IMPACT OF THE CIHR REFORMS ON CANADIAN HEALTH RESEARCH: A PAN-CANADIAN SURVEY

Survey Summary Report

Author
Dr. Liisa A.M. Galea
Distinguished University Scholar and Professor
Department of Psychology, Centre for Brain Health
The University of British Columbia

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Kyle Glenn, PhD
Senior Advisor, Strategic Initiatives, VPR Office

Dmitriy Ryabika
Research Analyst, VPR Office

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Executive Summary

This survey, led by Dr. Liisa Galea at UBC, collected data from health investigators in Canada about their funding experiences with CIHR and the impact of the change to the CIHR research granting program over the past few years. The survey collected data from early career (ECI; defined as 0-5 years as independent investigator), mid-career (MCI1; 6-10 years as independent investigator or MCI2; 11-20 years) as independent investigator), and senior investigators (SI; defined as 21+years as independent investigator). The survey ran from June 29, 2016 to July 31, 2016 and received 426 verified responses from principle investigators from all Provinces and Territories of Canada except for Nunavut. All CIHR Pillars were represented with the majority of respondents from Pillar 1 (biomedical) at 74%.

Respondent Information

Career Stage: n (%)	
ECI (0-5y):	54 (13%)
MCI 1 (6-11y):	94 (22%)
MCI 2 (12-20y):	146 (34%)
SI (21+y):	132 (31%)

Gender: n (%)	
Women:	176 (41%)
Men:	248 (58%)
Other:	1 (<1%)
N/A:	1 (<1%)

Rank: n (%)	
Assistant Prof.:	59 (12%)
Associate Prof.:	131 (31%)
Professor:	228 (55%)
Other:	7 (1%)
N/A:	1 (<1%)

As a Result of the Changes in the CIHR Research Granting Programs:

- At least 67% of respondents in each career stage category indicated they are avoiding/postponing taking graduate students;
- At least 53% of respondents in each career stage category indicated they are avoiding/postponing taking postdoctoral fellows;
- At least 70% of respondents in each career stage category are delaying starting potentially impactful research;
- At least 55% of respondents in each career stage category indicated they are attempting to stretch out the funding;
- At least 71% of respondents in each career stage category indicated they are scaling down their research programs;
- 31% of MCI1, 37% of MCI2 and 39% of SI researchers are seriously considering leaving research;
- 42% of MCI1 researchers are considering leaving Canada to continue their career elsewhere;
- 51% of senior investigators are considering retiring earlier than intended;
- The respondents collectively supervise over 2,600 trainees and over 51% of MCI1, MCI2, and SI who currently supervise trainees indicated they will be decreasing the number of trainees in the future. Respondents indicated that over 350 Highly Qualified Personnel (HQP) had been let go or moved on due to funding constraints.
- Annual CIHR operating budgets have decreased by 36%, 39% and 47% among MCI1, MC2, and SI, respectively while CIHR budget increases were limited to 11%, 13% and 7% among MCI1, MC2, and SI, respectively since 2013.

Greatest Impediments to Research:

- 89% of respondents identified that funding issues are one of their major impediments to doing research;
- Insufficient funding to attract and retain highest quality HQPs is a major impediment to researchers;
- 22% of respondents identified that CIHR reforms are negatively impacting their research programs;
- 22% of respondents identified that they have an insufficient time for research [teaching, admin, etc.].

Background

This survey, led by Dr. Liisa Galea, Distinguished University Scholar and Professor at the Department of Psychology at the University of British Columbia, collected data from health investigators in Canada about their funding experiences with CIHR and the impact of the change to the CIHR research granting program over the past few years. This survey was modeled after the Association of Canadian Early Career Health Researchers' April 2016 survey investigating challenges for early career investigators (Witteman, 2016, which can be viewed here: http://www.acechr.ca/blog/archives/04-2016), however this survey collected data from investigators of all career stages. The survey ran from June 29, 2016 to July 31, 2016 and received 426 verified responses from principle investigators from all Provinces and Territories of Canada except for Nunavut. All CIHR Pillars were represented with the majority of respondents from Pillar 1 (biomedical) at 74%. We greatly acknowledge help on this survey from Holly Witteman and Jehannine Austin, Lara Boyd, Patrice Brassard, Christine Chambers, Graham Dellaire, Michael Hendricks, Jim Johnson, and Jim Woodgett.

Survey Methods and Respondent Information

Survey Details & Methods

The survey was made available through FluidSurveys from June 29-July 31, 2016 and was advertised through social media (Twitter) and via membership emails from Canadian Association for Neuroscience. During that time, there were 719 respondents initiated the survey with 434 respondents completing the survey (60% response rate). Of the 434 that completed the survey, 426 (98%) provided name and e-mail address information that allowed us to confirm that respondents held a faculty research position within Canada. Survey responses from individuals whose identity could not be confirmed were not included, resulting in a total of 426 respondents used in survey analysis.

Respondents were first asked a series of questions to collect personal information [e.g., gender, career stage] and were then asked a series of questions about their research focus and history of CIHR funding. The remaining questions were targeted at understanding the impact of recent reforms to CIHR on respondents and their research programs, including multiple choice, short-answer, and open-ended narrative questions.

Data were analyzed using multiple software, including Tableau, Excel and R. Open-ended narrative questions were analyzed using thematic analysis, where all comments were first read and a list of recurring themes were identified by three readers independently. After identification of themes, each response was then reread and coded based on the themes identified. In all cases, percentages reported are based on the number of respondents who responded to that question. Major findings are highlighted in this document, but results from all survey questions are presented in Appendix.

Respondent Information

This report describes findings from 426 anonymous health researchers whose identities have been confidentially confirmed as health researchers in Canada. Respondents were 58% men and 41% women. 11% of the respondents identified as visible minorities. 97% are Canadian Citizens or Permanent Residents. 55% of respondents were Professors, 31% were Associate Professors, and 12% were Assistant Professors. 74% of respondents belong to the biomedical CIHR pillar, 13% to clinical, 4% to health services research, and 9% to social, cultural and environmental factors that affect the health of populations. 85% of respondents have previously been funded by CIHR as PI.

32% of respondents were from Québec, 29% were from British Columbia, and 18% were from Ontario. 13% of respondents were Early Career Investigators (ECI) (0-5 years post first independent appointment), 22% were Mid-Career Investigators 1 (MCI 1) (6-10

Province	# of Responses	% of Total
QC	134	32%
BC	122	29%
ON	78	18%
AB	21	5%
NS	21	5%
MB	20	5%
SK	13	3%
YT	5	1%
NL	3	<1%
PE	3	<1%
NB	2	<1%
NT	1	<1%
Did not Respond	3	<1%
Grand Total	**426**	**100%**

Table 1. Geographic breakdown of respondents.

years post appointment), 34% were Mid-Career Investigators 2 (MCI 2) (11-20 years post appointment), and 31% were Senior Investigators (SI) (21+ years post appointment).

39% of ECI, 82% of MCI 1, 96% of MCI 2, and 95% of SI indicated they have been funded by CIHR as PI.

Career Stage: n (%)		**Gender: n (%)**		**Rank: n (%)**	
ECI:	54 (13%)	Women:	176 (41%)	Assistant Prof.:	59 (12%)
MCI 1:	94 (22%)	Men:	248 (58%)	Associate Prof.:	131 (31%)
MCI 2:	146 (34%)	Other:	1 (<1%)	Professor:	228 (55%)
SI:	132 (31%)	N/A:	1 (<1%)	Other:	7 (1%)
				N/A:	1 (<1%)

Table 2. Early Career Investigator (ECI) is defined as 0-5 years as independent investigator, Mid-Career Investigator (MCI)1 – 6-11 years, MCI2-12-20 years; Senior Investigator (SI) 21+ years

Survey Results

Research Focus and Funding History

For the majority of respondents in all career stage categories, current annual CIHR operating budget is under $200,000. 61% of ECI, 20% of MCI 1, 6% of MCI 2, and 5% of SI did not have CIHR operating budget at the time of the survey. Annual CIHR operating budgets have decreased by 36%, 39% and 47% among MCI1, MC2, and SI, respectively while CIHR budget increases were limited to 11%, 13% and 7% among MCI1, MC2, and SI, respectively since 2013.

Career Stage	DNR	No	Yes	Grand Total
ECI	33		21	54
MCI 1	17	12	65	94
MCI 2	6	30	110	146
SI	7	34	91	132
Grand Total	**63**	**76**	**287**	**426**

Table 3. Breakdown of responses to the question *"Do you currently have active funding from CIHR?"* by career stage.

79% of respondents who responded to this question indicated that they currently have an active CIHR funding. 76% of ECI, 80% of MCI 1, 87% of MCI 2, and 87% of SI have indicated their active CIHR budget comes from operating grants. The number of respondents who observe increased operational funding is decreasing steadily, while the number of respondents experiencing decreased funding has increased. In the nominal dollar amounts, the annual collective net loss in 2013 was $8.1M.

Year	Increase	Decrease	No Change	Net Change
2009	83	122	221	-39
2011	68	127	231	-59
2013	41	141	244	-100

Year	Increase	Decrease	Net Change
2009	$ 8,772,650	$ 15,904,927	$ -7,132,277
2011	$ 5,989,510	$ 15,851,121	$ -9,861,611
2013	$ 8,148,748	$ 16,206,363	$ -8,057,615

Table 4. Number of respondents indicating whether their annual operating CIHR budget increased/decreased/stayed the same. The net gain/loss was calculated by summing all responses indicating an increase in funding and subtracting the overall decrease in funding. Values on the left are number of respondents, while values on the right represent changing values of operating grants of those respondents.

Impact of Reforms and Funding Levels

The majority of respondents reported being negatively affected by recent CIHR reforms. Respondents across Canada are uncertain about their funding and the survivability of their laboratories in the current funding environment. Low success rates in grants and decreased operational funding has resulted in some health researchers letting highly qualified staff go and, in some cases, shutting down their research laboratories. The respondents collectively supervise over 2,600 trainees and over 51% of MCI1, MCI2, and SI who currently supervise trainees indicated they will be decreasing the number of trainees in the future. Respondents indicated that over 350 HQP have already been let go or moved on due to funding constraints. It is important to recognize that staff working in laboratories would have specialized skills that

cannot be replaced simply by hiring a replacement once funds are available. Likewise, even brief lapses in HQP funds can have profound and long-lasting effects on research programs.

When asked how the current CIHR funding environment has affected respondents' research programs:

- Researchers from all provinces are scaling down their research programs;
- 78% of women and 79% of men indicated they are scaling down their research program;
- 65% of women and 55% of men indicated they are attempting to stretch out the funding;
- 72% of women and 82% of men indicated they are avoiding/postponing grad students;
- 77% of women and 75% of men indicated they are delaying starting research;
- 78% of ECI are doing shorter-term or less impactful research;
- 35% of MCI 2 and 38% of SI gave working notice to staff;
- 31% of MCI 1, 32% of MCI 2, and 40% of SI have let staff go;
- 42% of MCI 1 and 38% of MCI 2 are seriously considering leaving Canada;
- 51% of SI have indicated they are seriously considering retiring earlier than intended.

Success Rates	ECI	MCI 1	MCI 2	SI
Foundation Scheme 2014-2015 1st live pilot Stage 1	24%	11%	26%	16%
Foundation Scheme 2014-2015 1st live pilot Stage 2	43%	0%	23%	24%
Foundation Scheme 2014-2015 1st live pilot Stage 3	N/A	N/A	N/A	N/A
Transitional Operating Grant Program 2014-2015	39%	29%	26%	31%
Foundation Scheme 2015-2016 2nd live pilot Stage 1	8%	5%	14%	17%
Foundation Scheme 2015-2016 2nd live pilot Stage 2	0%	33%	0%	0%
Project Scheme 2016, 1st live pilot	3%	6%	5%	11%

Table 5. **Success rates based on the number of self-reported successful applications submitted to these competitions, not overall success rates for the entire survey.** For example, 11% of respondents who submitted applications for the Foundation Scheme 2014-2015 1st live pilot Stage 1 were successful in obtaining a grant from that competition – i.e. out of 18 applications submitted, only 2 succeeded. For the Foundation Scheme 2014-2015 1st live pilot Stage 3 the success rates could not be calculated due as the survey did not ask how many applications were submitted to Stage 3. In terms of numbers, the number of successful applications for the Foundation Scheme 2014-2015 1st live pilot Stage 3 are 1 for ECI, 0 MCI 1, 2 for MCI 2, and 3 for SI.

Open-Response Questions on Impacts to Research

For the open-responses questions on impacts to researchers and research programs, we identified 21 commonly re-occurring subthemes, which fell into 1 of 3 themes.

Funding Issues (10 Subthemes)	CIHR Reform (6 Subthemes)	Insufficient Time for Research (6 subthemes)
Lack of Funding	Peer Review	Time Spent Grant Writing
Funding Levels	CIHR	Administrative Load
Uncertainty	CIHR Reforms	Lack of Administrative Support
Funding Stability	Bureaucracy	Stress
Success Rates	Funding Programs too Specialized	Teaching Duties
Funding Opportunities	Funding for Basic Research at risk	Lack of Time
HQP (Highly Qualified Personnel)	Grant Compliance Policies	
Lack of Funding For Pillar		
Lack of Basic Research Funding		

Table 6. Themes and subthemes identified for open-ended narrative questions.

Greatest Impediments to Research Excellence

For the question "What would you say is your greatest impediment to performing the best research you can", 394 respondents (93% of total) provided written statements. Using the 21 subthemes identified above, we coded each written response with all subthemes that applied to that response, creating a total of 797 subtheme tags. While most of the comments identified major impediments it is important to note that not all of the responses were negative as 0.2% (1/426) of responses described no impediments to research and 0.7% (3/426) indicated they were happy with the CIHR reforms.

For the first written response question, the key findings are:

- Funding issues are a top concern impacting respondents across Canada regardless of geography or career stage;
- Finding funding for, attracting and retaining Highly Qualified Personnel (HQP) is a major concern among respondents;
- 89% of respondents indicated that funding issues are one of their major impediments to doing research;
- 22% of respondents indicated that CIHR reforms are negatively impacting their research;
- 22% of respondents indicated that they have an insufficient time for research;
- 40% of women indicated that lack of funding is a major impediment do doing research whereas 32% of men reported the same;
- Across career stage 15% of PIs indicated that the amount of time spent grant writing is impeding their research.

Theme	# of Respondents Identifying Theme	% of Total Respondents	Men	Women	ECI	MCI 1	MCI 2	SI
Funding Issues	350	89%	89%	89%	91%	89%	88%	89%
Lack of Funding	139	35%	32%	40%	41%	40%	31%	35%
Funding Levels	87	22%	23%	22%	21%	24%	19%	25%
HQP (Loss, Funding, Attracting, Retaining)	73	19%	19%	18%	12%	19%	19%	21%
Uncertainty	72	18%	20%	16%	12%	18%	21%	17%
Funding Stability	61	16%	17%	13%	14%	14%	18%	14%
Success Rates	57	15%	15%	14%	10%	18%	17%	11%
Funding Opportunities	46	12%	12%	11%	12%	13%	10%	13%
Lack of Basic Research Funding	19	5%	6%	3%	2%	2%	5%	7%
Lack of Funding For Pillar	6	2%	0%	4%	0%	1%	3%	1%
CIHR Reforms	88	22%	23%	21%	7%	26%	26%	21%
Peer Review	41	10%	10%	10%	2%	13%	11%	11%
CIHR	29	7%	9%	6%	0%	7%	9%	8%
CIHR Reforms	23	6%	6%	6%	2%	9%	6%	4%
Bureaucracy	11	3%	2%	4%	0%	4%	3%	3%
Funding Programs too Specialized	8	2%	1%	3%	0%	1%	4%	1%
Grant Compliance Policies	6	2%	1%	2%	2%	1%	2%	1%
Insufficient Time for Research	85	22%	23%	20%	19%	17%	21%	26%
Time Spent Grant Writing	58	15%	16%	13%	17%	15%	13%	16%
Administrative Load	11	3%	2%	4%	5%	4%	2%	2%
Lack of Administrative Support	8	2%	2%	2%	0%	0%	3%	3%
Stress	8	2%	2%	1%	0%	1%	1%	5%
Teaching Duties	7	2%	1%	3%	2%	0%	2%	2%
Lack of Time	7	2%	1%	2%	2%	0%	3%	2%
Grand Total	**394**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Table 7. Themes identified from 394 written responses to the question of "What would you say is your greatest impediment to performing the best research you can."

Select Quotes (Please note the respondent numbers were determined in order of survey initiation. Recall there were had 719 people that initiated the survey with 434 completing the survey and 426 verified PI responders and as such the respondent numbers will reach to 719 but only 426 were verified and used.)

Theme: Funding Issues

"…In my field, if I cannot obtain funds to hire students or the reagents for experiments, even a loss of one year's funding, my research will be at a great disadvantage to my fellow researchers/competitors in other countries…" ***Respondent 14***

"…An unfunded period brings an absolute end to continuity. Every lab has unique procedures, research topics and necessary background knowledge that are not immediately acquired by new lab members simply by showing up in the lab on their first day of work. Losing funding for six months doesn't mean simply a six-month break in research; it can take many years to restore group expertise and knowledge to a lab. I am worried that the current funding situation is going to create this situation en masse for researchers all across Canada. ***Even a short interruption can set research back by many years****."* ***Respondent 28***

"…The frequent rolling out of narrowly focused research programs has made it difficult to keep up with opportunities (as a consequence I am sure the very best people are not carrying out research in the calls for applications)." ***Respondent 34***

"CIHR is operating on 2006 dollars when inflation for science has been increasing at 5%/pa. CFI funding has increased our capacity to do better science but a lack of funds prevents us from using these resources that often sit idle in the labs across the country. The only problem is lack of funding. New procedures for funding is only re-arranging the chairs on the deck of the Titanic" ***Respondent 147***

"Lack of funding and unpredictability of renewal means I cannot make firm offers to prospective trainees, meaning that I am unable to maintain continuity of research programs" ***Respondent 156***

"I was fortunate to renew my main operating grant in 2014, which can keep me going for another few years. However, if the CIHR funding climate does not dramatically improve then I am not confident that I will be able to continue conducting research in Canada. For this reason, I am considering leaving Canada within the next 2 years, an am already actively looking at other positions." ***Respondent 161***

"…Limited future for graduate students in Canada. I can't in good conscience continue training students when there are not any academic positions available." ***Respondent 164***

"… I hold one CIHR grant (13-18) and am co-PI (50%) on another CIHR grant from the TOOGP (15-20) which should be enough to run a moderately sized research program, but both grants were cut by 26%. We had to spend my start-up funding faster to do the work, and the start-up is now gone (one year early). I wasn't eligible for the Foundation Scheme and I didn't see the point in applying to the Project Scheme with >4,000 LOIs for an estimated 200 grants." ***Respondent 195***

"*We have been cut to the bone. Normally I could rely on charities when CIHR funding rates dropped but now those have been over subscribed as well. My steady CIHR funding has declined and, in turn I have applied for smaller one year grants which has been devastating even when we succeeded. We then had to perform the same research for few dollars with a shorter term of funding."* ***Respondent 299***

"…Funding instability often prevents us from pursuing the really difficult and innovative projects." ***Respondent 417***

"Not enough funding. It is routine for excellent and outstanding grants to go unfunded in Canada." ***Respondent 424***

"*What will be left to translate if we are not pursuing basic research?"* ***Respondent 577***

Theme: CIHR Reforms

"I have no faith in the peer review process at this time so I am intentionally not investing time and energy into submitting a Foundation Scheme application at this time and am concentrating on research outputs instead. Hoping the peer review processes will get 'fixed'." ***Respondent 79***

"…The slash and burn approach of CIHR to ensure that only few "brilliant" and the 'best" ones would survive has put the faith in too few hands to be the saviour of Canadian Science. Let us remember that Nobel Laureate McDonald did his Nobel-worthy research in Sudbury when he was not a star and as they say in Financial market: past performance is not a guarantee for future performance. Compared to NSERC, which has steadily nurtured its base to allow successes to pop up in any University and with any prof (young or old, known or unknown), CIHR is hedging its bet on a rigid formula that is effectively extinguishing the careers of 60% of the current generation and even larger proportion of the next generation of researchers." ***Respondent 80***

"…I find the new system of grant application totally inefficient. I have just gone through evaluating Project grant by this new way. The committees in Ottawa were infinitely more productive and fair. Exchanging mails during 2 days and expecting peoples to change their evaluations is ridiculous. This new way is unfair, non-productive and will chase the applicants away. We got rid of the Conservatives but not of their stupid policies...." ***Respondent 82***

"…It is disheartening having so many colleagues that are no longer funded. I think the idea of moving towards large team grants, rather than individual investigator awards is very troubling. I think a lot of money is wasted in big team grants. Please put more money into the individual investigator open competitions…" ***Respondent 142***

"…I believe I have the skill set and drive to contribute meaningful research but fear that this potential will not be realized in the current CIHR funding system." ***Respondent 291***

"The CIHR "reform" collapsed the whole funding system. I consider that it was an irresponsible decision and act by the CIHR to impose on the scientific community a reform as a pilot study with no other alternatives. Usually pilot studies are performed by scientists in parallel to other studies until the demonstration that they work better than previous funding systems. However, the CIHR imposed on us an experiment that was not tested and consequently collapsed the whole funding system that had been implemented, troubleshooted, and improved over several years. I strongly believe that this was an arrogant and non-scientific approach from the CIHR " ***Respondent 626***

"…I refuse to continue reviewing for CIHR. And I'll have to change my research to something I can get SSHRC to fund." ***Respondent 654***

Theme: Time Spent Grant Writing

"The funding climate is so disheartening that it seems like all my work is spent writing and seeking money, with barely any time to actually think, research, and do." ***Respondent 270***

Themes: Funding Issues, CIHR Reforms

"At this time it is the uncertain funding environment that is severely limiting my research program. I am not able to invest in new students given the poor funding climate and despite being recruited to Canada as a CRC (from the US) I am seriously considering returning to the states…" ***Respondent 5***

"… if funding cannot be sustained, then we (Canadian scientists) will not be able to compete at an international level. In my situation, because my CIHR grant is ending this year, if I do not obtain funds in the next two rounds, I will be forced to seriously consider shutting my lab down or to search positions outside of Canada. My plan is to just survive through this 'pilot' period, which is not the optimal approach to doing the best science" ***Respondent 14***

"Very low success rate at the CIHR. In its present version, the CIHR looks more like a lottery than a Research financing Institute. It is sad that we can't count on it to finance our research. This is very harmful to the basic health research in Canada." ***Respondent 155***

"I have essentially zero overlap now on my personnel so many of my research programs will stop as there is no handover, unique expertise and techniques [will be] *lost. It is such a crime as my research was at its peak but with the gap in funding and no certainty re renewing ….. I am so pissed off at what the new system has done to my program to my lab morale and my morale. … Its scandalous and I have no faith in the upper management of CIHR."* ***Respondent 304***

"…. I have had Gates grants, NSERC, private grants ect but NEVER a CIHR. Every time I apply to CIHR the criticism is "you never had a CIHR". I am newly tenured and since I was hired CIHR has had success rates of less than 12%. Everyone is competitive with innovative great ideas, there just isn't enough money invested in research in Canada." ***Respondent 442***

"…The vast majority of strategic competitions at CIHR are actually incomprehensible to me, let alone relevant to my research. I hear this complaint regularly from colleagues…" ***Respondent 475***

"There is a backlog of grants which should be funded and I fear that if they are not soon, talent will simply disappear from Canada. I am very disappointed and sad that Canada is treating us this way. We are among the best minds and the greatest talents and we are being ignored. We have been trivialized by Administration and Bureaucracy." ***Respondent 578***

"The climate does not encourage any new explorations. Over the years, midcareer/senior scientist have carefully built expertise, networks and collaborations that maintain many excellent projects and gained insight and vision to explore something new. It is sad to see many of us not being supported and essentially just thrown away. With one mid/senior career lab having to close doors, 2-5 collaborations disappear. Expertise disappear. CFI investments disappear. Nurtured visions disappear. This slowly rots the core of Canadian science. It cannot live on hype of new investigators. Where are the new investigators suppose to insert themselves other that a group of midcareer/senior scientists? If we are not available, investments to next generation scientists are useless. To put it graphically: Us midcareer scientist are like that cute puppy that grew old on poor nutrition and was not so cute anymore...so off the owners went to get a new puppy." ***Respondent 621***

Themes: Funding Issues, Insufficient Time for Research

"Writing and rewriting grants that score well and have little useful criticism. I waste time writing grants and I waste time reviewing such grants. If the open operating grant program had approximately 30% more funding, the problem would likely be solved. When the success rate was approximately 25%, that was when I thought that the ideal was achieved. I could be confident that if I wrote a good grant that it would be funded as long as the committee agreed that the topic/content was of the same quality that I believed it to be. In the current environment, excellence becomes less important than luck." ***Respondent 385***

"In the absence of long term funding I will not commit to new trainees. The low success rate makes writing and rewriting and rewriting again grant applications necessary. It is a horrible way to waste my time. I would rather be told that I am not getting funds because the idea is terrible than be told the idea is great but not top 10th percentile great." ***Respondent 448***

Themes: Funding Issues, CIHR Reforms, Insufficient Time for Research

"The uncertainty of funding is a huge impediment. It is very hard to make long-term commitments to support staff because I'm never sure if I will have enough funding over the long term. This interacts with the increasing bureaucratization of universities and granting agencies. That is, everyone is demanding accountability (especially for research ethics boards, finance officers, and grant progress reports) and because I am understaffed and have turnover of

the part-time staff in my lab, I end up doing far too much of this work as overtime in my own job (when I'd much rather be doing real research)." ***Respondent 150***

"The low success rate and unhelpful reviews year-after-year wording if they three times I was successful in CIHR (two operating grants and one new investigator) was just a lottery or someone on the panel had a my back. I don't think I write worse, or do worse science. But it's never enough now, and there is never an explanation why. Currently I have zero funding. I am working on writing papers and grants, it's a very stressful time. Truly awful to be in this situation after 17 years. It's like starting all over again only without a massive start up grant (I only spent half of my start up knowing this day would eventually occur at my non-U15 university)." ***Respondent 391***

"Although I feel that I am on a level of excellence to match my US colleagues in the U.S. and the U.K,, with respect to impact of publications and numbers, I cannot compete with my international colleagues in finding research funding to match what they pull in - full credit to them, but I know we can do at least the calibre of work that they do, if not better. The awards offered by CIHR are typically small (>120k per annum), but at least a few years ago we still had a hope of winning those operating funds. This is no longer the case. While I have done very well in comparison to my Canadian colleagues over the past 24 years, I feel that, while my skills are at a peak and my ability to design novel studies are unimpeded, my ability to acquire sufficient funding has dropped about 50% during the past few years. The reforms are going to make a difficult situation virtually unsustainable. Given this I may simply retire early to my own dismay - I love biomedical research, and am most happy when in the lab. The chase for funds is dominating my professional life, this is not what I am trained to do. During the past 6 months, 90% of my daily work schedule involves writing grants. This is not science." ***Respondent 404***

"…In this same vein, anyone doing industrial research can get $$ through MITACS at almost 100% success. Obviously, MITACS has too much $$ as they simply give it away... The CommonCV has been an administrative disaster …. Researchers are spending huge blocks of time filling in idiotic forms that produce almost unintelligible CVs." ***Respondent 475***

Impacts of Current CIHR Funding Environment

Respondents were then given a more open-ended prompt: "Please feel free to write about how the current Canadian Institutes of Health Research (CIHR/IRSC) funding environment has affected you, your research, your staff, your students, your family, etc." There were 38 written responses (9% of total responses). The top themes in this open-ended question were CIHR Reforms, Funding Issues and Time for Research.

Theme	# of Respondents Identifying Theme	% of Total Respondents
CIHR Reforms	31	82%
Peer Review	15	40%
CIHR Reforms	9	24%
Funding Programs too Specialized	7	18%
CIHR Leadership	6	16%
Bureaucracy	3	8%
Grant Compliance Policies	1	3%
Funding Issues	20	53%
Success Rates	8	21%
Funding Levels	8	21%
HQP (Loss, Funding, Attracting, Retaining)	5	13%
Lack of Basic Research Funding	5	13%
Lack of Funding	3	8%

Funding Stability	2	5%
Uncertainty	1	3%
Insufficient Time for Research	3	8%
Time Spent Grant Writing	2	5%
Lack of Time	1	3%
Administrative Load	1	3%
Stress	1	3%
Grand Total	**38**	**100%**

Table 8. Themes identified from 38 written responses to the question of the last question "Please feel free to write about how the current Canadian Institutes of Health Research (CIHR/IRSC) funding environment has affected you, your research, your staff, your students, your family, etc."

Select Quotes

Theme: Funding Issues

"I am concerned about how we will be able to keep promising young people to do the future research that Canada (and the world) needs to prevent the looming avalanche of stroke and dementia that can be expected with the aging of the population. It is much more costly to treat stroke and dementia than to prevent them." ***Respondent 439***

"I am writing to let you know the results of yesterday's project scheme competition. I could not apply to the competition of September 2015 because it did not take place. I applied to 3 CIHR project scheme grants as PI in the March 2016 competition which was a long shot as we rarely get grants on the first round. Yesterday, I found out that none of my CIHR grants were renewed. My laboratory will be among the many casualties of the reform as I now have to let everyone go and I have to close down my lab. Closing down my lab now, is in sharp contrast to the substantial investment CIHR has made to my research over the past years. The expertise which will be lost involves technology that was developed by myself and my team over the past 15 years, and hence cannot be recovered." ***Respondent 527***

"I am an optimist about the progress of international medical science. Clever people will always find a place and a way to conduct and distribute their studies. But maybe not so many of them in Canada in the future, which will hurt us all." ***Respondent 533***

Theme: CIHR Reforms

"This CIHR experiment has been an utter disaster, and the damage to the Canadian biomedical research community is devastating. The funding levels have NOT kept track with current costs, and combining this with a review mechanism that is a joke, has left us all at the edge of the brink of disaster." ***Respondent 586***

Themes: Funding Issues, CIHR Reforms

"CIHR doesn't seem to understand the importance of fair, expert review, which makes it extremely difficult to have confidence in them to get this right. CIHR leadership's attitudes and statements around the reforms have been completely tone-deaf. They're saying "trust us" when they haven't provided any evidence that they are trustworthy." ***Respondent 20***

"If funding amounts and success rates do not stabilize, the end result will be a generation of early and mid-career scientists who will have small labs or no labs and function as very expensive teachers, or worse, administrators." ***Respondent 211***

"All in all basic biomedical research has slipped into a morass that I am not sure we will recover from as a research community. that saddens me the most as I encouraged my xxx to do a PhD in a Canadian neuroscience lab and stay in

*Canada to enrich this great nation. … It is frankly heartbreaking what has happened lately to biomedical research as a result of the nonsensical and ill-considered changes imposed on us by the CIHR "**Respondent 246***

*"The claims by CIHR that the peer review system was "broken" or "deeply flawed" are gross exaggerations. Certainly, the former peer review system required a degree of improvement - but wholesale reconstruction, with a greatly inferior process - is not the solution. The former federal government made no secret of its desire to run the Canadian research enterprise more like a business - that is, minimize costs (e.g. eliminate face-to-face peer review, cut investments in basic science, give preferential treatment to industrial partnerships) while maximizing "profits," in this case the delivery of health care products or policies with immediate economic impact (i.e. short-term translation). There was a failure by the government to realize that in order to have translational discoveries tomorrow, one must invest in basic discovery-driven research today. ….Putting significantly more money back into the system, immediately, will have a number of transformative effects on Canadian research. … It is critical to consider money spent on research not as an expense, but as an investment. One cannot cherry-pick winners in science - no one has a crystal ball as to where the investment is best made…." **Respondent 425***

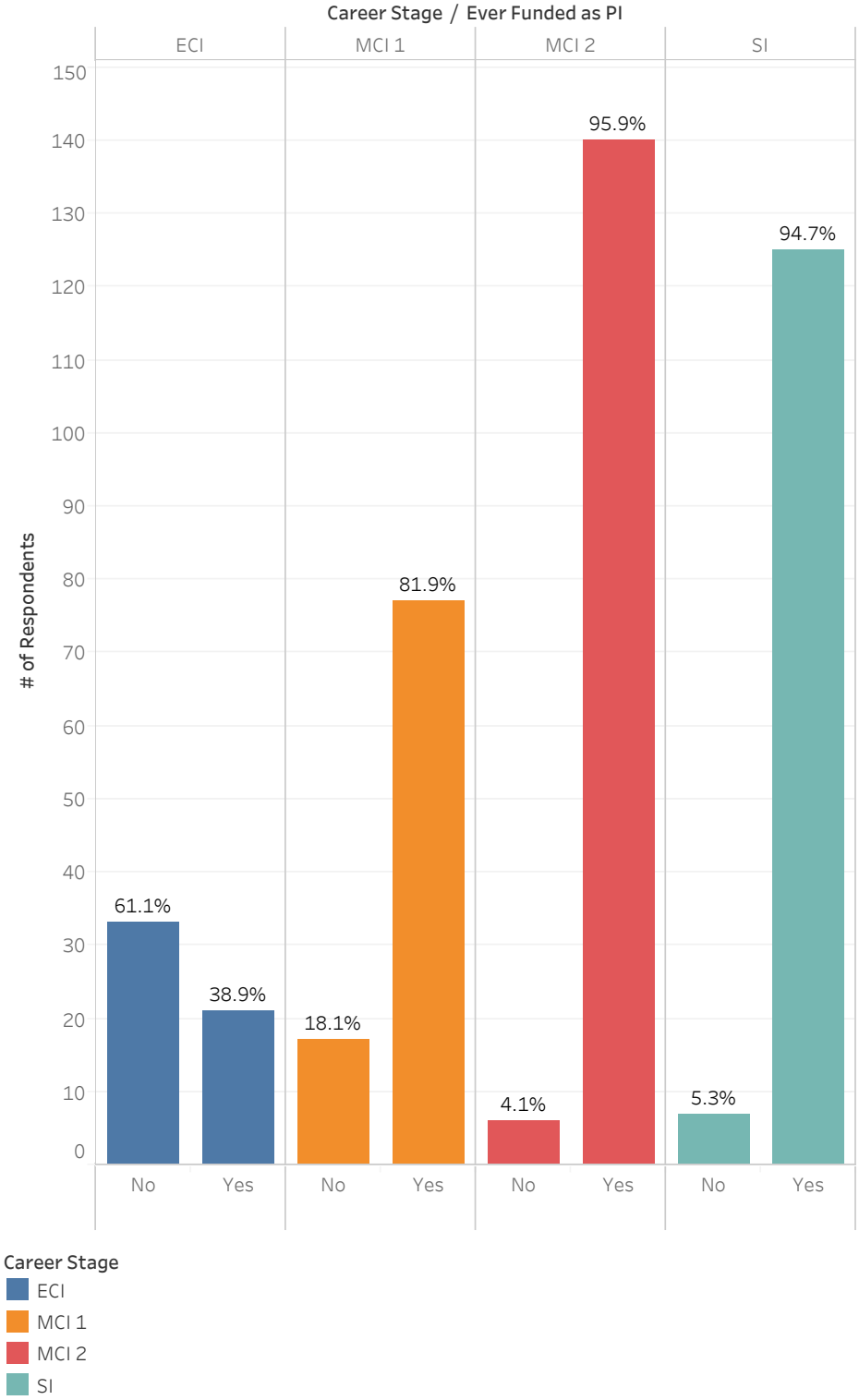
"Federal funding shapes the face of Canadian science. One may choose to favor certain research directions that are currently considered the most promising and invest in a few "star" researchers. The rest of Canadian biologists will have to survive on small grants from NSERC. The level of funding will be reflected in the quality of research, level of publications, etc. that will decline over time. Furthermore, the directions that were considered most promising may turn out to be less of a success in hind sight. Alternatively, one may choose to appreciate the research community as a whole with diversity of opinions and expertise, support academic freedom and invest in high-quality investigator-initiated research. It is up to Canadian biologists to make an informed decision which of these roads they want to travel." ***Respondent 599***

Themes: Funding Issues, CIHR Reforms, Insufficient Time for Research

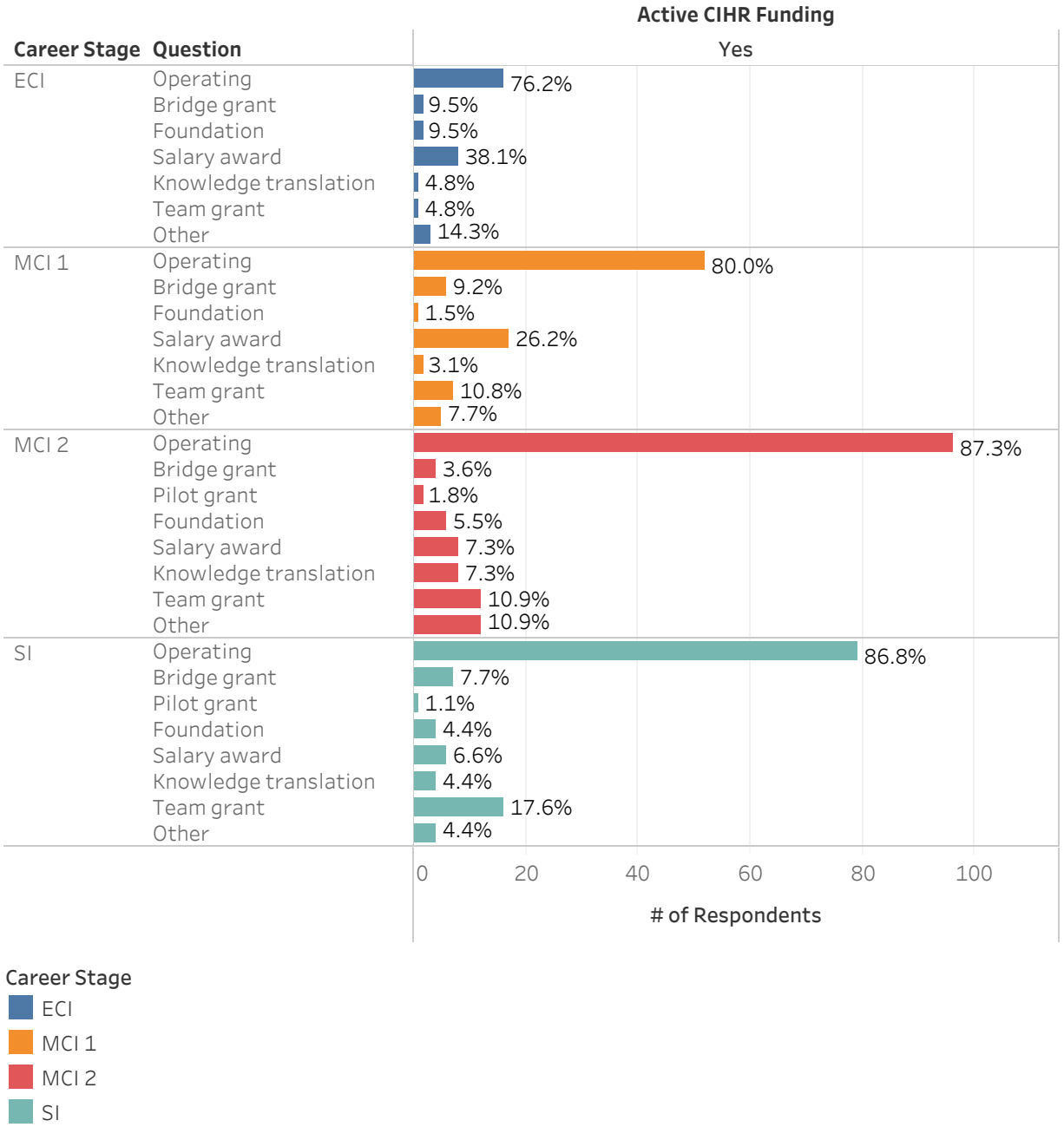
*"Earlier this year, a parent asked me, vis-a-vis their own teenager- if I would recommend scientific research as a career, and for the first time in my life I said 'no'. Between scrabbling for funding and the ever-increasing burden of the required reporting and metrics, there is less and time for the research per se (the discovery process that is the "fun" part), and less time/$/forgiveness in the system to take chances, and explore new or unexpected ideas." **Respondent 247***

"I sincerely hope the feedback provided by these kinds of polls does not fall on deaf ears. Canadian biomedical science is at a tipping point, and the concerns of small-lab scientists to be ignored at its demise." Respondent 404

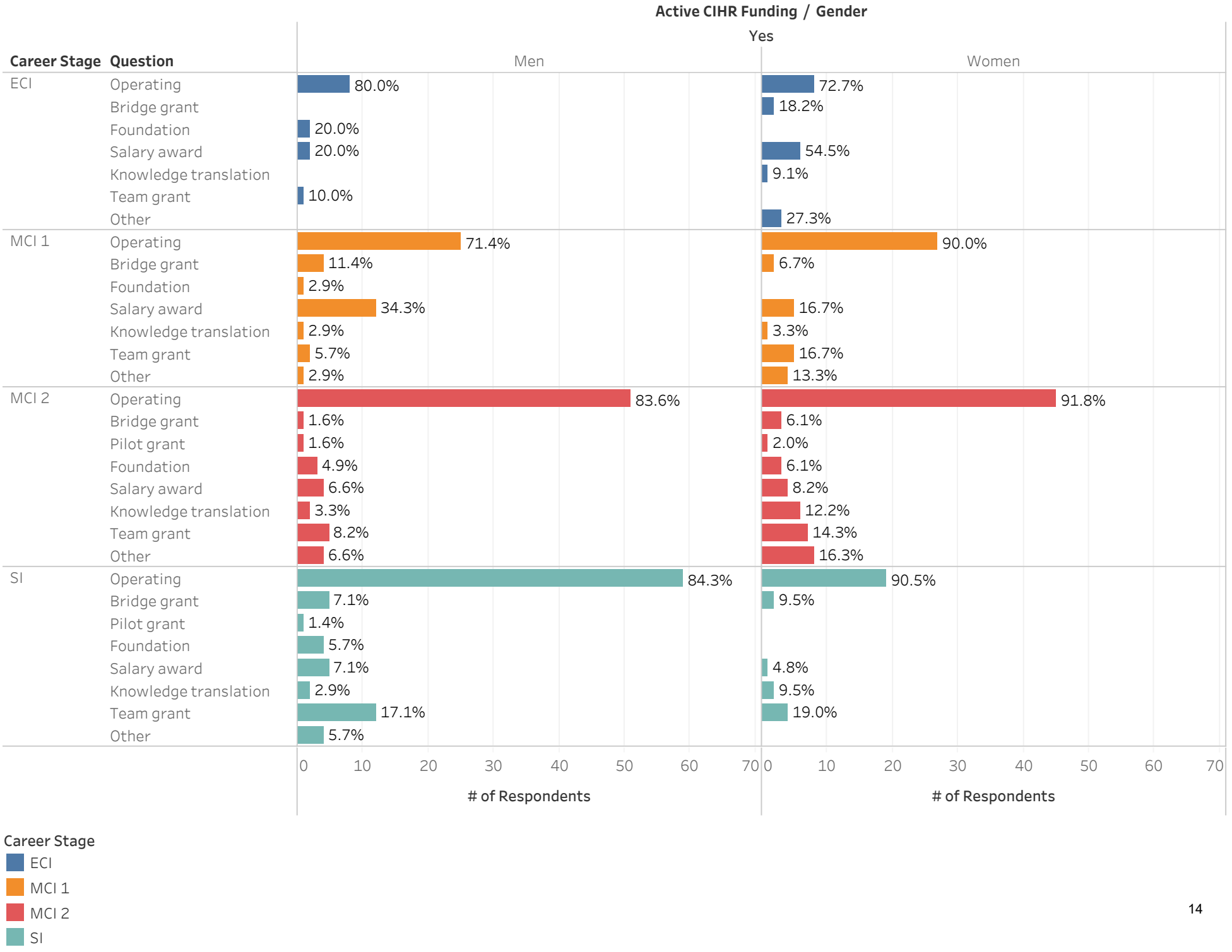
Have you ever been funded by CIHR as a PI?



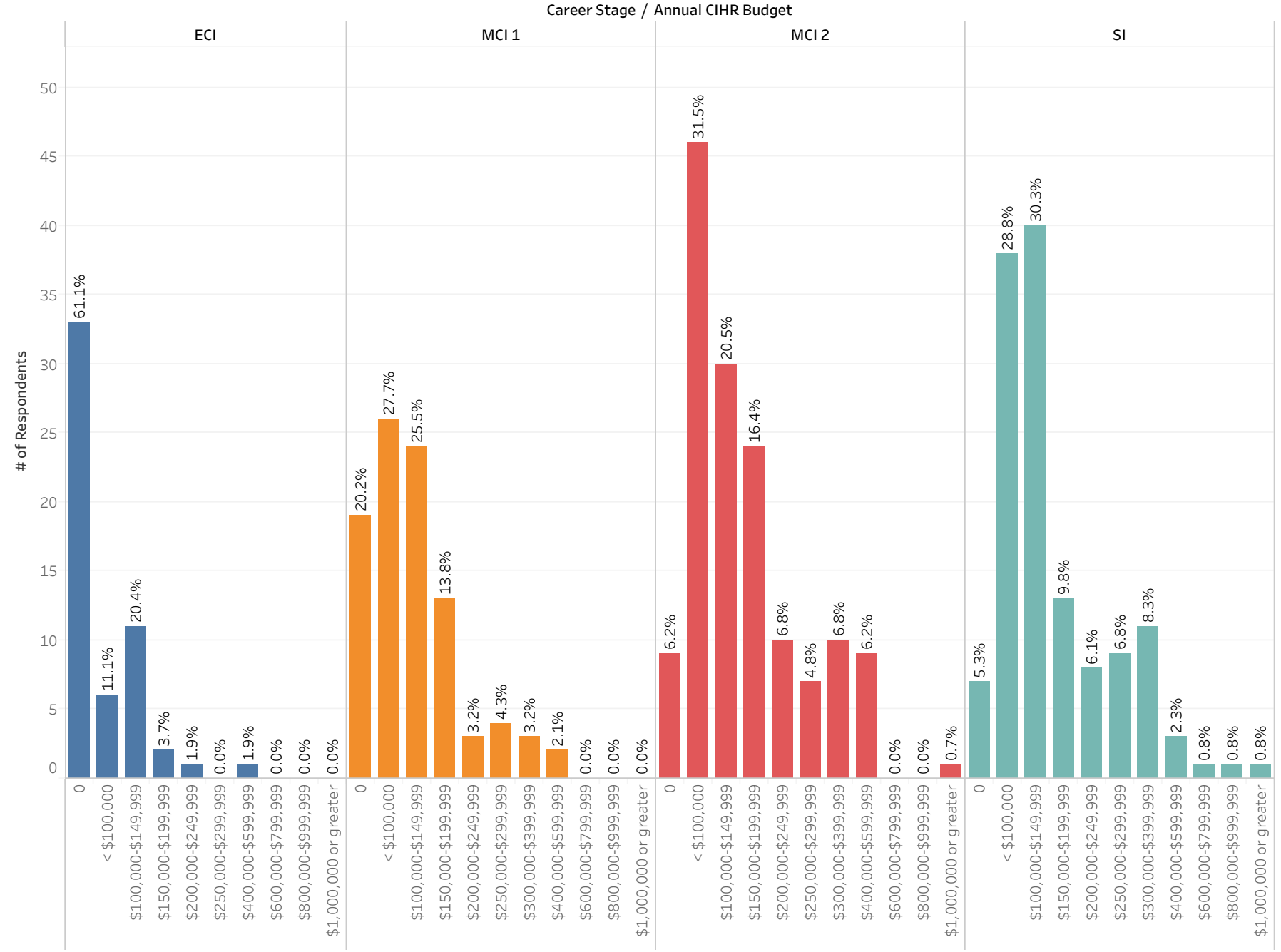
Type of Current Funding



Type of Current Funding by Gender

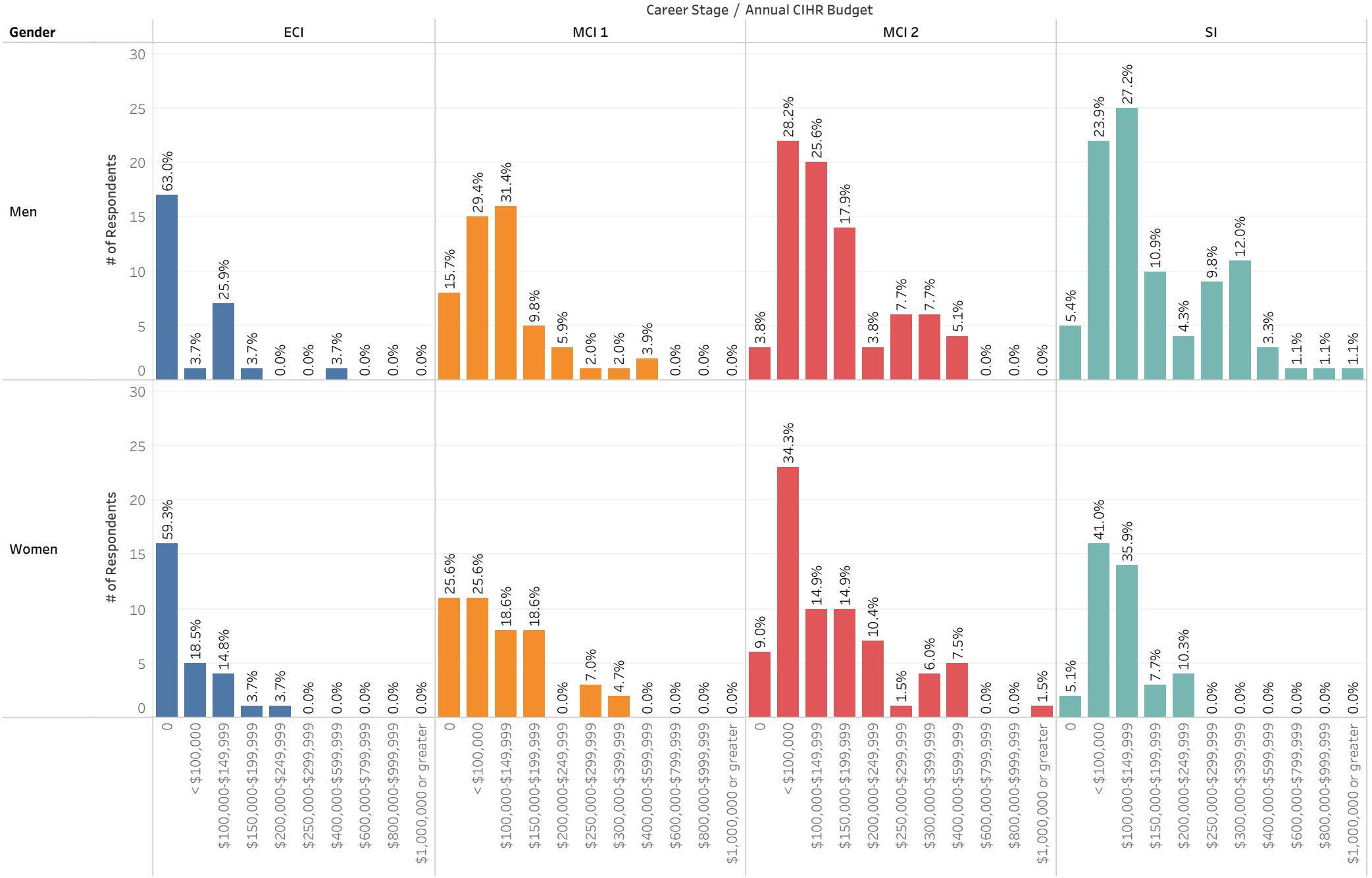


Current Annual CIHR Operating Budget by Career Stage

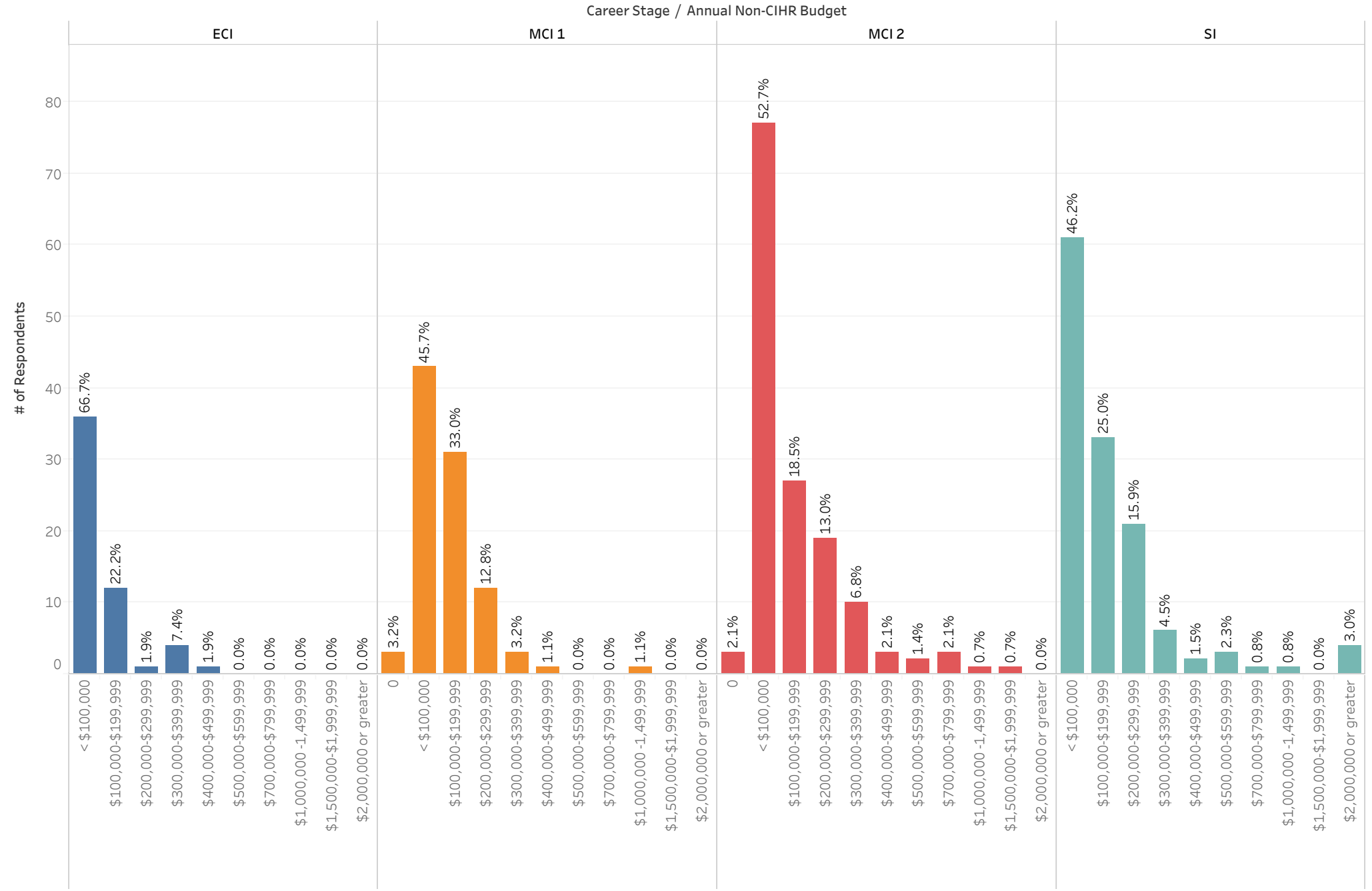


Career Stage
- ECI
- MCI 1
- MCI 2
- SI

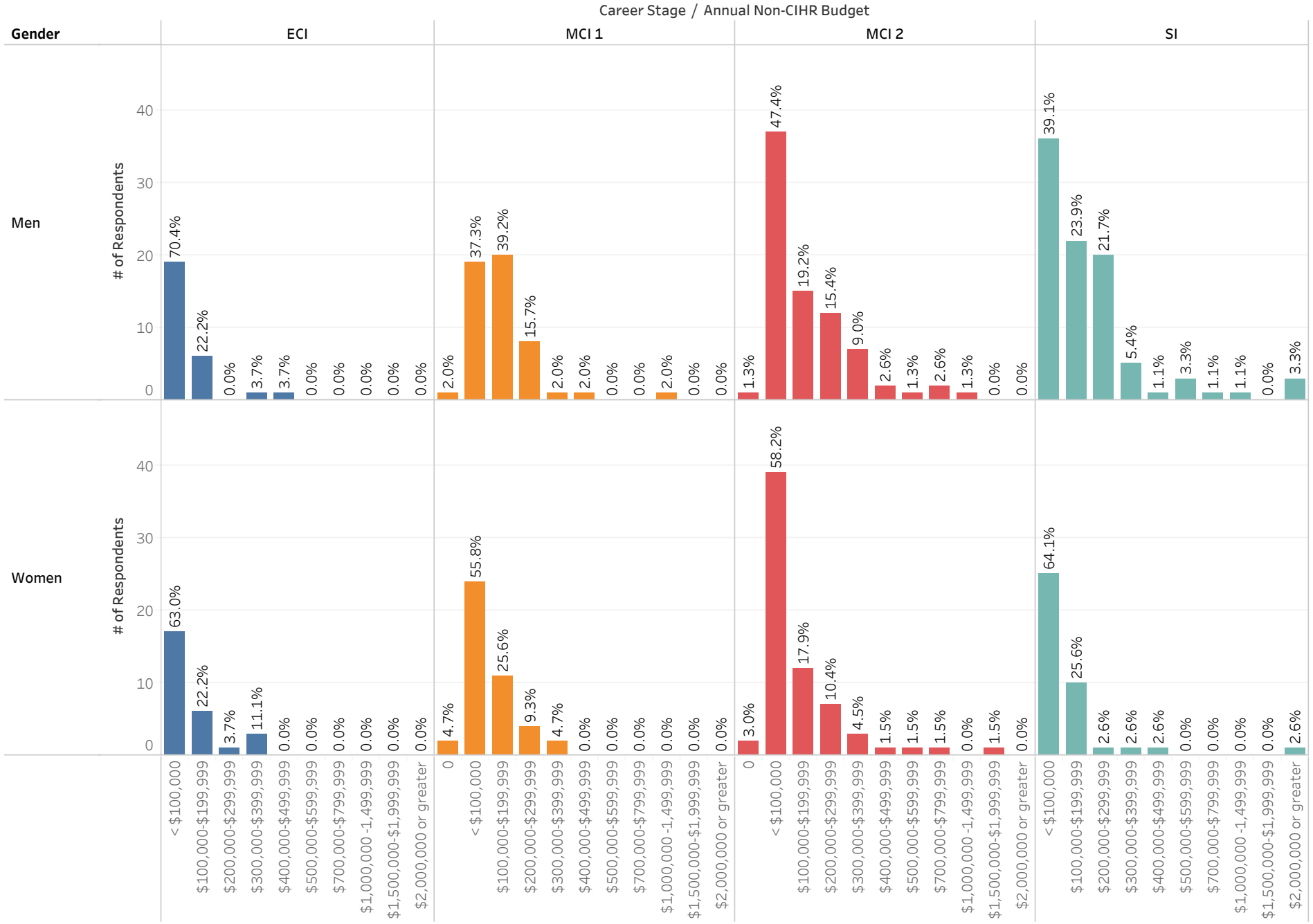
Current Annual CIHR Operating Budget by Career Stage by Gender



Current Annual Operating Budget by Career Stage, **Excluding** CIHR

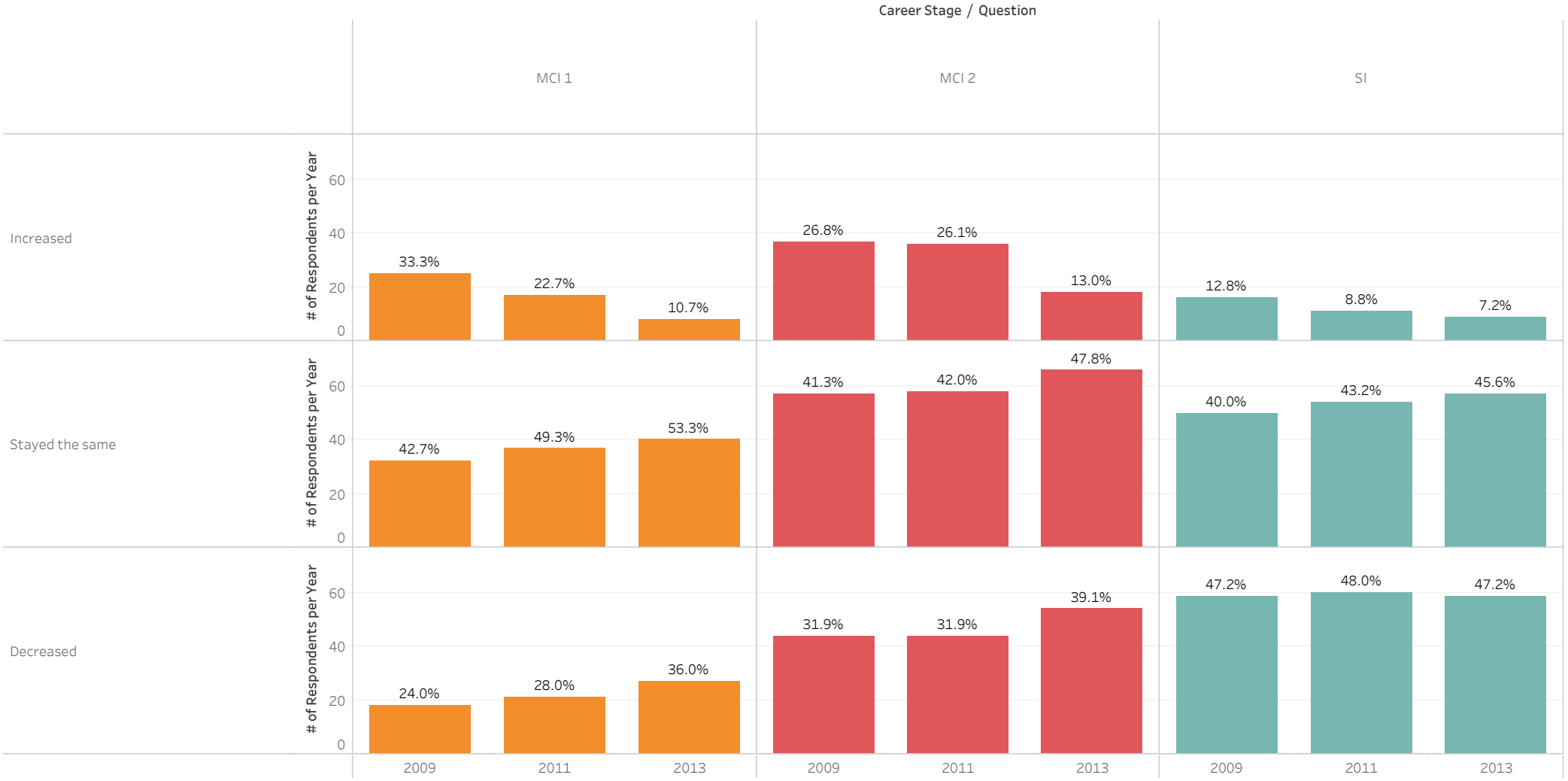


Current Annual Operating Budget by Career Stage by Gender, **Excluding** CIHR



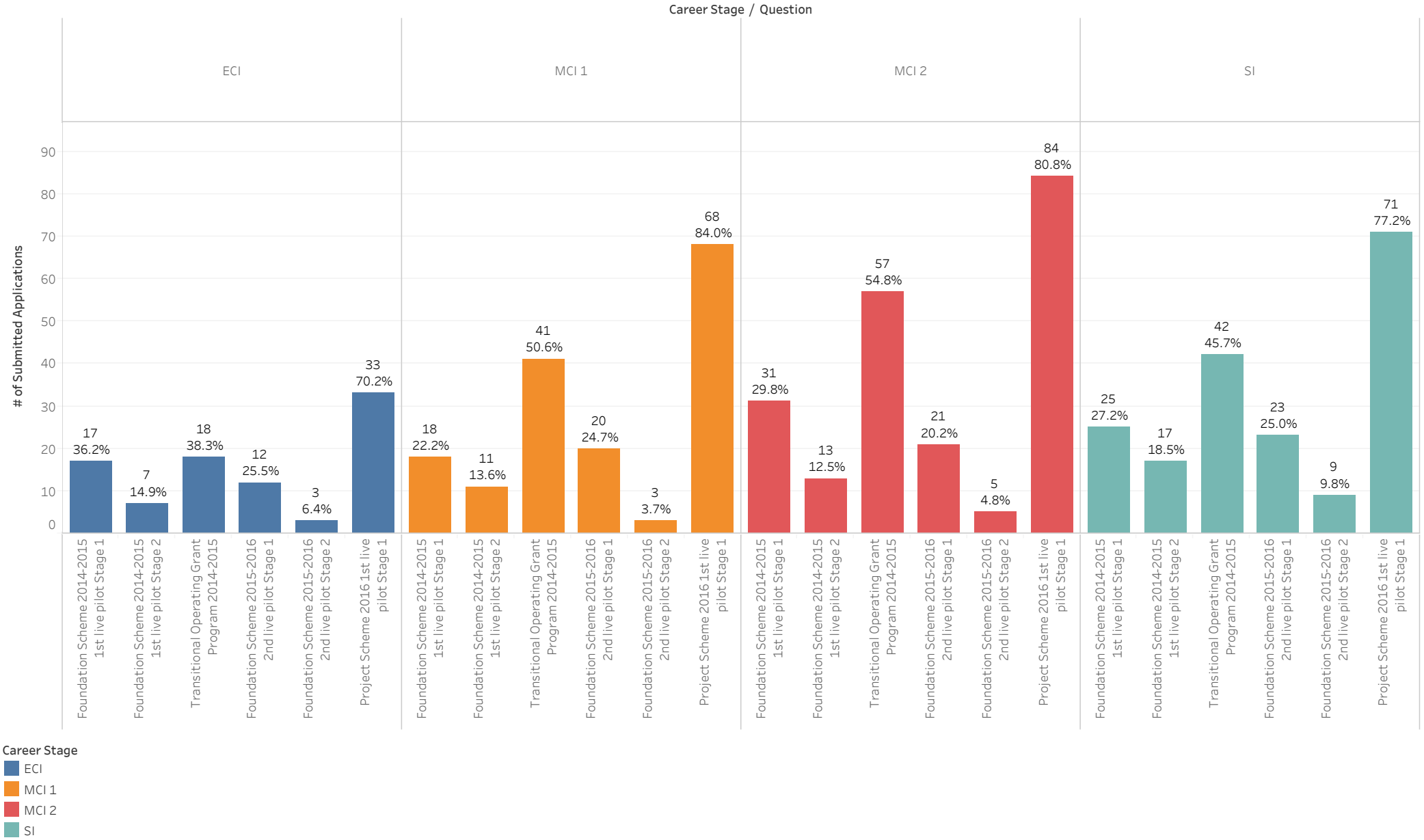
Career Stage
- ECI
- MCI 1
- MCI 2
- SI

Has your annual operating CIHR budget increased, decreased, or stayed the same (only as nominated PI) since:

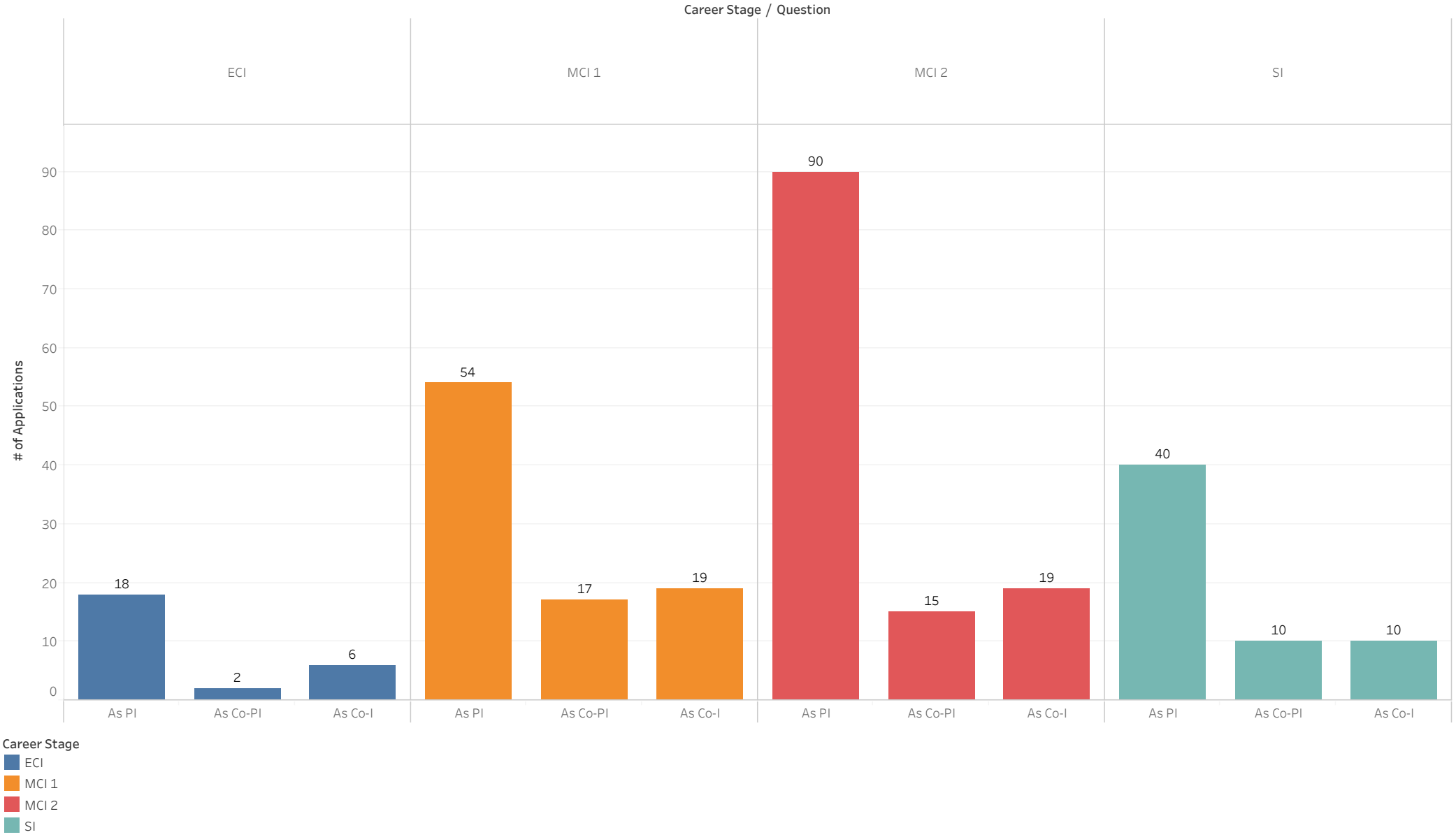


Career Stage
- MCI 1
- MCI 2
- SI

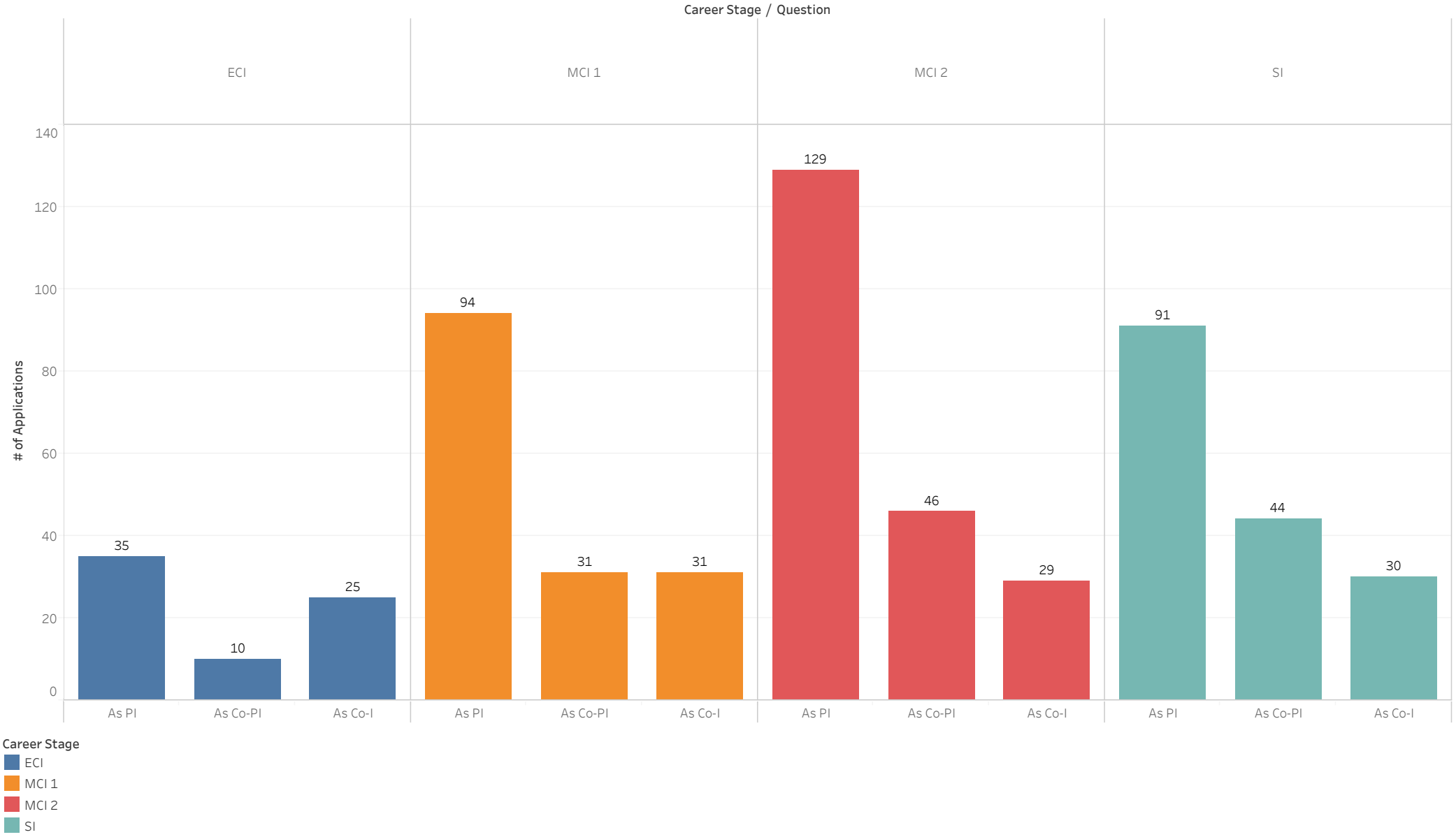
Did you submit an application as a Nominated Principal Applicant or Program Leader to:



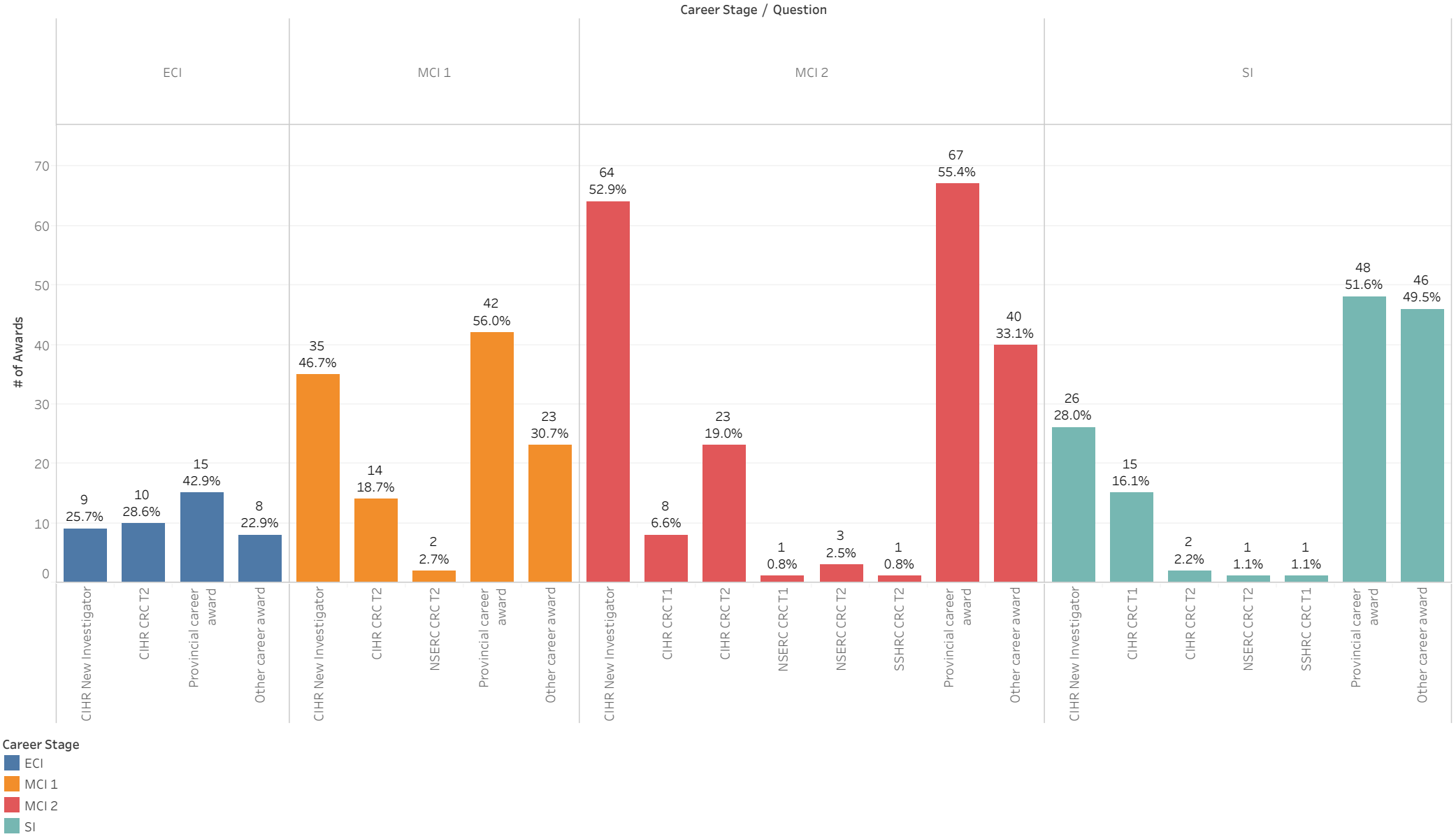
If you applied to the TOOGP, how many applications did you send in?



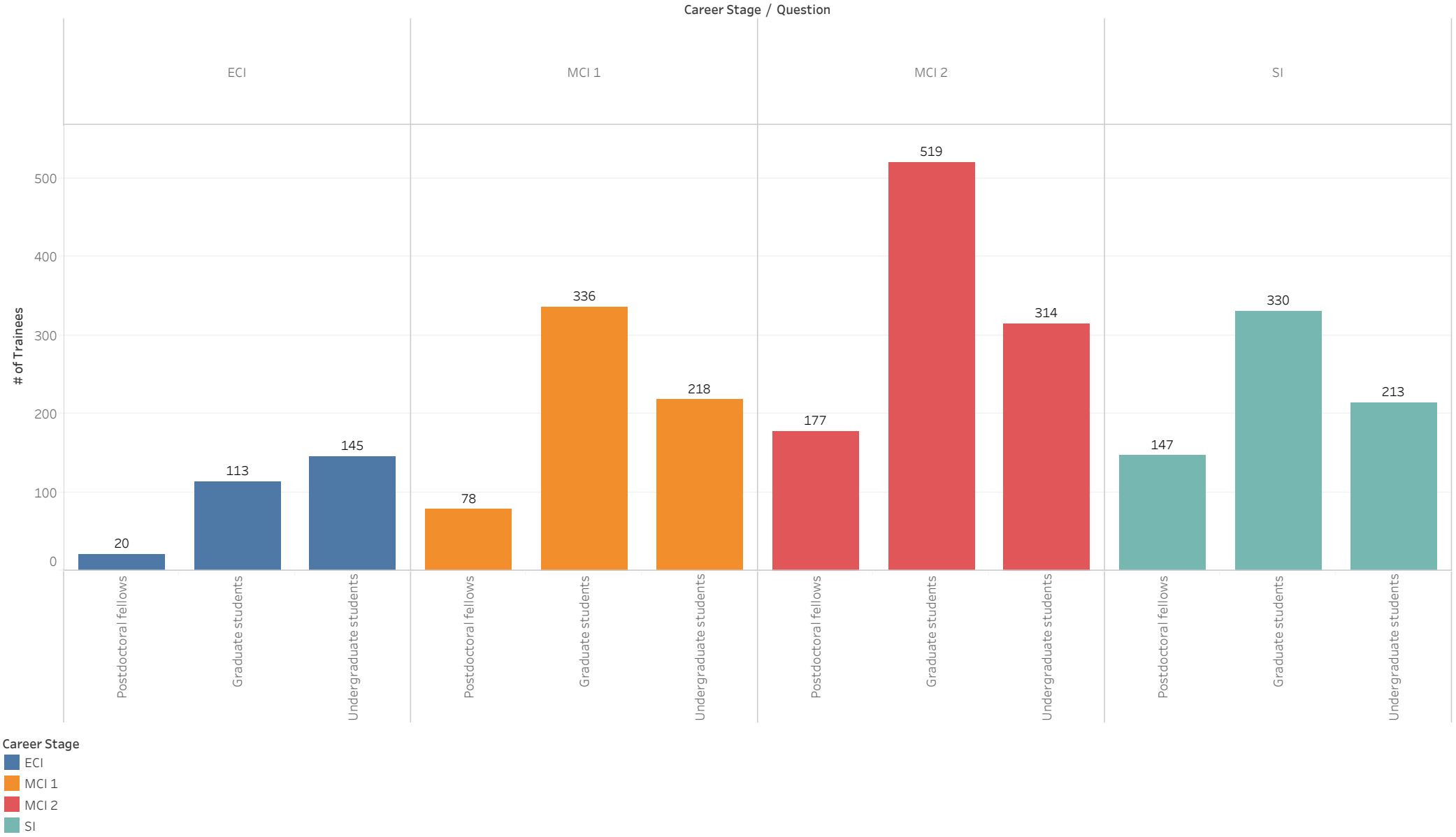
If you applied to the Project Scheme how many applications did you send in?



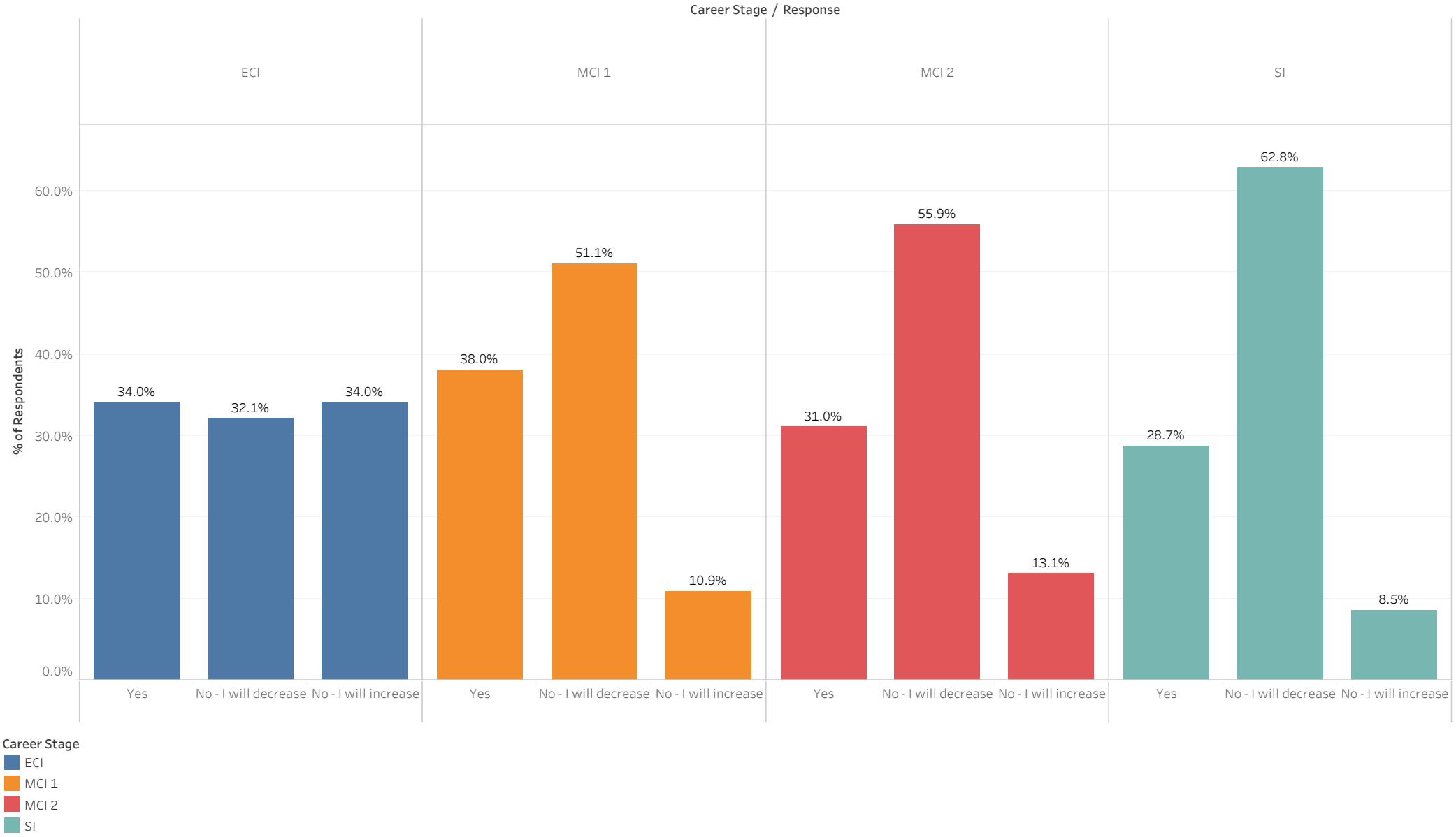
Have you ever been successful in obtaining a competitive career development award, such as (check all that apply):



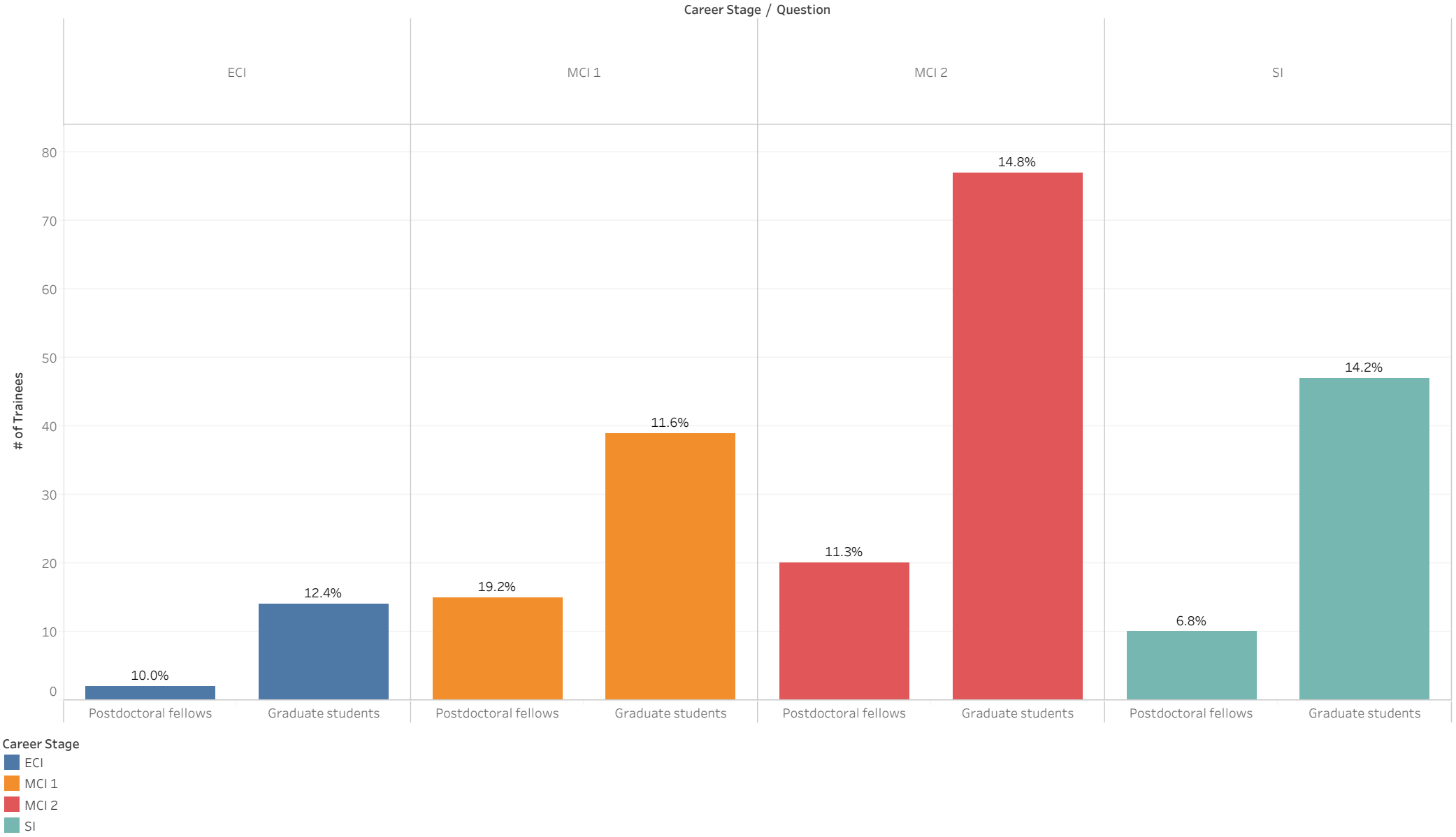
How many trainees do you currently supervise as primary supervisor?



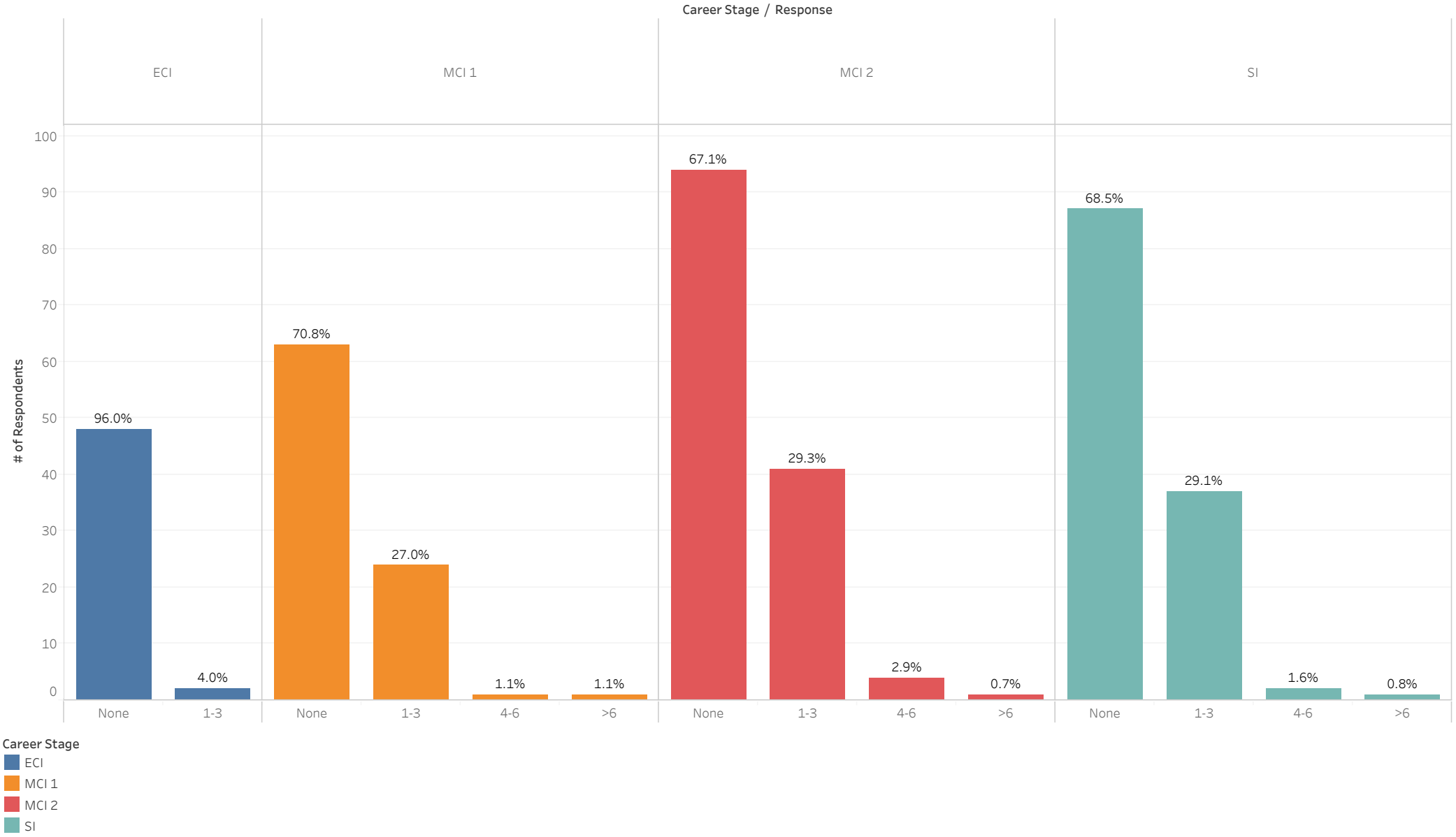
Will you maintain the same number of trainees in the future?



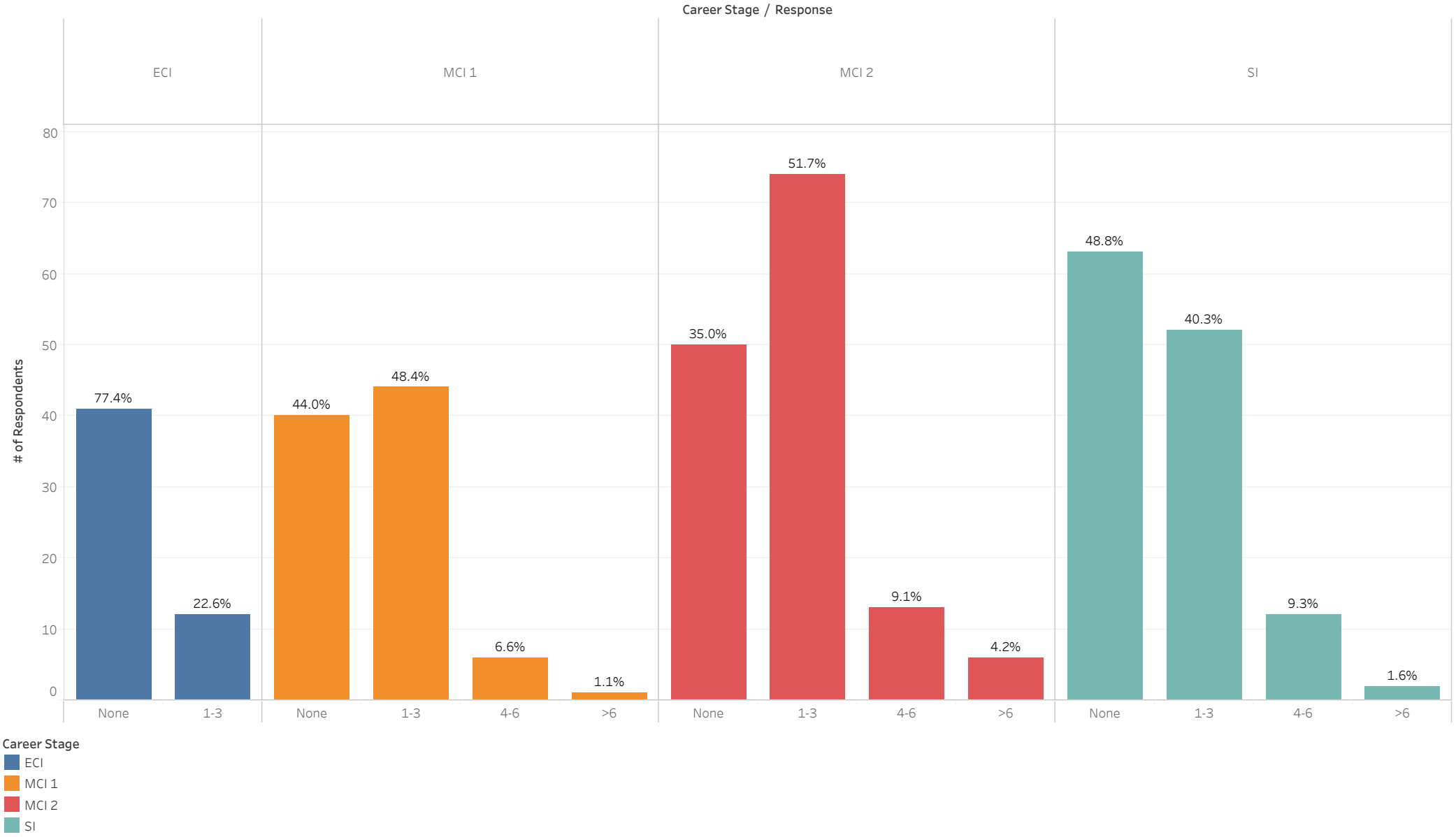
How many of your current trainees are funded by CIHR fellowships?



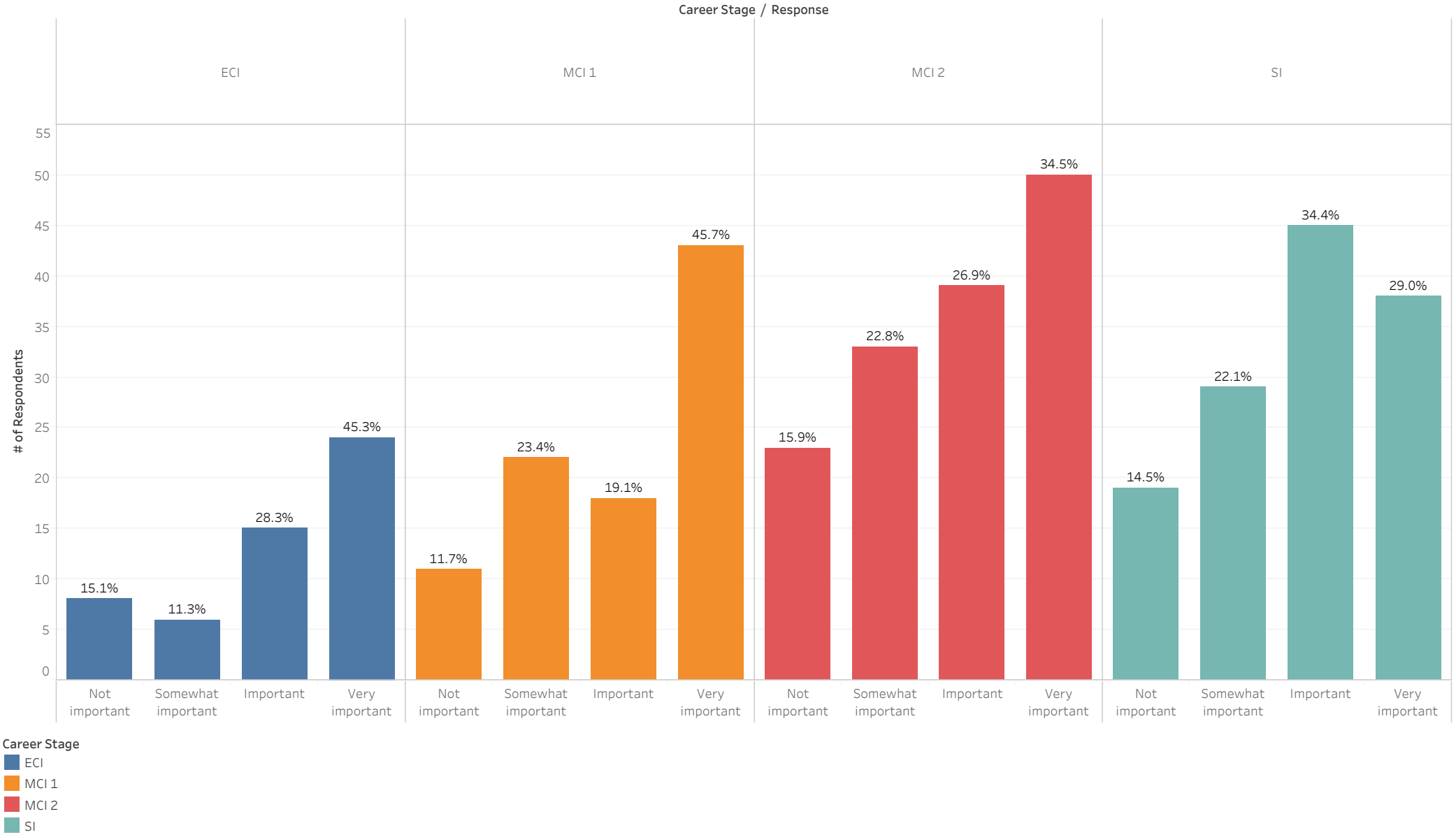
How many postdoctoral fellows were funded by CIHR fellowships in your laboratory in the past 5 years?



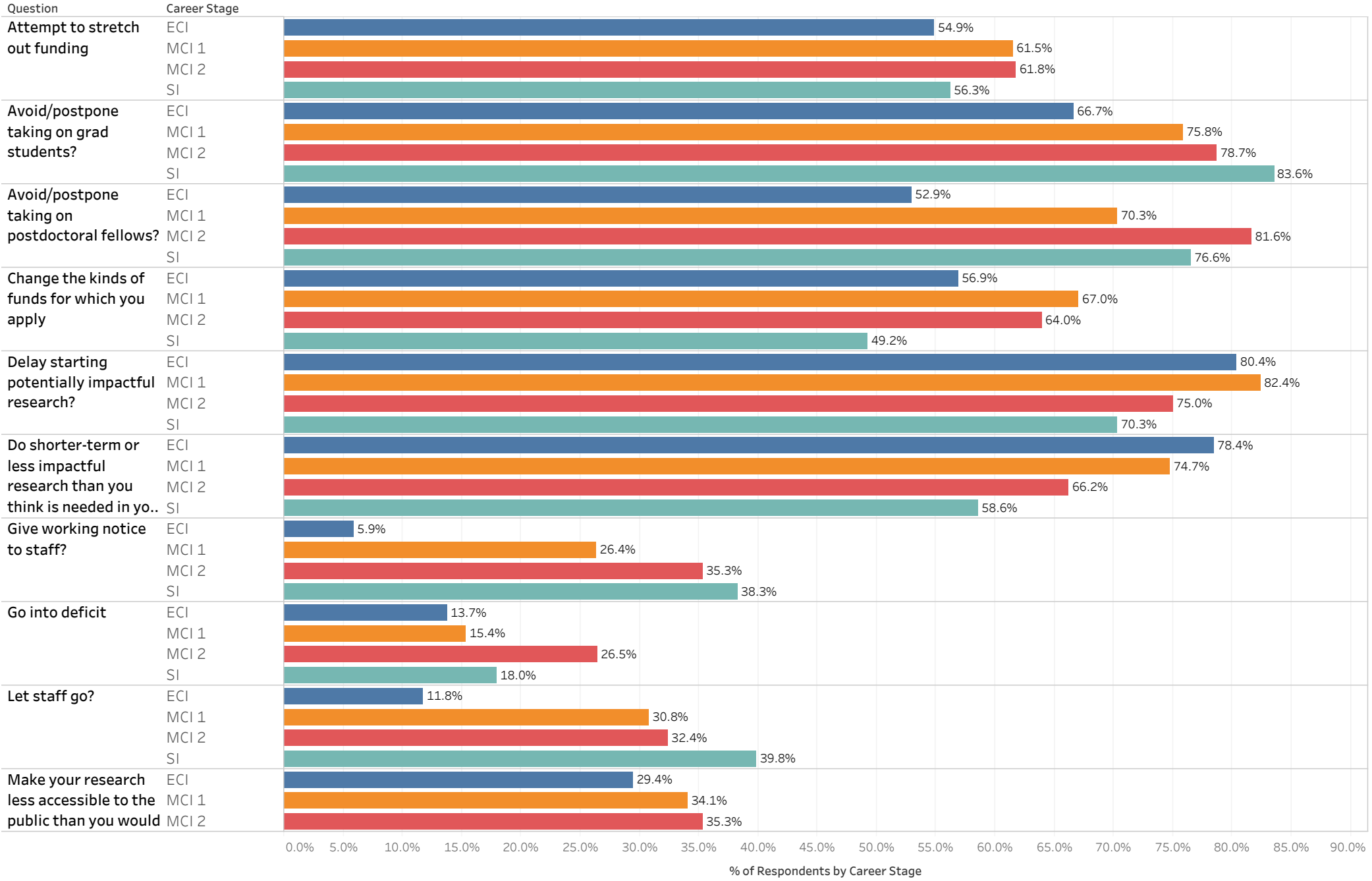
How many graduate students were funded by CIHR studentships in the past 5 years (including Team Training Grants)?



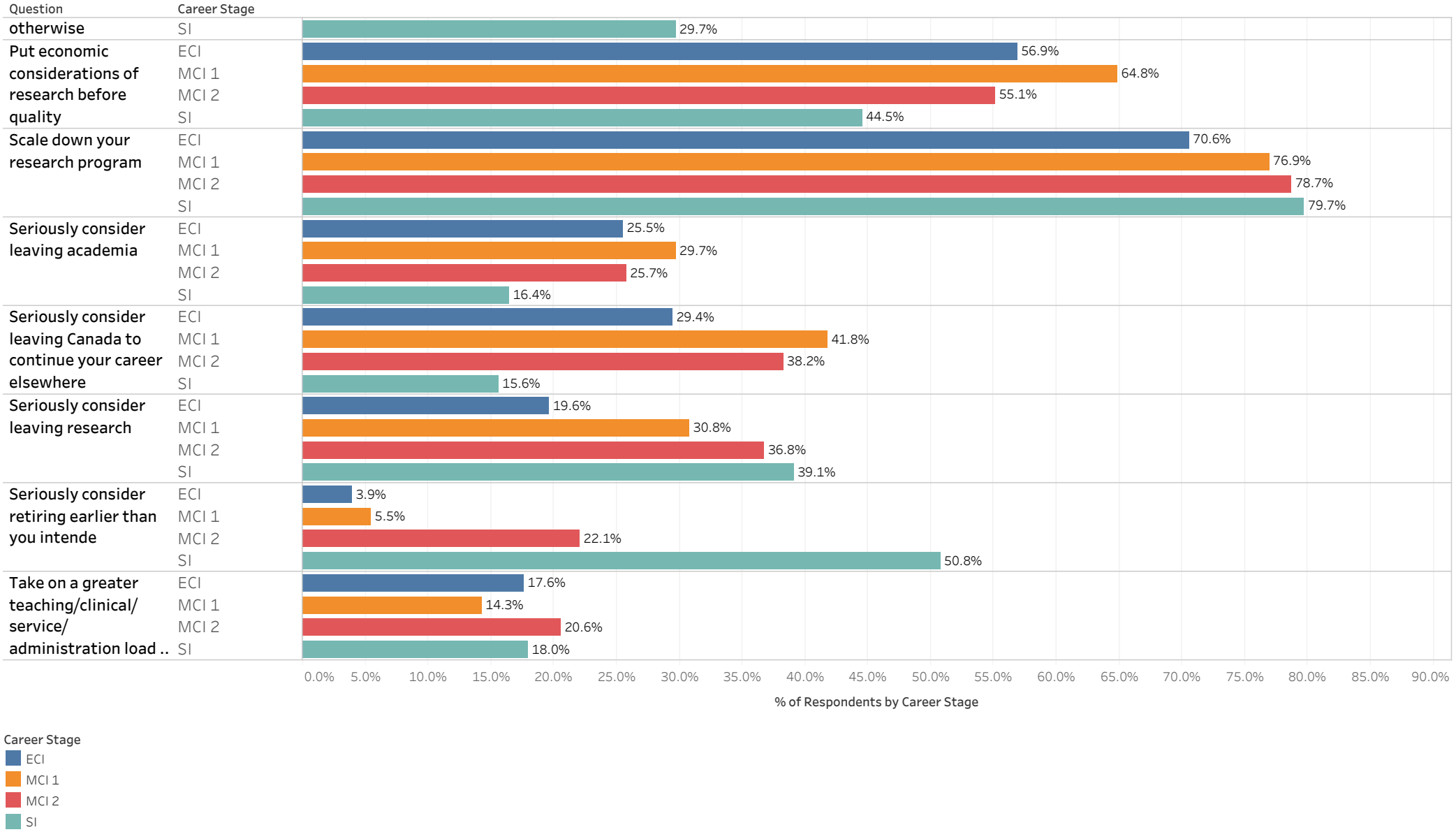
How important are CIHR fellowship/studentships to your research program?



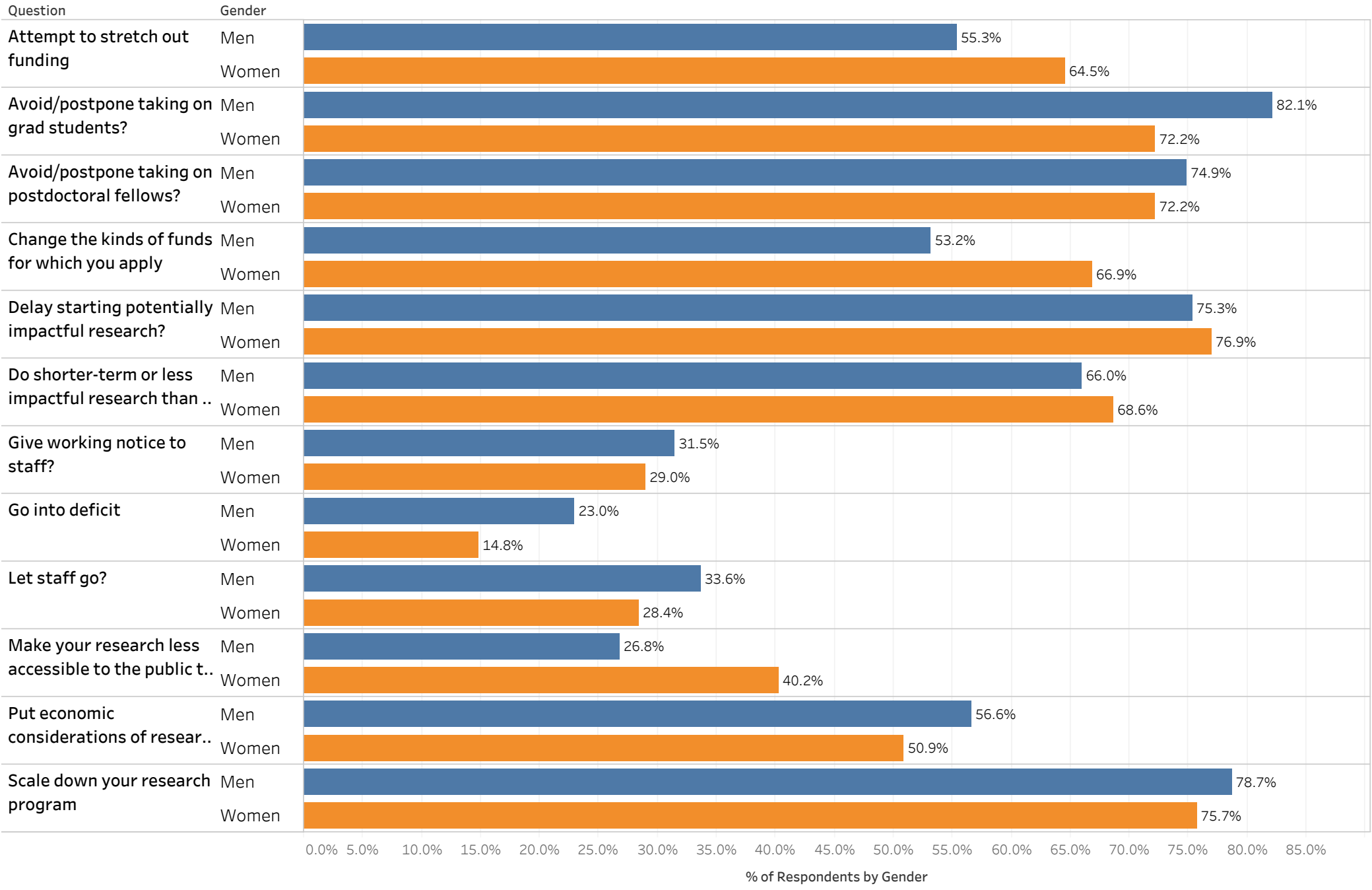
As a result of the current funding environment, have you had to:



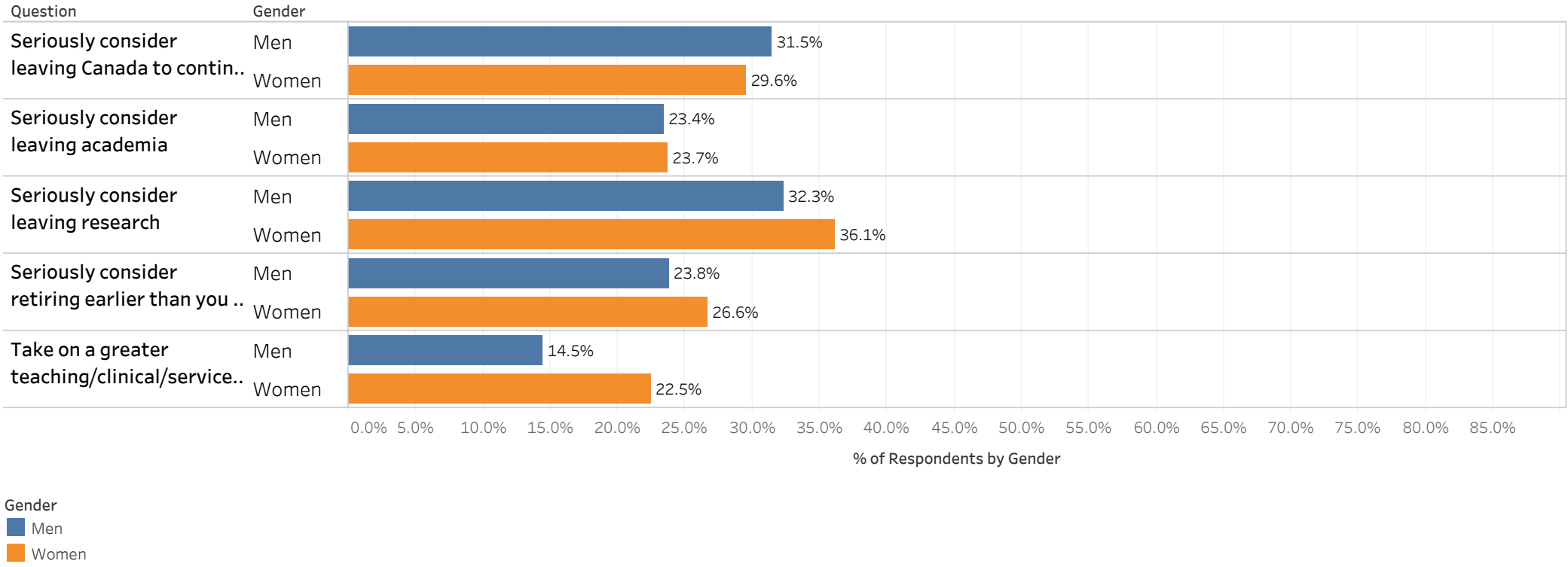
As a result of the current funding environment, have you had to:



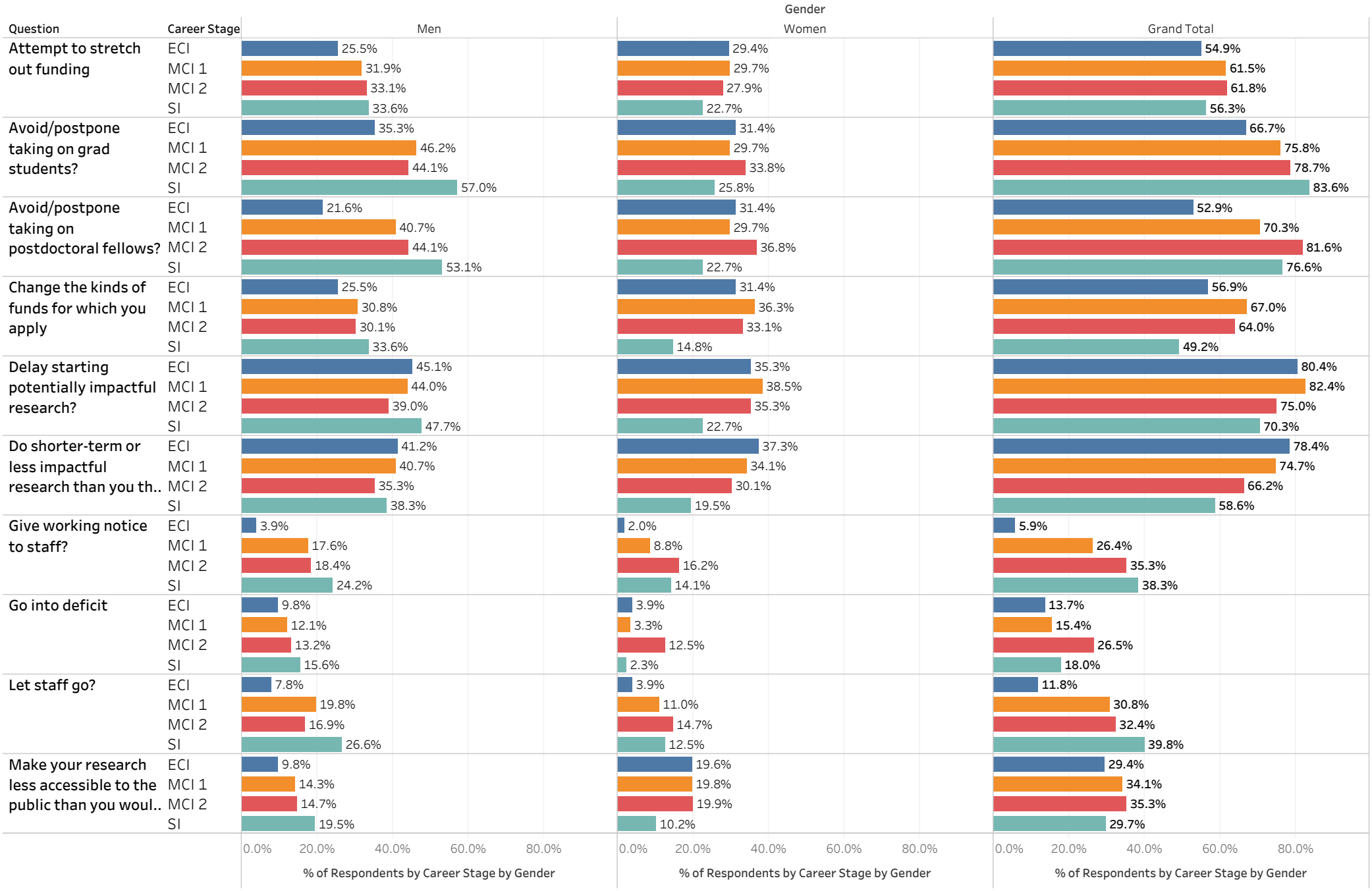
As a result of the current funding environment, have you had to - by Gender:



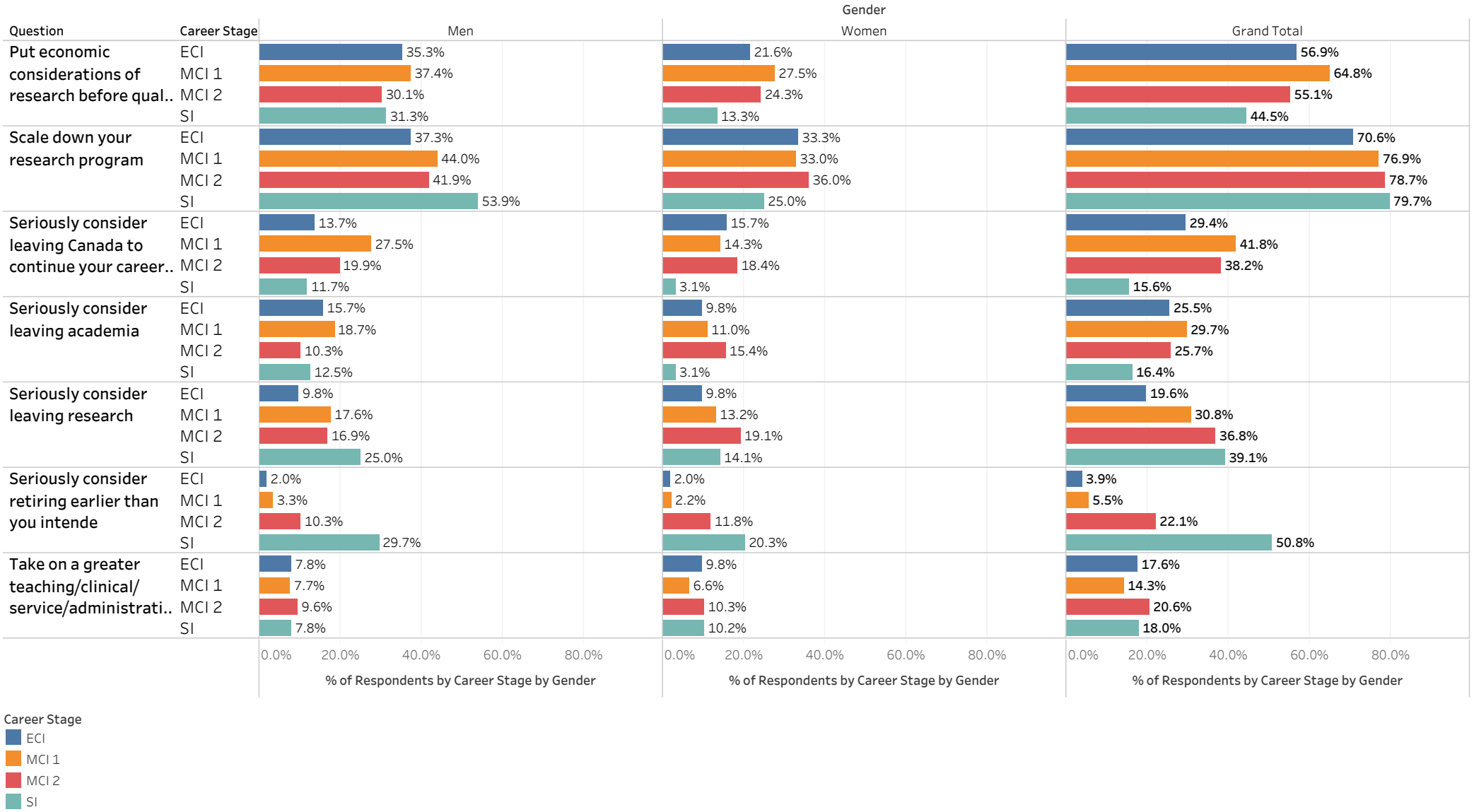
As a result of the current funding environment, have you had to - by Gender:



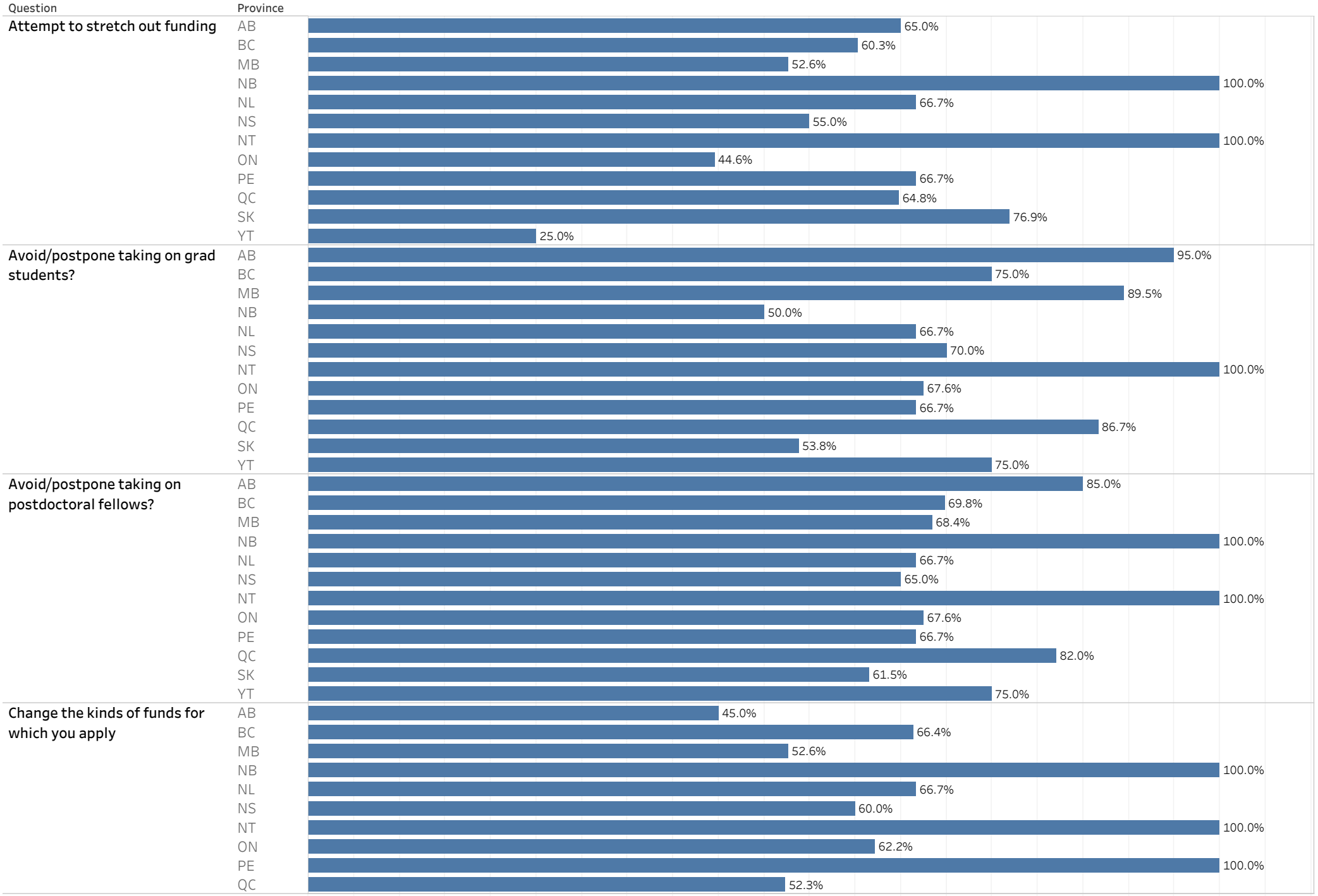
As a result of the current funding environment, have you had to - By Gender and Career Stage



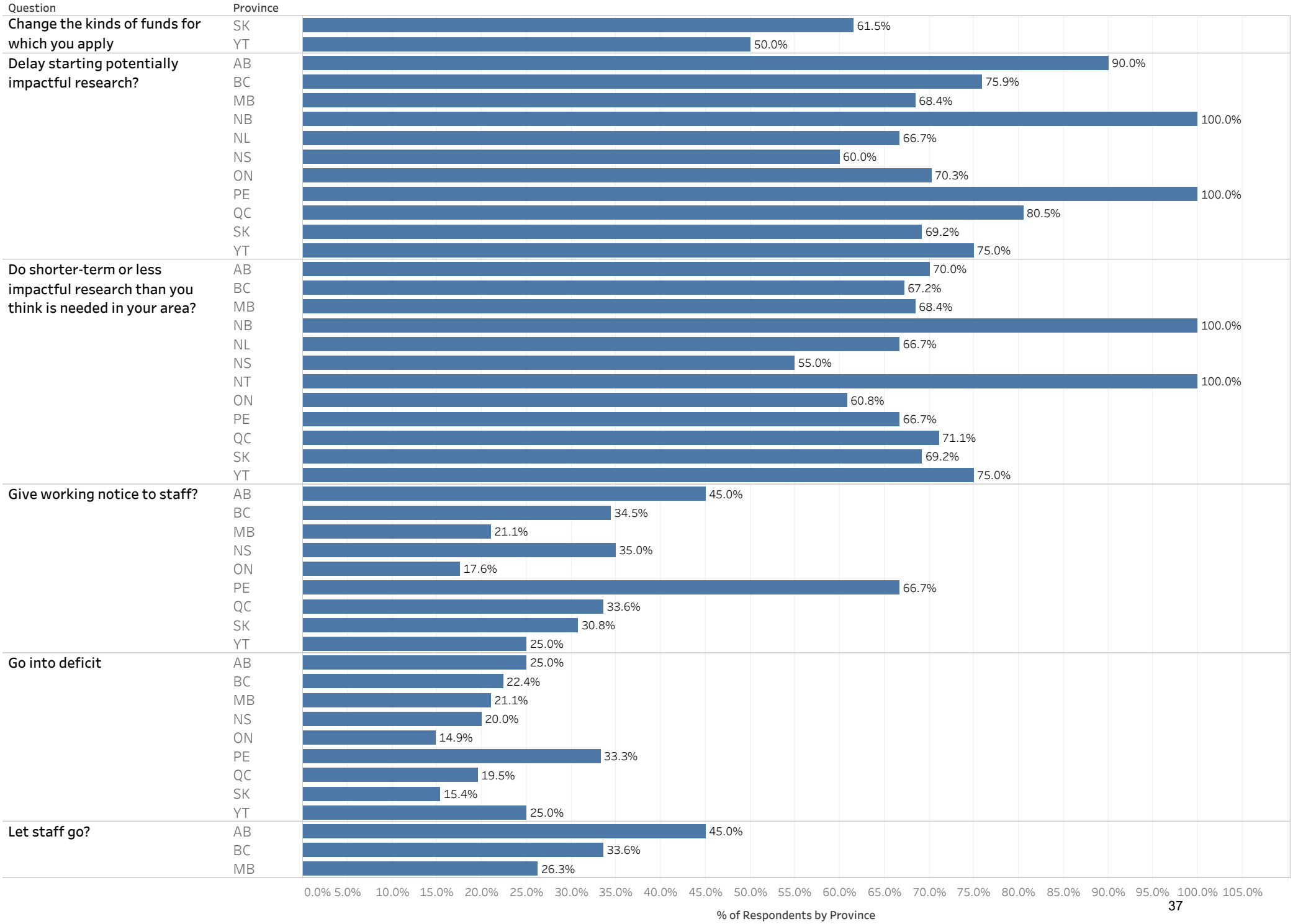
As a result of the current funding environment, have you had to - By Gender and Career Stage



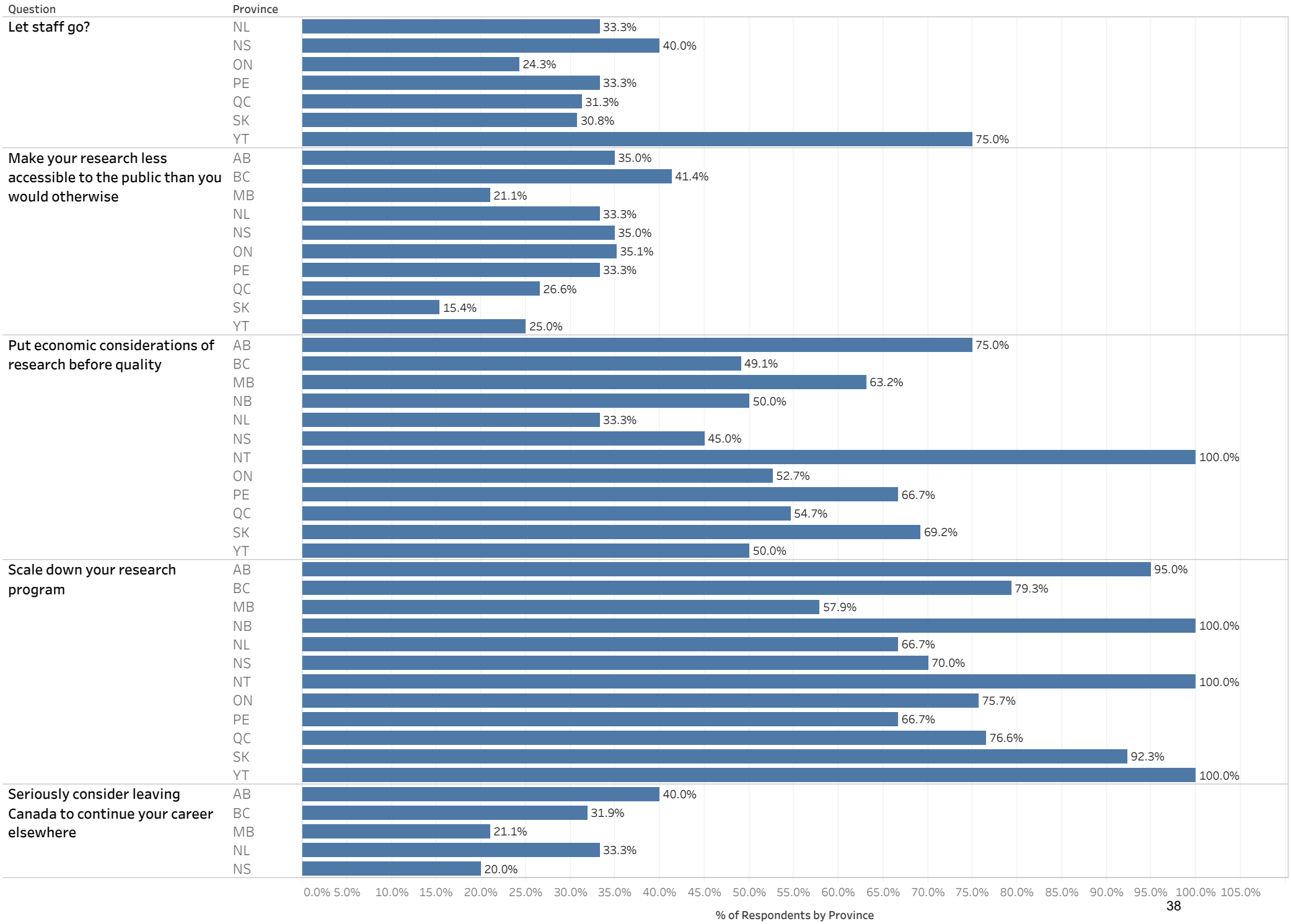
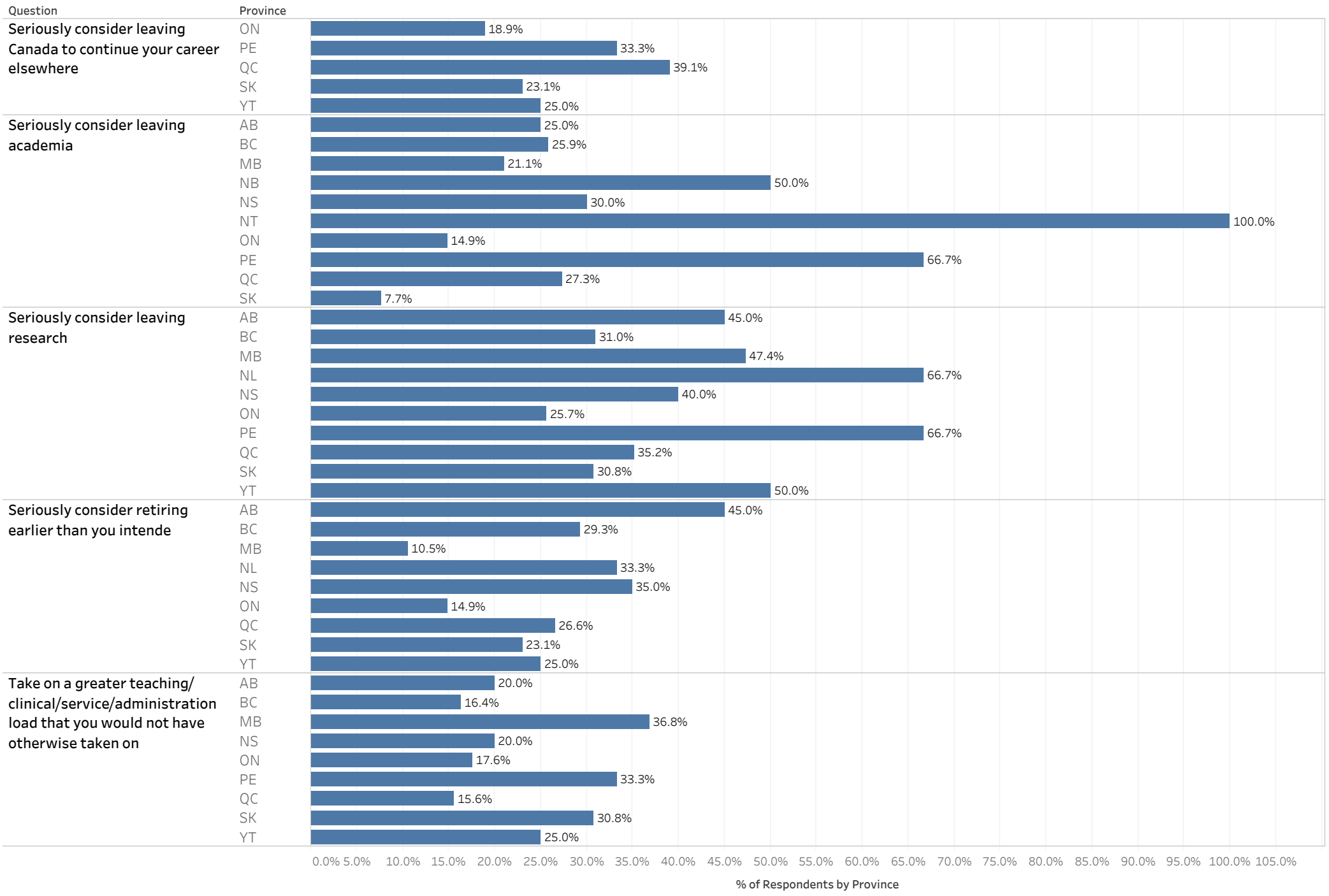
As a result of the current funding environment, have you had to - by Province:



As a result of the current funding environment, have you had to - by Province:



As a result of the current funding environment, have you had to - by Province:



As a result of the current funding environment, have you had to - by Province: