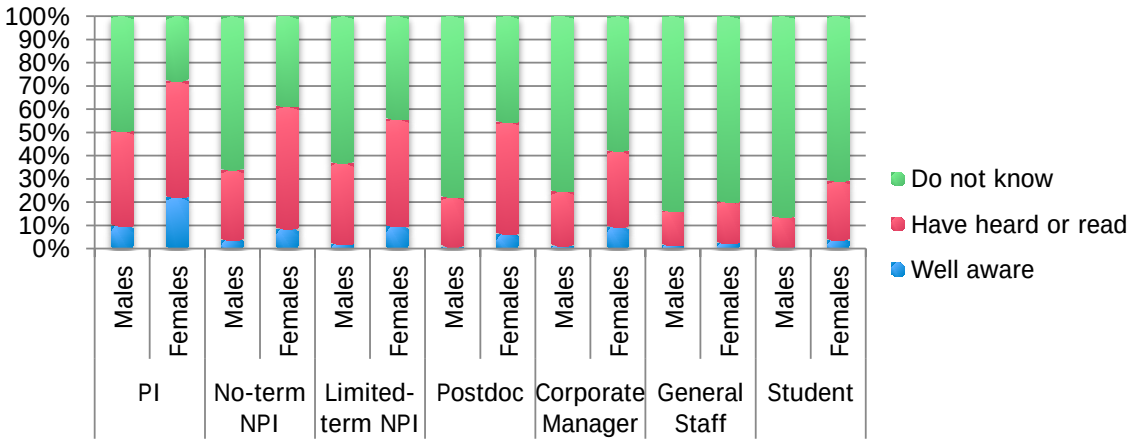

Figure 5.5 Awareness of Numerical Target by Occupational Field

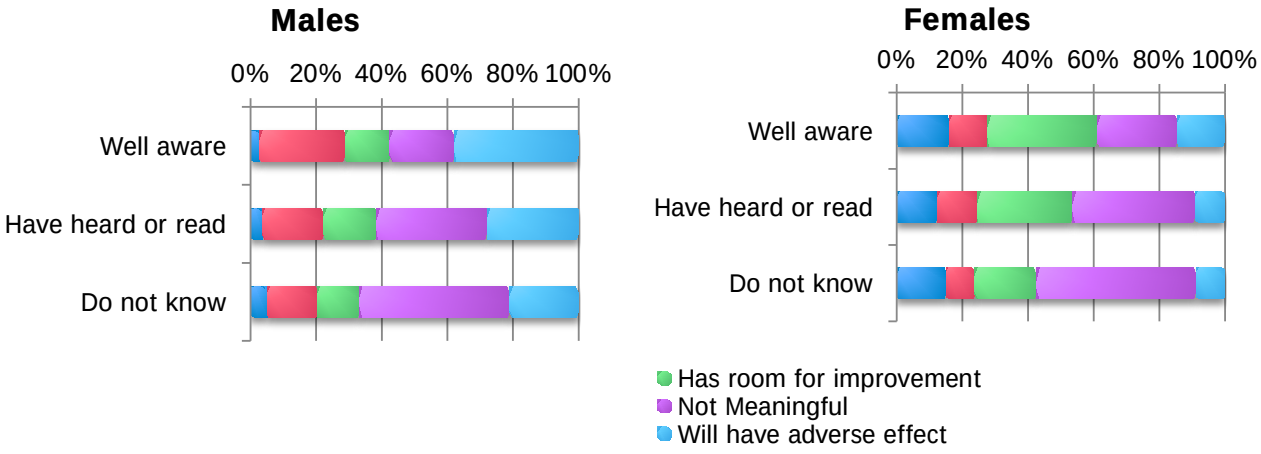

Figure 5.6 Awareness of Numerical Target and Perception on Significance

5.4 Female Hiring Numerical Target of Affiliated Institution

Increased responses regarding the existence of female hiring targets by both genders compared to previous survey results indicates progress in the implementation of numerical targets at affiliated institutions/corporations (Figure 5.7).

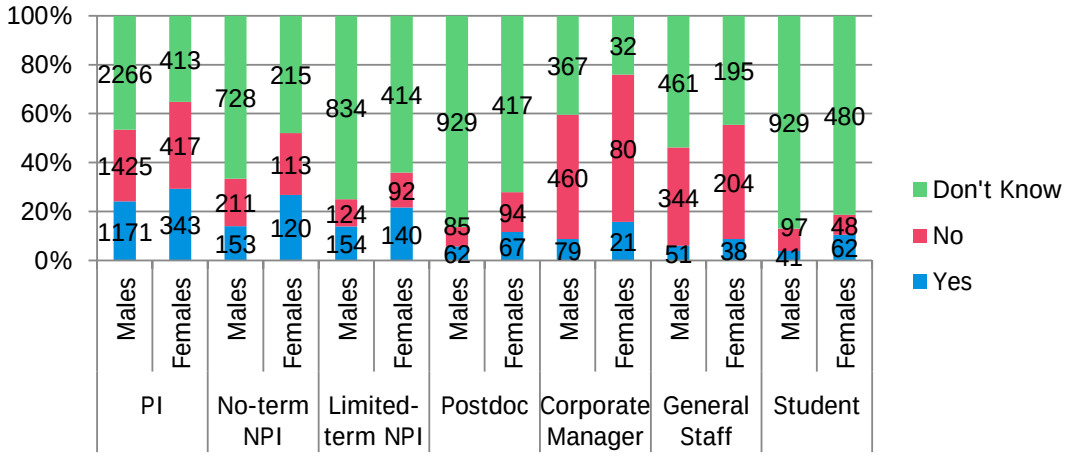

Figure 5.7 Presence of Numerical Target for Female Hiring

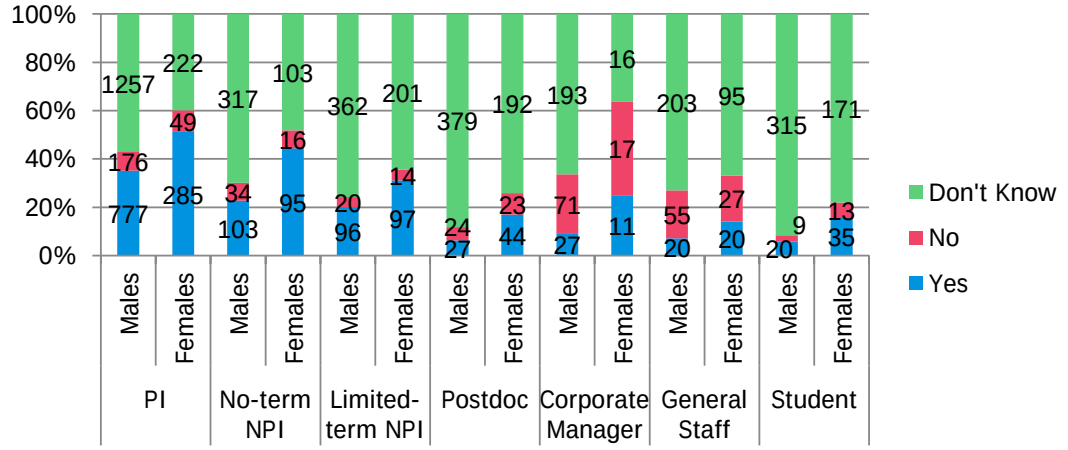

Figure 5.8 Publication of Numerical Target by Occupational Field (if numerical target exists)

Respondents who answered “no” to the existence of a numerical target for female employment/hiring at their institution were asked additionally whether such a target should be implemented. Overall, 60% of females and 80% of males were against the implementation. A high number of responses for implementation came from female PI and postdoc (48% for both). The greatest number of negative responses came from the male postdoc (89%) and limited-term NPI demographics (86%) (Figure 5.9).

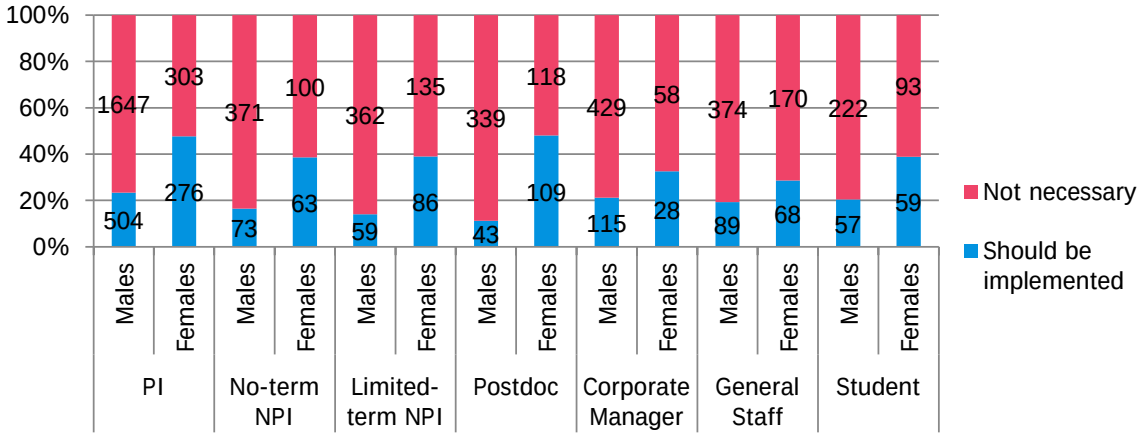

Figure 5.9 Necessity of Numerical Target (if not implemented) by Occupational Field

5.5 Summary of This Chapter

5.1 Familiarity with Recent Programs

- Positive opinion for “RPD” has risen since the last survey. The number of positive opinions for “Support Model” has declined, and for “Science Course Selection Support for Middle and High School Females” the number was somewhat higher. The percentage of respondents aware of these programs surpassed 50%, which was an improvement.

5.2 Numerical Target for Newly Hired Female Researchers

- The percentage of males that think hiring targets are “meaningful” is low. However, the ratio of “not meaningful” responses decreased while “meaningful” and “adverse effect” responses increased. On the female side, “should be promoted” decreased while “meaningful” and “room for improvement” responses increased.

5.3 Evaluation of Numerical Target from Respondents with High Perception

- In the case of females, respondents were more “well aware” of the existence of numerical hiring targets, higher than the ratio of responses of “meaningful”. On the other hand, the more “well aware” the males were, the higher the ratio of “adverse effect” responses were.

5.4 Female Hiring Target of Affiliated Institutions

- The implementation of numerical targets is increasing. A high ratio of respondents from institutions which do not currently employ numerical targets thought the targets were “not necessary” (females: 60%, males: 80%).

Chapter 6 Written Comments

This was the second time a free comment section was provided in the large-scale survey conducted by EPMEWSE[*1]. Over 5,000 written comments were analyzed and along with the characteristics of the respondents, what the comments revealed regarding the perception current researchers and engineers have are summarized in this chapter.

*1: EPMEWSE: Japan Inter-Society Liaison Association Committee for Promoting Equal Participation of Men and Women in Science and Engineering

6.1 Respondents' Characteristics Revealed by Basic Data

The number of written comments received was 5,022 (males: 3,559, females: 1,463), which is equivalent to 30.8% of all survey respondents. The female ratio of written comments (1,463/5,022=29.1%) was higher than the female ratio of the overall survey (4,355/16,313=26.7%). When observed by age, over 60% of comments for both genders came from those in their 30's and 40's (Figure 6.2). This essentially overlaps with age distribution of all survey respondents (Chapter 1, Figure 1.1). In terms of occupational field, response ratios were slightly higher with male postdocs and with PI and postdocs on the female side.

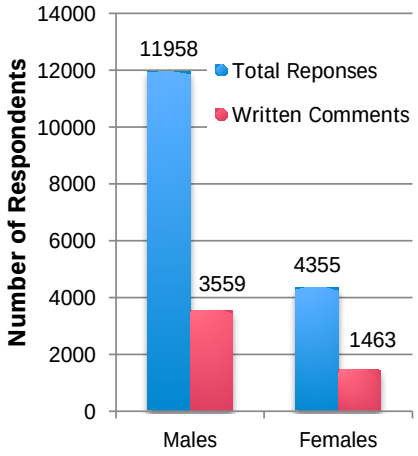

Figure 6.1 Total Responses and Written Comments

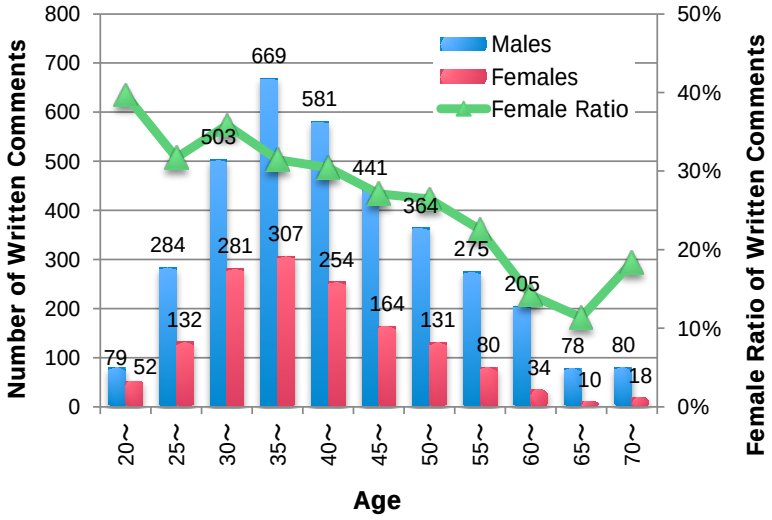

Figure 6.2 Number of Written Comments by Age/Gender and Percentage of Females

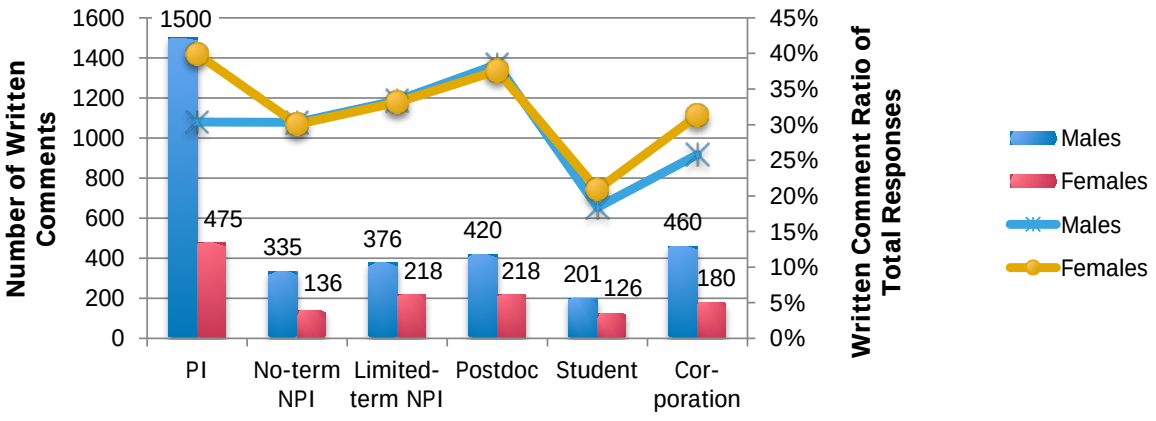

Figure 6.3 Number of Written Comments by Occupational Field and Percentage of Females

6.2 Frequently Made Comments

The more than 5,000 comments received this time is a substantial increase over the approximately 2,800 received in the previous survey. The comments from the previous survey were categorized as related to (1) positive action; (2) limited-term researchers' insecurity with job stability, employment continuity and childcare-research balancing; (3) necessity for increased perception from supervisors and males on childcare-research balance; (4) troubles faced by families/couples (Part 1) long working hours hamper family-work balance; (5) troubles faced by families/couples (part 2) living together/living separately/working in same area; (6) easing age limits on hiring and research funding; (7) others (a) change in family name is inconvenient for career continuity, (b) evaluation of childbirth/care, (c) expectation for further growth and penetration of support programs for female researchers, (d) next generation child rearing to target infants/elementary school children. Many of the comments received in this survey were related to the same seven topics.

Particularly, there was a large increase of comments in the positive action category related to numerical target of female researchers. There were those in favor of implementing the numerical target as well as those who opposed.

Comments from this survey were categorized as (i) positive action, (ii) career path, (iii) work-life balance or (iv) perception reform/gender equality related topics. These are shown in Figure 6.4.

Number of comments by gender/age (Figure 6.5): Number of comments received from males on positive action was overwhelmingly high, and among those, nearly 90% were related to numerical targets for female hiring.

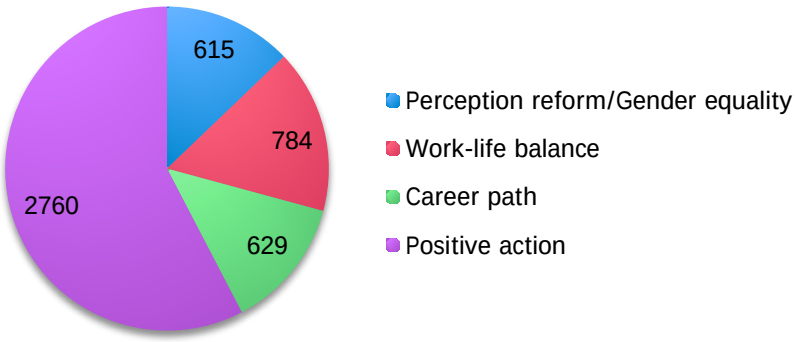

Figure 6.4 Topics and Number of Comments

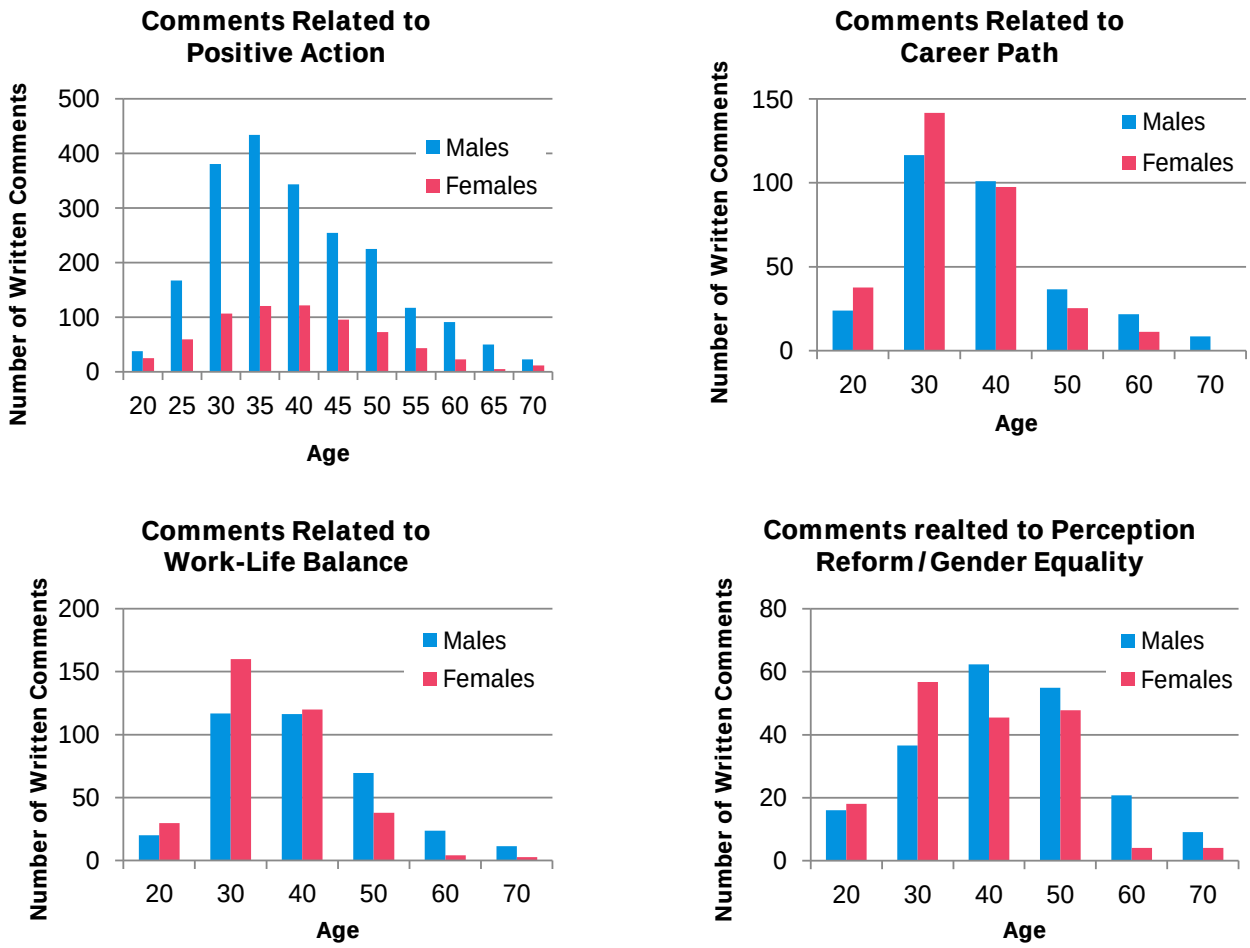

Figure 6.5 Number of Comments for Each Topic by Age

Comments are summarized by topic below. The number in parenthesis indicates the number of comments received, and excerpts from some of the comments are presented.

(i) Positive Action

Excerpts from comments related to numerical targets for female hiring, Restart Postdoctoral Fellowship (RPD) and support for science course selection are presented here. Except for the previously mentioned respondents who agree with female hiring targets, both genders believe there are problems with the current practice of giving females priority during hiring. Many of the comments point out that hiring priority is not the solution, and that thought should be given to programs that enable continuation of work such as RPD as well as ways to sway students toward science/engineering fields before raising the ratio of female hiring. These perceptions are the backdrop for favoritism towards RPD and programs to support science course selection.

Numerical Targets for Newly-hired Female Researchers

Comments in favor of numerical targets (6)

- The national government and corporations should take the initiative and implement numerical targets for the ratio of female researchers and managers. (female, 20's)
- Setting individual short-term numerical targets according to the current situations of universities or academic departments will give rise to common perception and serve as an impetus to promoting gender equality. (female, 40's)

- Not only numerical targets, but also incorporation of a clearly visualized target success model that includes specific lifestyles is necessary. (male, 30's)

Comments against numerical targets (14)

- Setting a hiring target that surpasses the male-to-female ratio of students will lead to reduction in the quality of the research field on the whole. (male, 30's)
- There should not be any difference in treatment between males and females. Similar to female friends that quit research positions due to difficulty balancing job with childcare, I have witnessed male friends leave because they do not have the confidence to support their families with research work. Therefore, females are not particularly at a disadvantage. I think hiring targets will have a huge adverse effect and is difficult to accept. At my workplace, a program provides funds to hire a research assistant when a researcher or the spouse gives birth, which is extremely productive. (female, 20's)
- It would be unfortunate for the next generation of female researchers/engineers who will look up to those inappropriately selected females as role models. (male, 40's)
- Competency and insight should be the criteria for hiring or promotion regardless of gender. (male, 40's)
- Recruiting by ability, regardless of gender, is the true meaning of gender equality. (female, 30's)
- Research is based on an individual's quest for knowledge and is unrelated to gender. Setting numerical targets when nurturing researchers runs a high risk that people will just end up pursing the numerical targets. (male, 30's)
- Simply setting a target percentage of female researchers will give hiring priority to females in the younger generation, but there is a grave possibility it may prevent middle-aged and older females from getting promotions. (female, 30's)

Other solutions should be looked into (9)

- It is important to have measures that ensures women's career paths are not disrupted midcareer. (male, 30's)
- Life events such as childcare and nursing should be taken into consideration at the time of hiring. (female, 30's)
- In pursuing gender equality, setting a numerical target is meaningless since achieving the target will be the only goal it will accomplish. As a practical matter, there are some excellent female researchers around me, but unfortunately, there are few that I suspect may have been hired just so the genders are evenly matched. Considering the future promotion of Japan's science and technology, I feel the strong need for a system that justly rates researchers with true ability or promising future without taking gender difference into consideration. (male, 40's)
- I think it is necessary to provide flexible working hours, allowing work from home, minimizing non-research work (teaching responsibilities, committees, entrance exam work, etc.) and priority placement of research assistants to create an environment that will allow "effective use of the limited time available to enable concentration on research". (male, 40's)
- A system to hire, evaluate and allocate research funding without disclosure of gender, name or place of origin is necessary. (male, 40's)
- The set targets are for female researchers that are currently active and do not apply to people like me who are in a position to become a researcher. (female, 20's)
- I would like to request the promotion of measures that are urgently needed such as kindergarten-daycare reform. (male, 30's)

RPD

Glad the program existed (3)

- I am with Japan Society for the Promotion of Science RPD and had three children. I can select research topics that can be accomplished in a short period and outsource portions to non-researchers using reward. I probably could not have performed research without the RPD program. (female, 40's)
- I am currently a graduate student, but I have hope for the future after learning about the RPD program. (female, 20's)
- I strongly hope that new measures will continue to beimplemented over the long term. (female, 40's)

Calls for expanding RPD (3)

- I hope for more options to be available when returning to work after childbirth and during childcare. (female, 30's)
- I am an adopter of the initial RPD. In my case, I was able to continue research in spite of childbirth and childcare. In addition, I gave birth to my second child during the RPD period. My previous job (maternity leave replacement staff) was discretionary work with flexible working hours, which helped. (female 40's)
- I am a postdoc soon to give birth. I would like to see more programs created (such as RPD) that provide shortened working hours, long-term research for limited-term employees, research for which I can set my own terms, and proper payment. (female, 30's)

Problems with Programs (3)

- I have heard RPD screening tends to evaluate recent performance. If so, it seems the system does not allow for the employment of people whose work has been discontinued and who want to return to work. (female, 40's)
- Programs are said to give preference to women, but with RPD, the advantages are with women who have already given birth. (female, 40's)

Others (2)

- RPD is meaningful, but I am concerned about how many people get permanent positions after qualifying for the program. (female, 30's)
- In the younger years, childbirth and childcare reduces time that can be spent engaged in research. Therefore, I would like the various age restrictions such as those for postdocs to be eliminated. (female, 30's)

Support for Science Course Selection

Improve parents' awareness (3)

- Mothers in the general public need increased awareness of science while their children are in kindergarten or nursery school. Otherwise, the employment rate will never change. (male, 40's)
- It is vital to increase the number of middle and high school females that choose to study science and technology. To do so, their mothers' awarenessneeds to change. (female, 40's)

Increase female students advancing to science courses/employment (4)

- Increasing the number of middle and high school females who advance to science-related universities/departments is the most important. (male, 30's)
- During middle and high school education, get students, regardless of gender, to take interest in science and technology fields. (male, 40's)

- Ifmiddle and high school females are to be guided toward science fields, places for their employment should also be prepared. (female, 20’s)

Others (4)

- Events are often planned for middle and high school females, but I feel it is also necessary to promote the understanding of gender equality to the boys who will in the future be working together with the girls. (female, 40’s)

(ii) Career Path

Career path support to aid job changes that become necessary when responding to childcare or spouse’s work situation is strongly demanded by both genders. Presented here are excerpts from comments related to ① limited-term researcher’s concern with employment stability/continuity, balancing childcare with research, ② living together/living separately/working in same area, ③ easing age restrictions on employment and research funding, and ④ inconvenience of family name change in career continuation. In the previous section on numerical targets for female hiring, there were numerous comments indicating the need for measures to ensure work continuity instead of setting hiring targets. However similar to the previous survey, it remains as an issue that has not been fully resolved.

Limited-term researchers’ concern with employment stability/continuity and balancing childcare with research

Employment stability/continuity (8)

- Due to strengthening support for regular employees, strain has increased on non-regular employees such as those with limited-term contracts. (female, 40’s)
- While extremely difficult to achieve, it is important to continue to aim for fair treatment and evaluation regardless of age or gender.(male, 30’s)
- Expanding career possibilities to fields and roles other than research is one way to solve the problems postdoctoral fellows are facing. (male, 20’s)
- It is necessary to create a proper system to recruit and evaluate applicants by their ability and whether or not they are suited for the job. At the same time, creation of a diversity of professions is important. (male 40’s)
- If you repeat limited-term jobs, eventually you will end up aging, and application for permanent employment will be impossible due to the age restrictions. (female, 40’s)

Difficulty balancing marriage/childcare with limited-term employment (26)

- Establishing social security for limited-term employees or increasing no-term employment positions will prevent female turnover. (female, 30’s)
- I believe among the female researchers raising children, there are those who would prefer a position even if it is not independent that will enable them to focus solely on research until their children are grown up rather than seek promotion. (female, 30’s)
- If limited-term positions are being increased to obtain fluidity, I would like to have rule that childcare leave to be created in anticipation of returning to a new position after term expiration. (female, 30’s)
- If a steady job can be found, the person can partially respond to childbirth, childcare and nursing needs at the individual’s discretion to make working easier. (female, 40’s)
- To a female researcher, a limited-term position means she cannot give birth or raise children. (female, 40’s)

- The promotion of research not only requires a lab chief, but positions for “ordinary” researchers. (female, 30’s)
- Age after receiving a doctoral degree is a period of prime growth for research, but in the case of women, it is also a childbearing age. Balancing research with childbirth/child-raising must be discussed by society as a whole. (female, 30’s)
- I hope limited-term research positions that offer freedom of research like RPD are expanded for women (including elimination of age limits). (female 30’s)
- For balancing family/childcare with research, it is best if couples work at the same location. However, due to a lack of stable research/teaching jobs after postdoc, it is often difficult to find jobs that meet one’s career goals if you give priority to keeping the family together. (female, 30’s)
- Even if maternity and childcare leave are permitted for those on limited-term employment, physically giving birth is difficult. Does not the fact that there is a term suggest there is no time for leave during that period? (female, 40’s)

Living together/living separately/working in same area (12)

- Whether the job is no-term or limited term, a couple working at the same location is a rarity, and we are unable to live together. (female, 40’s)
- Finally getting a position after a long postdoc life, I am still unable to setup a long-term family plan due to the term limit. My partner could not commit to a drastic career change making it difficult to live together as a couple. (female, 40’s)
- To reduce living separately, males also need to be provided with a flexible choice of jobs so that they can consider family life. When living separately, responsibility for childcare mostly falls on the female, and I keenly sense the low use of childcare/nursing programs by males. (female, 30’s)
- In Japan, the husband’s job tends to take priority. Therefore, the wife must live separately to maintain her research or change research topic/job to accompany her husband. (male, 40’s)
- If a couple accepts different jobs, they will be forced to either live apart or give up one of those jobs. I am always hoping for the creation of a system that requires employers to have positions for couples. (female, 30’s)

Overseas (2)

- In the U.S., there is more consideration for “families”. It is said that when one of couple finds a job, a position for the spouse is easily found nearby. (female, 30’s)

Ease age restriction on employment and research funding (11)

- Age limit for permanent employment and age limit for pregnancy/childbirth is essentially the same. There are so many cases when one or the other must be chosen. (female, 30’s)
- Women will fall behind several years when they have children. Some slack should be given during evaluations, and a social system for men to allow this is necessary. (female , 30’s)
- If limited-term jobs (postdocs) are repeated several times, you will only age, and application for regular employment will not be possible due to age limit. (female, 40’s)
- If mistreatment of female PI’s continues, younger female researchers will no longer aim for PI. (male, 30’s)

Changing the family name is inconvenient for career continuation (2)

- Creation of a system in which married women have the choice to keep their maiden names is necessary. That will prompt the rethinking of one changing their name and the percentage of female researchers will steadily increase. (male, 40’s)

(iii) Work-life Balance

Among work-life issues, there were many comments related to long working hours. Excerpts from those comments are presented below. Individual efforts are insufficient in reforming long working hours. The issue needs to be addressed by organizations and society as a whole.

Long working hours interfere with work-life balance

Long working hours (actually required or general tendency) needs reform (4)

- There is a need to change the current notion that long working hours is the norm. Otherwise, men as well as women will have difficulty continuing work. (female 30's)
- People who can work long hours or can respond to sudden demands are heralded. When people have limited time due to child or nursing care, it is difficult to respond. (female, 30's)
- Too many seniors think working hours are a virtue. (male, 40's)

Period of child rearing and period when working is most critical overlap (2)

- As long as long working hours is normal, raising children while competing against those without children is not easy. (female, 40's)
- The reason there are so few female executives is probably that when promoted, they are expected to work in the same fashion as their male counterparts, which is difficult to achieve. Thus, they partially give up at the start. (female, 40's)

Expectations for improvement of long working hours by improving work environment (7)

- Time spent on miscellaneous tasks needs to be reduced. (female, 40's)
- Even in the present, women who produce results are in high-ranking positions. Currently, I feel neither gender has enough support for producing results. To produce results, I think long working hours is inevitable. Facilities that take care of children until late hours and social security policies for cost incentives are lacking. This is not limited to the science and technology fields. (male, 40's)
- The burden of childcare, housework and nursing care is heavier on women than on men and needs to be reduced. (male, 50's)

(iv) Awareness-raising and gender equality

In this section are comments related to awareness-raising and gender equality, in particular those associated with this survey, which aims to draw an image of a gender-equal society. Many of the comments mentioned the need for awareness-raising on part of the females as well as males in advancing positive action, career path support and work-life balance.

Male consciousness reform (5)

- Gender equality only addresses women, and males seem to be unengaged. (female, 30's)
- Awareness-raising of male supervisors is necessary. (male, 30's)

Female consciousness reform (8)

- Aggressive activities and awareness-raising from female scientists themselves is necessary. (females, 30's)
- More than ever before, women need the awareness and place to show that they are a contributing force in society. (male, 60's)

Awareness-raising of society as a whole (10)

- Awareness needs to be raised for all of society including women. (female, 40's)
- Increase employment opportunities and reform male perception of events targeted at the proper evaluation of women. Organizations and groups that provide consideration for women have merit or create systems that reverses the situation. Aim for atmosphere/society that respects women. (male, 30's)
- It is necessary to build a society that accepts a more diverse style of working. (male, 30's)
- Those that really need awareness-raising are the teachers that have absolutely no interest in "gender equality". How to change that is the issue. (males, 40's)
- Putting women's abilities to good use and developing an environment in which child-rearing is not a disadvantage are essential. (male, 40's)
- Unfortunately, there are still many families with feudalistic ways of thinking, and many of those who grew up in such environments have a certain prejudiced opinion regarding gender roles. (male, 50's)

6.3 Summary of This Chapter

6.1 Respondents' Characteristics

- The number of written comments received increased substantially compared to the previous survey. The ratio of comments from females was higher. By age group, 60% of comments came from those between the ages of 30 and 40. The ratio of comments was higher with younger females. By occupational field, a higher ratio of comments came from female PIs and male postdocs.

6.2 Frequently Made Comments

- Many of the comments had negative opinions toward numerical hiring targets, and instead expressed the need for social support.

Over half of the comments were related to positive action. Of those, 90% addressed the issue of numerical hiring targets and female hiring in general. Many responses were from males.

Appendix 1 Questionnaire

Third Large-Scale Survey of Actual Conditions of Gender Equality in Scientific and Technological Professions

This year, EPMEWSE will celebrate its 10th year since its establishment. In order to understand the current work/life environment surrounding researchers and engineers of natural science with regards to gender equality, two large-scale surveys (2003, 2007) were conducted with each receiving about 20,000 responses. The survey results have been cited frequently as statistical evidence when discussing the various problems faced by female researchers and engineers. Furthermore, proposals based on the results have been seen in government policymaking and subsequently various other measures addressing gender equality are beginning to gain traction. This is the third time the survey is being conducted. With the number of participating academic societies (including observers) reaching 70, it is a large-scale survey targeting nearly 400,000 society members. The continuity of the survey is extremely important in clarifying the current reality as well as changes in gender equality issue awareness, verifying the effectiveness of government programs, and identifying new issues. We would greatly appreciate the active cooperation of as many scientists and engineers as possible in completing the questionnaire. For those that have taken part in the previous surveys, we would be thankful if you can again spare a moment of your time to participate.

Thank you.

Yuko Sekino, MD.Ph.D., 10th EPMEWSE Chair

Yumiko Yoshimura, Ph. D., Questionnaire WG Chair

Japan Inter-Society Liaison Association Committee for Promoting Equal Participation of Men and Women in Science and Engineering (EPMEWSE)

August, 2012

The questionnaire includes 46 questions and will require 20 to 30 minutes to complete. It is not possible to stop and save the questionnaire prior to completion. However, the answer session can be kept active for 10 hours as long as the Web browser remains open. Questions you find difficult to answer may be skipped, but it is our hope that you would answer as many questions as possible.

Only answer the questionnaire once even if you are associated with several academic societies and please check each of the societies you are affiliated with in Question 5.

All responses collected are treated statistically and anonymously without identifying the respondents. Protection measures will be strictly exercised in handling the collected data to prevent information leakage, and the results will never be used for purposes other than to promote activities of gender equality. Upon answering the questionnaire, please acknowledge that the copyright of the tabulated results will belong to the EPMEWSE.

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1. Age as of April 1, 2012. [ ] **(Required)**

2. Gender. ☐Male ☐Female **(Required)**

3. What is your highest academic degree?
☐Bachelor's ☐Master's ☐Doctor's ☐Other **(Required)**

4. Do you hold a doctoral degree? **(Required)**
☐No ☐Yes (Course) ☐Yes (Non-course) ☐Yes (Both "Course" and "Non-course")
(Note: "Course" doctorates are conferred upon those who complete graduate school courses, whereas "non-course" doctorates do not require enrollment in the graduate school.)

5. To which academic societies do you belong? **(Check all that apply) (Required)**
☐Japanese Society of Breeding
☐The Genetics Society of Japan
☐Japanese Society for Biological Sciences in Space
☐The Institute of Image Information and Television Engineers
☐The Japanese Liquid Crystal Society
☐The Japanese Society for Horticultural Science
☐The Japan Society of Applied Physics
☐The Chemical Society of Japan
☐The Society of Chemical Engineers, Japan
☐The Japan Scientists' Association
☐Japan Association for Fire Science and Engineering
☐The Japan Society of Mechanical Engineers
☐The Institution of Professional Engineers, Japan
☐The Ichthyological Society of Japan
☐The Japan Institute of Metals and Materials
☐The Crystallographic Society of Japan
☐Atomic Energy Society of Japan
☐Architectural Institute of Japan
☐The Society of Polymer Science, Japan
☐Japan Society for Cell Biology
☐Japan Society of Coordination Chemistry
☐Japanese Association for Oral Biology
☐The Magnetics Society of Japan
☐The Mass Spectrometry Society of Japan
☐Society of Automotive Engineers of Japan
☐The Japanese Geotechnical Society
☐The Japanese Society of Veterinary Science
☐The Society for the Study of Species Biology
☐The Botanical Society of Japan
☐The Japanese Society of Plant Physiologists
☐The Society of Japanese Women Scientists
☐Japanese Women Engineers Forum
☐Society of Evolutionary Studies, Japan

☐The Japan Neuroscience Society
☐The Japanese Forest Society
☐The Japanese Society of Fisheries Science
☐Japanese Society for Aquaculture Research
☐The Mathematical Society of Japan
☐The Japanese Biochemical Society
☐The Ecological Society of Japan
☐The Society of Eco-Engineering
☐The Biophysical Society of Japan
☐The Japan Society for Precision Engineering
☐The Physiological Society of Japan
☐The Japan Petroleum Institute
☐Protein Science Society of Japan
☐Society of Geomagnetism and Earth, Planetary and Space Sciences
☐Japan Geoscience Union
☐Japanese Society of Animal Science
☐The Ornithological Society of Japan
☐The Database Society of Japan
☐The Iron and Steel Institute of Japan
☐The Institute of Electrical Engineers of Japan
☐The Electrochemical Society of Japan
☐The Institute of Electronics, Information and Communication Engineers
☐The Japanese Society of Carbohydrate Research
☐The Zoological Society of Japan
☐Japan Society of Civil Engineers
☐Japan Society for Bioscience, Biotechnology, and Agrochemistry
☐Bioimaging Society
☐Japanese Society for Bioinformatics
☐The Japanese Society of Developmental Biologists
☐The Society for Reproduction & Development
☐The Japan Society for Comparative Endocrinology
☐The Surface Science Society of Japan
☐The Physical Society of Japan
☐The Molecular Biology Society of Japan
☐The Japan Society for Analytical Chemistry
☐The Japanese Society for Synchrotron Radiation Research
☐The Japan Wood Research Society
☐Other ( )

6. What is your current occupation and area of specialization? Choose the closest one in each of the three categories (If you have left work, check here ☐ and answer Question 6 thru 16 about your most recent occupation). **(Required)**

   6.1 ☐Research/Education Jobs ☐Technical Jobs ☐Other

   6.2 ☐Science ☐Engineering ☐Agriculture ☐Health (Medical, Dentistry, Pharmacy) ☐Other

   6.3 ☐Mathematics ☐Electronics and. information ☐Physics ☐Chemical and Material Engineering ☐Life science and Biology ☐Civil Engineering ☐Mechanical Engineering ☐Other

7. What type of organization do you belong to? **(Required)**

   ☐Corporation ☐National university ☐Public university (municipal) ☐Private university ☐ Other educational/technical colleges ☐ Public research institution (including independent corporation)

   ☐Other research institution ☐Other

8. What is your current position? **(Required)**

   Corporation:

   ☐General staff ☐Group leader ☐Section head ☐Department head ☐General manager

   ☐Executive director or above ☐Other

   University:

   ☐Undergraduate student ☐Graduate student ☐Research student ☐Postdoctoral fellow (Postdoc)

   ☐Research Technician ☐Research associate ☐Assistant professor ☐Lecturer

   ☐Associate professor ☐Professor ☐Other

   Research institution:

   ☐Graduate student ☐Postdoctoral fellow (Postdoc) ☐Research Technicians ☐Researcher ☐Senior researcher ☐Group lab chief ☐Division head ☐Director ☐Other

9. What is your annual income including tax? [ ] JPY

10. Hours spent at your workplace

    10.1 How many hours per week do you spend at your workplace? [ ] hours

    10.2 How many of the above hours are spent on R&D? [ ] hours

11. Hours spent working at home

    11.1 How many hours per week do you work at home? [ ] hours

    11.2 How many of the above hours are spent on R&D? [ ] hours

12. How many people do you supervise? If you are with a university, how many people do you advise excluding undergraduates? [ ]

13. What was your total annual R&D funds for 2011?

    ☐0 JPY ☐Under 500,000 JPY ☐500,000~<1,000,000 JPY ☐1,000,000~<5,000,000 JPY

    ☐5,000,000~<20,000,000 JPY ☐20,000,000~<50,000,000 JPY ☐50,000,000~<100,000,000 JPY

    ☐100,000,000 JPY or over

14. Why did you choose your current occupation? **(Check all that apply)**

☐For academic satisfaction/intellectual stimulation ☐To make full use of my abilities ☐To benefit society ☐To achieve status/fame ☐To earn a high income ☐Job security ☐Able to balance family and career ☐Free of gender discrimination ☐Recommended by parents/friends ☐Inspired by friend active in the same field ☐Inspired by notable figure active in the same field ☐Other

15. During grade/high school, which of the following influenced your decision to pursue a science/engineering profession? **(Check all that apply)**

☐Interest since childhood ☐Grades in Course ☐Interesting course content ☐Interaction with teacher ☐Influenced by parents/relatives ☐Influenced by friends ☐Part of school curriculum ☐Experiment classrooms or events at places outside the school ☐Book or TV shows ☐Other

16. What is your current employment status?

☐Limited-term employee (including part-time, postdoctoral fellow, contract employee) **(Proceed to Question 17)**

☐No-term employee **(Proceed to Question 18)** ☐Student **(Proceed to Question 22)**

17. For those currently on limited-term employment, please answer the following.

17.1 How long is the term? [ ] years

Can employment be renewed? ☐Yes ☐No ☐Only a limited number of times ☐Unsure

17.2 How many years have you worked as a limited-term employee (exclude leave absence and turnover periods)? [ ] years

17.3 Were there affiliation changes during your limited-term employment? [ ] number of times

17.4 What is your weekly contract-working hour? [ ] hours

17.5 Are you enrolled in your organization's health (or short-term mutual aid) and pension (or long-term mutual aid) plans?

☐Yes ☐No ☐Health plan only ☐Pension plan only ☐Unsure

17.6 Are you allowed taking childcare leave? ☐Yes ☐No ☐Unsure

17.7 After maternity/childcare leave, is your employment term extended according to the length of leave? ☐Yes ☐No ☐Unsure

(Proceed to Question 19)

18. For those currently on no-term employment, please answer the following.

18.1 How long have you been with your current job? [ ] years

18.2 How many years did you spend as a limited-term employee before your current job (exclude leave absence and turnover periods)? [ ] years

18.3 Were there affiliation changes during your limited-term employment? [ ] number of times

(Proceed to Question 19)

19. Have you ever changed jobs, relocated or left/lost a job? **(Check all that apply)**

☐Changed workplace for new occupation **(Proceed to Question 20)** ☐Changed workplace without changing occupation **(Proceed to Question 20)** ☐Left/lost job **(Proceed to Question 20)**
☐Never **(Proceed to Question 21)**

20. For those who have changed jobs, relocated or left/lost a job, please answer the following.

20.1 How many times have it occurred? [ ] times

20.2 What was (were) the reason(s)? **(Check all that apply)**

☐To further my career ☐Change in job content (or research topic) ☐For better income

☐To avoid relocation required by employer ☐Job relocation of family member ☐Workplace location ☐End of contract ☐Marriage ☐Caring for children ☐Caring for sick family member

☐Concern for future ☐Gender discrimination ☐Difficulty with personal relations ☐Unhappy with previous workplace ☐Laid-off or dismissed ☐Bankruptcy ☐Other

21. Have you ever applied for public recruitment (even if you were not recruited)? [ ] times

22. Your future career path (If you left work, respond as you would have in your most recent occupation).

In the future, what type of position do you wish to be in (If you wish to continue in your present position, please respond as such)?

☐Work in academic administration ☐Leader of an academic research lab ☐Work in an academic research lab ☐Leader of R&D in private sector ☐R&D work in private sector ☐Work in business management ☐Other jobs in private sector ☐Work in education ☐Work in local government ☐Be an entrepreneur ☐Work as a science and technology journalist ☐Unsure ☐Other ( )

23. Questions regarding overseas research activities

23.1 What do you think is the impact of overseas research activities on career development?

☐Very positive ☐Somewhat positive ☐Both positive and negative ☐Negative ☐unsure

23.2 Do you have experience working on research activities overseas for more than 6 months?

☐Yes (with post in home country) ☐Yes (without post in home country) ☐None

24. Questions regarding postdoctoral positions and career development

24.1 What do you think of the current number of postdoctoral fellows in your field?

☐Too few ☐Appropriate ☐Too many ☐Unsure

24.2 What do you think are the benefits of the current postdoctoral positions? **(Check all that apply)**

☐Can test my ability as a researcher ☐Can concentrate on research ☐Opportunities to undertake new research ☐Can take part in a large-scale project ☐Job changes and re-employment is easier ☐Easier to balance work and personal life ☐No advantages

24.3 What do you think are the problems with the current postdoctoral positions? **(Check all that apply)**

☐Mobility is unsuited for Japan's conditions ☐Outlook is difficult since term is affected by research funding ☐Unable to work on consistent topic ☐Priority is given to full-time employment, so contract may be terminated mid-term ☐Few positions available after postdoctoral fellow ☐Age limit ☐Life planning is difficult ☐Significant salary gap of postdoctoral fellow ☐Suffer loss of social security ☐Difficult to receive childcare leave ☐No problems

24.4 What do you think are the necessary approaches for ensuring career path after postdoctoral fellow? **(Check all that apply)**

☐Expand full-time positions allowing independent research in research institutions ☐Establish full-time positions to allow continuation of research without going independent ☐Eliminate postdoctoral fellow's age limit ☐Provide opportunities to interact with other industries ☐Expand professions involved with science and technology administration ☐Employ mid-high teachers using special licensing ☐Create a research administrator position ☐Establish a system to support entrepreneurship ☐Education on science and society in graduate school ☐Establish career centers in research institutions

25. Are you married? ☐Yes **(Proceed to Question 26)** ☐No **(Proceed to Question 28)**

26. If you are married, please answer the following.

26.1 What is your spouse's occupation?

☐Full-time homemaker ☐Company worker (research/technical) ☐Company worker (non-research/non-technical) ☐Research/technical worker at a university or research institution ☐Government worker (other than education) ☐Self-employed ☐Student ☐Other

26.2 Is the employment limited-term? ☐Yes ☐No

26.3 Do you or your spouse have experience living separately from your family due to work?

☐Yes **(Proceed to Question 27)** ☐No **(Proceed to Question 28)**

27. For those with experience living separately, please answer the following.

27.1 How many years total did you spend living separately? [ ] years

27.2 When faced with the circumstance of living separately, did you or your spouse make an effort to relocate or switch jobs to avoid it?

☐Effort avoided separation ☐Effort did not avoid separation ☐No effort was made

28. Do you have children? ☐Yes **(Proceed to Question 29)** ☐No **(Proceed to Question 36)**

29. For those with children, please answer the following.

29.1 How many children do you have? [ ]

29.2 What are their age groups? **(Check all that apply)**

☐Pre-school ☐Elementary school ☐Middle school ☐High school ☐College ☐Adult ☐Other

29.3 Who was the primary caregiver (including secondary childcare) during working hours for your children before they entered elementary school?

☐Self ☐Spouse ☐Family member living together ☐Family member not living together/friend ☐Day-care center ☐Babysitter

29.4 If you have elementary school children or above, who is the primary caregiver (including secondary childcare) after school hours?

☐Self ☐Spouse ☐Family member living together ☐Family member not living together/friend ☐After-school day-care center ☐Sitter ☐Cram school/enrichment lessons ☐Left home alone ☐No elementary school children or above

29.5 Who is the main caregiver when going on business trips or attending academic society functions?

☐Self ☐Spouse ☐Family member living together ☐Family member not living together/friend ☐Babysitter you hired ☐Childcare service provided by academic society

30. Tell us about your childcare leave.

☐Took leave as requested **(Proceed to Question 31)** ☐Took leave, but not as requested **(Proceed to Question 32)** ☐Did not take leave **(Proceed to Question 32)**

31. For those who took childcare leave as requested, please answer the following.

31.1 How long was the leave (average per child excluding maternity leave)?

About [ ] week(s) ・About [ ] month(s) (fill in one or the other)

31.2 What was your working condition after returning from childcare leave?

☐Returned to same duties ☐Requested change of duties ☐Requested change of department ☐Assigned new duties ☐Assigned to new department ☐Promotion/advancement was delayed ☐Lost job ☐Retired **(Proceed to Question 33)**

32. If childcare leave was not as requested or childcare leave was not taken, what was the reason?

☐Leave was unnecessary ☐Did not wish to take leave ☐Home environment ☐Workplace environment ☐No provision for leave existed

33. Tell us about your spouse's childcare leave.

☐Took leave as requested **(Proceed to Question 34)** ☐Took leave, but not as requested **(Proceed to Question 35)** ☐Did not take leave **(Proceed to Question 35)**

34. For those whose spouse took childcare leave as requested, please answer the following.

How long was the leave (average per child excluding maternity leave)?

About [ ] week(s) ・About [ ] month(s) (fill in one or the other) **(Proceed to Question 36)**

35. If childcare leave was not as requested or childcare leave was not taken, what was the reason?

☐Leave was unnecessary ☐Did not wish to take leave ☐Home environment ☐Workplace environment ☐No provision for leave existed

36. What do you think is the ideal number of children? [ ]

If the number of children you have (or plan to have) is less than ideal, what is the reason?

☐Financial ☐Health ☐Job stability ☐Balance between career an childcare ☐Spouse's cooperation in child caring ☐Understanding of workplace ☐Social environment for children to grow ☐Other

37. Tell us about nursing care.

37.1 Did you have a family member that required nursing care?

☐Yes ☐No

37.2 Are you aware of nursing-care leave system?

☐Yes ☐No

37.3 If you answered yes above, does your or your spouse's workplace have a nursing-care leave system?

☐Yes ☐No

38. What do you think are required to maintain balance between work and child/nursing care? **(Check all that apply)**

☐Shorter working hours ☐Changes in "work as center" concept ☐Changes in male and female roles ☐Workplace close to home ☐Spouses living together ☐Increased paid vacations ☐Work support ☐Housework support ☐Expanded nursery service ☐Sick child care ☐Expanded after-school care for children ☐Expand childcare mom and family support ☐Expand nursing-care services ☐Variety of provisions for leave of absence ☐Financial support for child and nursing care ☐Public subsidies for employer of person on leave ☐Alternate staffing while on leave ☐Provision for working at home while on leave ☐Work sharing ☐Flexible working hours ☐Improve employment system ☐Various ways of working and career paths ☐Workplace atmosphere ☐Understanding from supervisor ☐Improved safety and security ☐Nothing in particular

39. What sort of environment and opportunities are necessary for furthering R&D? **(Check all that apply)**

☐R&D time ☐R&D assistant ☐R&D funds (including maintenance) ☐ Joint researcher ☐R&D freedom ☐Streamline or separate administrative and odd jobs ☐Opportunity to present results ☐ Understanding from supervisor ☐Understanding from management ☐Environment for long-term research ☐Common purpose/communication within the research group ☐Appropriate evaluation of the performance and capabilities ☐Guidance from leaders ☐Opportunity to educate students ☐ Expectations from the surrounding ☐Other

40. Please answer the following.

40.1 Why do you think there are fewer women than men in science and technology field? **(Check all that apply)**

☐Educational environment ☐Home environment ☐Workplace environment ☐Social bias ☐Social division of labor between males and females ☐Lack of role models ☐Less hiring compared to males ☐Lack of consideration for child and family care in performance evaluation ☐Male-oriented mindset ☐Difference in male and female abilities ☐Difference in male and female qualifications ☐Ratio of males is higher ☐Image of research/technical workplace is not good ☐Outlook is uncertain ☐Salary is low ☐Working hour is long ☐Achieving managerial position is difficult ☐Balancing family and work is difficult ☐Returning after childcare leave is difficult ☐Other

40.2 What do you think is (are) the reason(s) for the low proportion of women in leadership positions? **(Check all that apply)**

☐Balancing family and work is difficult ☐Frequent early retirement or leave of absence ☐ Females do not seek promotion as much as males ☐ Lack of role models ☐ Lack of consideration for child and family care in performance evaluation ☐Evaluators tend to give priority to males ☐Difference in male and female abilities/qualifications ☐Insufficient female performance ☐Female supervisors not desired ☐Ratio of females currently in leadership position is low ☐Other

40.3 Which of the following do you think is (are) necessary in improving the proportion of women in science and technology field? **(Check all that apply)**

☐Aggressive hiring ☐Promotion to managerial positions ☐Facilitate promotions/salary increases ☐ Increase R&D funds ☐ Employ research assistants ☐ Consideration of life events in performance evaluations ☐Reduce non-research workload ☐Provide opportunities for domestic and overseas studies ☐Increase opportunities to participate in conferences as speakers, chairs or organizers ☐Increase opportunities for receiving awards ☐Provide leadership training ☐Other

41. Are you familiar with any of the following laws? **(Check all that apply)**

☐ Revised Equal Employment Opportunity Law (implemented on April 1, 2007)

☐ Amendment Act for Measures to Support the Development of the Next Generation (implemented April 1, 2009)

☐ Third Basic Plan for Gender Equality (approved December 2010)

☐ 4th Science and Technology Basic Plan (formulated August 2011)

☐ Do not know

42. Please answer regarding national policies and support programs for female researchers that were started by Second Basic Plan for Gender Equality (approved December 2005) and 3rd Science and Technology Basic Plan (formulated March 2006). **(Check all that apply)**

	Unaware	Implemented at affiliated institution	Meaningful	Not meaningful	Uncertain
(1) Restart Support after Childbirth/Childcare (2006 -)	☐	☐	☐	☐	☐
(2) Development of Support Models for Female Researchers (2006 - 2010)	☐	☐	☐	☐	☐
(3) Science Course Selection Support for Middle and High School Females (2006 -)	☐	☐	☐	☐	☐
(4) Supporting Positive Activities for Female Researchers (Parts adopted in 2009/2010)	☐	☐	☐	☐	☐
(5) Supporting Activities for Female Researchers (2011 -)	☐	☐	☐	☐	☐
(6) Childbirth and Childcare Consideration in Scientific Research Grants (Applications accepted several times per year/relaxation of age limit)	☐	☐	☐	☐	☐
(7) Childbirth and Child-caring Consideration in Strategic Research Programs (Research interruption/extension allowed, comeback support)	☐	☐	☐	☐	☐
(8) Gender Equality Bureau of the Cabinet Office “Challenge Campaign – Science and Engineering Field Selection for Female Students”	☐	☐	☐	☐	☐

43. Following questions are related to numerical target for employment of female researchers specified in the Third Basic Plan for Gender Equality (endorsed by the Cabinet at December 2010) and 4th Science and Technology Basic Plan (endorsed by the Cabinet at August 2011). Aiming at 25% for natural sciences (at an early date), and then aim for 30%. In particular, early achievement of 20% for science, 15% for engineering, and 30% for agriculture, and aiming to achieve 30% for medicine, dentistry, and pharmacology combined)

43.1 Are you aware of this numerical target?

☐ Well aware ☐Have heard or read about it ☐Did not know

43.2 What do you think is the significance of adopting a numerical target?

☐Meaningful ☐Not meaningful ☐Will have adverse effect ☐Should be expanded and promoted ☐Has room for improvement

43.3 Is there a numerical target for employment of female researchers in your institution?

☐Yes ☐No ☐Uncertain

If yes, is that numerical target made public? ☐Yes ☐No ☐Uncertain

If no, do you think it is necessary to set a numerical target? ☐Necessary ☐Unnecessary

44. Do you think the laws, basic plans and projects mentioned above, have helped progress gender equality in science and technology field since the second questionnaire survey (five years ago)?

44.1 In your affiliated institution:

☐Progressing greatly ☐Progressing slowly ☐No change ☐Progressing backwards ☐Uncertain

44.2 In you affiliated academic society:

☐Progressing greatly ☐Progressing slowly ☐No change ☐Progressing backwards ☐Uncertain

44.3 In the world as a whole:

☐Progressing greatly ☐Progressing slowly ☐No change ☐Progressing backwards ☐Uncertain

44.4 Do you feel an increase in the number of female researchers/engineers around you and an improvement in their promotion and treatment?

☐Progressing greatly ☐Progressing slowly ☐No change ☐Progressing backwards ☐Uncertain

45. What do you think is required in the future to promote gender equality? **(Check all that apply)**

☐Reform female awareness ☐Reform male awareness ☐Increase male participation in housework and childcare ☐Separate surnames for married couples ☐Improve work environment ☐Give females priority during certain periods ☐Eliminate various age limits ☐Improve evaluation system ☐Encourage supervisor understanding ☐Expand types of working arrangements ☐ Expand support of child and nursing care ☐ Introduce fixed-term employment ☐ Improve fixed-term employment ☐Eliminate fixed-term employment ☐Form a female researchers network ☐Comparative studies and policies to meet international standards ☐Promote research areas exclusively for females ☐Clarification of national policies ☐Funding for policies ☐Expanded promotion by national/local government or employers ☐Expansion of social security system ☐Other ☐Nothing required

46. Please feel free to describe, in 100 words or less, any opinions you have regarding gender equality in the science and technology field.

[ ]

This concludes the questionnaire. Thank you for your time and cooperation.

Appendix 2 The Data of Each Scientific Society Attended

Official Names (of societies)	Number of Respondents				Number of Members				Response Ratio
	Males	Females	Total	Female Ratio	Males	Females	Total	Female Ratio	
Japan Society for safety Engineering	9	1	10				*726*		1.4%
Japanese Society of Breeding	158	57	215	26.5%	1694	263	1957	13.4%	11.0%
The Genetics Society of Japan	179	64	243	26.3%	829	169	998	16.9%	24.3%
Japanese Society for Biological Sciences in Space	31	11	42	26.2%	270	54	324	16.7%	13.0%
The Institute of Image Information and Television Engineers	42	2	44	4.5%			*3991*		1.1%
The Japanese Liquid Crystal Society	35	7	42	16.7%	828	70	898	7.8%	4.7%
The Japanese Society for Horticultural Science	158	40	198	20.2%			*2091*		9.5%
The Japan Society of Applied Physics	611	104	715	14.5%	22856	1183	24039	4.9%	3.0%
The Japanese Association of Anatomists	283	108	391	27.6%			*2394*		16.3%
The Chemical Society of Japan	1111	340	1451	23.4%	26636	3263	29899	10.9%	4.9%
The Society of Chemical Engineers, Japan	207	43	250	17.2%	7391	549	7940	6.9%	3.1%
The Japan Scientists' Association	60	12	72	16.7%			*5000*		1.4%
Japan Association for Fire Science and Engineering	18	4	22	18.2%	1288	55	1343	4.1%	1.6%
The Volcanological Society of Japan	44	12	56	21.4%			*991*		5.7%
Particle Accelerator Society of Japan	58	5	63	7.9%			*653*		9.6%
Japanese Society for Active Fault Studies	15	0	15	0.0%			*262*		5.7%
Japan Explosives Society	10	0	10	0.0%			*1000*		1.0%
The Japan Society of Mechanical Engineers	146	22	168	13.1%	37219	676	37895	1.8%	0.4%
The Institution of Professional Engineers, Japan	231	35	266	13.2%	17396	341	17737	1.9%	1.5%
Meteorological Society of Japan	132	28	160	17.5%			*3619*		4.4%
The Japanese Society of Fish Pathology	30	4	34	11.8%			*424*		8.0%
The Ichthyological Society of Japan	138	16	154	10.4%	1137	71	1208	5.9%	12.7%
The Japan Institute of Metals and Materials	120	26	146	17.8%	6460	323	6783	4.8%	2.2%
The Crystallographic Society of Japan	235	45	280	16.1%	1018	112	1130	9.9%	24.8%
Atomic Energy Society of Japan	138	71	209	34.0%	7296	249	7545	3.3%	2.8%
Architectural Institute of Japan	178	81	259	31.3%	28930	4577	33507	13.7%	0.8%
Japan Association of Mineralogical Sciences	26	14	40	35.0%			*958*		4.2%
The Society of Polymer Science, Japan	570	159	729	21.8%	10192	1165	11357	10.3%	6.4%
Palaeontological Society of Japan	56	16	72	22.2%			*1075*		6.7%
Japan Society for Cell Biology	230	76	306	24.8%	974	231	1205	19.2%	25.4%
Japan Society of Coordination Chemistry	100	23	123	18.7%	1178	199	1377	14.5%	8.9%
Japanese Association for Oral Biology	125	56	181	30.9%			*2436*		7.4%
The Magnetics Society of Japan	69	11	80	13.8%			2400		3.3%
The Seismological Society of Japan	136	37	173	21.4%			*2028*		8.5%
The Mass Spectrometry Society of Japan	37	23	60	38.3%	1013	215	1228	17.5%	4.9%
Society of Automotive Engineers of Japan	25	5	30	16.7%	44355	676	45031	1.5%	0.1%
The Japanese Geotechnical Society	204	34	238	14.3%	8477	240	8717	2.8%	2.7%
The Japanese Society of Veterinary Science	329	175	504	34.7%	2891	692	3583	19.3%	14.1%
The Society for the Study of Species Biology	90	39	129	30.2%	293	82	375	21.9%	34.4%
Japan Society of Geoinformatics	10	1	11	9.1%			*460*		2.4%
The Botanical Society of Japan	367	169	536	31.5%	1532	415	1947	21.3%	27.5%
The Japanese Society of Plant Physiologists	447	226	673	33.6%	1746	505	2251	22.4%	29.9%
The Society of Japanese Women Scientists	1	97	98	99.0%	6	326	332	98.2%	29.5%
Japanese Women Engineers Forum	0	11	11	100.0%	2	146	148	98.6%	7.4%
Society of Evolutionary Studies, Japan	243	78	321	24.3%	1083	226	1309	17.3%	24.5%
The Japan Neuroscience Society	747	337	1084	31.1%	4534	1114	5648	19.7%	19.2%
The Japanese Society for Neurochemistry	142	68	210	32.4%			*1700*		12.4%
The Japanese Forest Society	239	77	316	24.4%	1909	339	2248	15.1%	14.1%
The Japanese Society of Fisheries Science	477	102	579	17.6%	3324	421	3745	11.2%	15.5%
Japanese Society for Aquaculture Research	110	6	116	5.2%					
Japan Society of Hydrology and Water Resources	92	15	107	14.0%			*1316*		8.1%
The Mathematical Society of Japan	352	42	394	10.7%	4729	325	5054	6.4%	7.8%
The Japanese Biochemical Society	873	338	1211	27.9%	7590	2026	9616	21.1%	12.6%
The Ecological Society of Japan	681	291	972	29.9%	3410	975	4385	22.2%	22.2%
The Society of Eco-Engineering	37	18	55	32.7%			377		14.6%
The Biophysical Society of Japan	686	177	863	20.5%	3102	454	3556	12.8%	24.3%
The Japan Society for Precision Engineering	19	4	23	17.4%			*5800*		0.4%
The Physiological Society of Japan	371	177	548	32.3%	2183	457	2640	17.3%	20.8%

Appendix 2　The Data of Each Scientific Society Attended

Official Names (of societies)	Number of Respondents				Number of Members				Response Ratio
	Males	Females	Total	Female Ratio	Males	Females	Total	Female Ratio	
Japan Association of zeolite	14	0	14	0.0%					
The Japan Petroleum Institute	33	3	36	8.3%	3152	83	3235	2.6%	1.1%
The Academic Consociation of Environmental Safety and Waste Management, Japan	17	9	26	34.6%			*111*		23.4%
Protein Science Society of Japan	272	61	333	18.3%	1235	227	1462	15.5%	22.8%
Japanese Association of Groundwater Hydrology	33	5	38	13.2%			*720*		5.3%
Society of Geomagnetism and Earth, Planetary and Space Sciences	89	24	113	21.2%	637	65	702	9.3%	16.1%
Japan Geoscience Union	408	146	554	26.4%	6559	1270	7829	16.2%	7.1%
Japanese Society of Animal Science	233	65	298	21.8%	1808	322	2130	15.1%	14.0%
The Geothermal Research Society of Japan	9	1	10	10.0%			*552*		1.8%
The Japanese Society for Neutron Science	117	19	136	14.0%			*505*		26.9%
The Ornithological Society of Japan	68	36	104	34.6%	1028	221	1249	17.7%	8.3%
Association of Japanese Geographers	40	11	51	21.6%			*3211*		1.6%
The Database Society of Japan	45	15	60	25.0%	1663	222	1885	11.8%	3.2%
The Iron and Steel Institute of Japan	49	17	66	25.8%	7860	1797	9657	18.6%	0.7%
The Institute of Electrical Engineers of Japan	158	20	178	11.2%	22571	476	23047	2.1%	0.8%
The Electrochemical Society of Japan	81	28	109	25.7%	4290	314	4604	6.8%	2.4%
The Institute of Electronics, Information and Communication Engineers	506	84	590	14.2%	33136	1368	34504	4.0%	1.7%
The Japanese Society of Carbohydrate Research	81	41	122	33.6%	805	200	1005	19.9%	12.1%
The Zoological Society of Japan	450	185	635	29.1%			2533		25.1%
The Tohoku Geographical Association	13	3	16	18.8%					
Japan Society of Civil Engineers	280	77	357	21.6%	34008	1330	35338	3.8%	1.0%
Japan Society for Bioscience, Biotechnology, and Agrochemistry	454	177	631	28.1%			*12142*		5.2%
Bioimaging Society	40	13	53	24.5%	302	52	354	14.7%	15.0%
Japanese Society for Bioinformatics	82	20	102	19.6%	291	21	312	6.7%	32.7%
Japanese Society of Developmental Biologists	331	136	467	29.1%	1098	306	1404	21.8%	33.3%
The Society for Reproduction and Development	120	50	170	29.4%	674	170	844	20.1%	20.1%
The Japan Society for Comparative Endocrinology	111	29	140	20.7%	365	76	441	17.2%	31.7%
The Surface Science Society of Japan	115	26	141	18.4%			*1269*		11.1%
The Physical Society of Japan	1956	260	2216	11.7%	16900	981	17881	5.5%	12.4%
Society of Exploration Geophysicists of Japan	18	8	26	30.8%					
The Japan Society of Plasma Science and Nuclear Fusion Research	140	13	153	8.5%			*1700*		9.0%
The Molecular Biology Society of Japan	1675	773	2448	31.6%	11509	3783	15292	24.7%	16.0%
The Japan Society for Analytical Chemistry	123	68	191	35.6%			*9000*		2.1%
The Japanese Society for Synchrotron Radiation Research	169	25	194	12.9%	1277	61	1338	4.6%	14.5%
Japan Society on Water Environment	161	67	228	29.4%			*2014*		11.3%
The Japan Wood Research Society	222	53	275	19.3%	1670	254	1924	13.2%	14.3%
The Pharmaceutical Society of Japan	339	177	516	34.3%			*20000*		2.6%
The Japanese Society of Limnology	60	19	79	24.1%			*776*		10.2%
The Remote Sensing Society of Japan	28	2	30	6.7%			*1181*		2.5%
The Japanese Seciety for Planetary Sciences	73	28	101	27.7%			*500*		20.2%
Unassociated	114	171	285	60.0%					
Others	2469	1169	3628	32.2%					
Total	24064	8174	32228	25.4%					

Note: For the number of society members, the italicized figures indicate data from an independent research the WG conducted from Web sites in December 2013, and the other figures were taken from data obtained during a study the EPMEWSE conducted in 2011.

[http://djrenrakukai.org/doc_pdf/2011_ratio/2011_ratio_table.pdf]