From it's "It's Hell Out There" to being one of the "Lucky Ones": The Trends and Tales of the Canadian Psychology Academic Job Market from 2012-2022

Stephanie G. Craig[1*], Megan E. Ames[2*], Leah Y. Tackaberry-Giddens[1], and Nicole Racine[3]

[1]Department of Psychology, University of Guelph
[2]Department of Psychology, University of Victoria
[3] Department of Psychology, University of Ottawa

[*]denotes shared first authorship

Author Note

Can include ORCID iDs (First Name Middle Initial. Last Name ORCID link)

Funding: N/A

Conflicts: We have no known conflict of interest to disclose.

Acknowledgements: We would like to thank our research assistants Erica Bochene, Ida Dehmardan, Amanda Kerr, Jenny Penney-Moccio, and Devon Rees, who assisted in the Study 1 methodology and coding process.

Corresponding author: Correspondence concerning this article should be addressed to Stephanie C. Craig, University of Guelph, 50 Stone Rd E, Guelph, ON, N1G 2W1.

Email: stephanie.g.craig@uoguelph.ca

Abstract

There is a perception among those on the Canadian Psychology academic job market, that hiring expectations (e.g., number of publications, grants, accomplishments) have increased dramatically over the past decade. However, no data on hiring expectations across all areas of Psychology is available to inform career planning decisions. The purpose of this study was to understand the current psychology academic hiring experience through a mixed-methods approach. Focusing on faculty members hired from 2012-2022, data was collected via 1) an online search of Canadian Psychology departments (Study 1: $N = 439$) and 2) an online survey (Study 2: $N = 74$). *Study 1*. On average, excluding those hired into teaching positions, candidates were on the job market for M=4.05 years and had M=20.25 publications upon hire. These numbers varied depending on the year, gender, and area of research. There was a 24% increase in the number of publications between those hired in 2012-2016 versus 2017-2022. Universities with medical schools were more likely to hire candidates trained in the US compared to comprehensive or undergraduate universities. *Study 2*. In a smaller sample of self-reporting faculty members, research-stream professors took an average of 2.33 years to obtain their first position and reported an average of 15.03 (SD=15.36) total publications upon hire. Thematic analysis of open-ended responses identified the following themes: 1) frustration and hopelessness, 2) location and moving barriers, 3) feelings of "luck," and 4) high standards in the field. Findings will inform current job market expectations and guide students toward successful career choices.

Keywords: psychology; career; jobs; academia; faculty; professors; productivity

Public Significance

- The number of publications upon hire has increased 24% in the past 10 years, with significant increases in Clinical and Developmental Psychology
- It takes on average just over 4 years post-graduation to obtain an academic position in Psychology in Canada
- There is a general feeling of frustration and hopelessness about the Canadian academic Psychology job market, with some feeling lucky to have obtained a position in the last 10 years.

From it's "It's Hell Out There" to being one of the "Lucky Ones": The Trends and Tales of the Canadian Psychology Academic Job Market in the Past 10 Years

Every year, hundreds of individuals obtain doctoral-level degrees in Psychology, with many intending to pursue a career in academia (Votta-Bleeker et al., 2016). It is well understood that obtaining a tenure-track academic position in Psychology at a Canadian institution is a challenging and rigorous undertaking. Indeed, less than one-third of individuals who complete a doctoral degree in Psychology will go on to work in academia and even fewer secure tenure-track positions (Votta-Bleeker et al., 2016). Although many trainees receive informal advice about what it takes to be successful in the academic job market in Psychology from mentors and peers, there is limited objective data identifying trends in characteristics and profiles of those who are successful in obtaining positions. This information is critical to provide a benchmark for prospective trainees as well as for advocacy purposes about the availability of academic positions in Psychology at academic institutions in Canada. This information is also critical for hiring committees to objectively understand candidate qualifications. The purpose of this mixed-method study was to provide a comprehensive analysis of trends in the Canadian Psychology faculty job market, including productivity, training, and demographic trends in hiring practices. We were also interested in the personal experiences of those hired into the Canadian Psychology academic job market to provide context for overall trends.

Data on the demographics and research profiles of those who are successful in obtaining academic positions in Psychology institutions in Canada are sparse. Previous research has pointed to gender and racial/ethnic disparities among success indicators, such as publications and promotion, in academia (Gruber et al., 2021; Odic & Wojcik 2020; Roberts et al., 2020).

Although research in the early 2000s suggested that university professors who were men generally published more than women over the course of their careers, recent research examining the publication productivity of Clinical Psychology professors in Canada suggests that the gender gap may be closing (Krakauer al., 2023). However, findings from a recent study in the United States found that white males have higher rates of academic promotion than females and individuals identifying as racial/ethnic minorities (Xierali et al., 2021). Therefore, we were interested in examining whether there were demographic changes in faculty being hired within Psychology departments in Canada within the past 10 years.

With regard to research productivity and accomplishments, Pennycook and Thompson (2018) examined the publication records of individuals who were hired as assistant professors in Canadian Cognitive Psychology between 2012 and 2016. The authors concluded that the number of publications to be hired has increased by 57% between the windows of 2006-2011 and 2012-2016. In their study, it was found that individuals who had a background in neuroscience and those who obtained their PhDs outside of Canada, fared better in the job market than individuals who studied behaviour and those who received their PhD in Canada. The authors also noted that gender did not predict the number of publications of individuals hired after accounting for other factors, most importantly, the year hired. Pennycook and Thompson (2018) concluded that an increase in students graduating from doctoral programs in Cognitive Psychology paired with the higher number of publications, have made it increasingly difficult to obtain an academic position. To our knowledge, no study to date has investigated the accomplishments required across different domains of Psychology, such as Clinical, Social, Developmental, Forensic, and Industrial Organizational, to name a few. An updated analysis is needed to provide timely information with trainees on what it takes to get an academic position in Psychology in Canada.

Further, hiring committees and university administrators will benefit from understanding hiring trends across Canada.

Beyond demographics and research accomplishments, it is also important to note that there may be barriers to obtaining an academic faculty position in the field of Psychology that are not captured in traditional demographic and productivity metrics. Indeed, recent research has suggested that factors such as work-family conflict (McCutcheon & Morrison, 2018), the COVID-19 pandemic (Davis et al., 2022), and other social factors may be playing a role in advantaging some individuals over others with regard to the attainment of an academic faculty position. Anecdotally, we have noticed a marked increase in the number of grants obtained by post-doctoral fellows before securing a faculty position, which is difficult to capture without copies of CVs. Understanding these non-traditional barriers and CV accomplishments may be critical for informing the assessment of equity among hiring practices in the future.

The Current Study

The goal of the current study was to provide timely information about the trends and changes in the productivity of faculty being hired within Psychology departments in Canada in the last ten years. Specifically, the current study had three specific aims: 1) to identify the demographic characteristics of individuals who were hired within Canadian Psychology departments in the last 10 years; 2) to identify the research profiles (e.g., publications, grants, accomplishments) of individuals hired within Psychology departments in Canada in the past 10 years; and 3) to identify the barriers to obtaining an academic job from the perspective of those who have been hired into Psychology departments in Canada in the last 10 years.

Method

Study 1

Web Search Procedure

The web search study aimed at identifying and collecting information on Psychology professors hired in an Assistant Professor position at a Canadian post-secondary institution within the past decade. Six trained research assistants (RA) each analyzed a subset of Canadian post-secondary institutions for eligible faculty members. Information was collected using online resources, including institutional websites, Google Scholar, Research Gate, faculty lab websites, LinkedIn, and publicly available faculty CVs. The dataset included the institution name, faculty name, and coded information. All faculty profiles were double-coded, with 20% being triple-coded by the study coordinator (LTG). Any discrepancies or uncertainties identified were highlighted and reviewed by the PIs of the study to reach a consensus. Data was further analyzed using SPSS 28.0.

Measures

Pronouns were coded based on identified pronouns in faculty profiles, lab websites, or official articles. If no pronoun could be found, it was considered missing data.

First academic job was coded based on CVs, Linkedin, or other information found on faculty or lab websites. Participants had to have not held a previous academic (i.e., professor, or equivalent “lecturer”) position to be considered a first-time hire. Hospital research positions were not counted as first academic positions unless the person simultaneously held academic positions.

Year hired, year graduated, and location of PhD and first jobs were coded based on information found on faculty websites, CVs or Linkedin profiles. When information could not be found (e.g., year graduated), information was considered missing data.

Area of Psychology were coded based on the area most prominent on the professor's faculty page (e.g., if cross-listed in two areas, the first listed area was coded). Those who did not fit into one of the identified areas were coded as "other" (e.g., cultural, community, psychoeducation).

Number of publications was determined based on Google Scholar, available CVs, and/or Researchgate profiles. Number of publications upon hire included all publications the professor had up to, and including the year hired. Although all publications in the year the professor was hired were unlikely to be published upon their job talk, we counted those in the year they were hired as many, if not all, would be listed as in press, under review, or submitted on academic CVs. The number of publications since hired was counted from the year after they were hired to Winter 2023, when our search took place. For example, if hired in 2013, publications from 2014-2023 were counted.

University coding included several metrics. We coded for 1) the province of the university, 2) the size of the city the university was located in, 3) whether the university was a French- or English-speaking university, and 4) type of university. For university location, we examined province location, collapsing for those in the Maritimes due to low sample sizes in smaller provinces. We also examined the size of the city the university was located in, including rural/ small cities (<100,000 population, e.g., Sydney, Peterborough), medium cities (100,000-1,000,000 population, e.g., Waterloo, Burnaby, Halifax) and large cities (>1,000,000, e.g., Toronto, Vancouver). For types of universities, we coded for universities that did not offer graduate-level psychology programs (labelled undergrad-only; e.g., Brandon University), comprehensive universities (i.e., graduate programs, but no medical school; e.g., University of

Victoria, University of Waterloo), and 4 universities with medical schools (e.g., University of Toronto; McGill; University of British Columbia).

Statistics

All statistics were computed in SPSS Version 28 (IBM Corp., 2021). A series of t-tests, ANOVAs, and chi-squares were used to examine differences in the number of publications upon being hired, the number of publications from being hired to present, and the number of years it took to be hired. We also examined the correlation between the year hired and publication metrics and a multiple regression predicting number of publications upon being hired. Due to the high number of analyses, a Bonferroni correction was applied to all Tukey post-hoc analyses.

Study 2

Online Survey Procedure

To complement Study 1 and to gain a more in depth understanding of barriers to being hired, we conducted an online survey for faculty hired since 2012. Individuals were recruited to participate in an anonymous online survey via social media advertisements, email listservs, publicly available emails, and word-of-mouth from September 2022 to October 2023. Participants were eligible for the study if they 1) held a PhD in Psychology 2) were full-time Psychology professors (e.g., assistant professor, associate professor, etc.) 3) were hired from 2012-2023 3) and were currently working in a Canadian post-secondary institution. No incentives were provided for participation. The University of XXX primarily approved ethics.

Measures

The quantitative survey included demographics (e.g., age, gender, racial identity, province) and information related to training and education, the career trajectory, including year hired, position, postdoctoral fellowship experience, and productivity upon hire and to date (items

adapted from Scholarly Activity Scale; Kahn & Scott, 1997), as well as an open ended question that asked “Please indicate what barriers prevented you for applying for or accepting a position”. To ensure participants’ anonymity, the institution’s name was not collected in the survey.

Statistics

Descriptive (i.e., mean, frequencies) and comparative (i.e., *t*-tests, chi-squared analyses) statistics were conducted in SPSS Version 29 (IBM Corp., 2022). Qualitative data analyses used an inductive approach through reflexive thematic analysis (Braun & Clarke, 2022).

Positionality Statement

Our main research team is comprised of three academic researchers and one ungraduate student across Clinical Psychology disciplines. SC and MA conducted the quantitative analysis. Author1 is a white, cisgender, Canadian resident who is a registered psychologist who is registered to work with children, adolescents, families, and adults. She completed her PhD at a Canadian university. Her research areas bridge Clinical, Developmental, and Forensic Psychology. It took six years for her to obtain a faculty position in Clinical Psychology (with one 6-month bereavement interruption) and interviewed for three academic positions. She had 26 publications and 12 grants as either a PI or co-PI upon being hired. Author2 is a white, cisgender, Canadian resident who is a registered psychologist works with children, adolescents, families, and adults. She completed her PhD at a Canadian university. Her research areas bridge Clinical, Developmental, and Health Psychology. She took six years to obtain a faculty position in Clinical Psychology (with one parental and one academic leave totalling approximately 2 years) and interviewed for three academic positions. Upon being hired, she had 28 publications, and 0 grants. Author4 is a white, cisgender, Canadian resident who is a registered psychologist with children, adolescents and families. She completed her PhD at a Canadian university. Her research

areas bridge Clinical, Developmental, and Health Psychology. She spent six years in a postdoctoral position (one year of parental leave), was on the job market for 2.5 years, and interviewed for six academic positions. Upon being hired, she had 70 publications, and two grants as a PI.[1] Author3 is a current graduate student of Author1.

Results

Study 1

What are the demographics of the sample?

We located pronouns for 90.2% of our sample. Of those whose pronouns were identified, 227 (63.1%) used she/her pronouns, and 133 (36.9%) used he/him pronouns[2] As fewer than 3 identified professors were identified as using they/them or name preferred pronouns, these professors were excluded from gender analysis. For types of universities, 4.0% of our sample came from universities that did not offer graduate-level Psychology programs (i.e., undergrad-only), 41.4% were hired in comprehensive universities (i.e., graduate programs, but no medical school; e.g., University of Victoria, University of Waterloo), and 46.6% were hired in universities with medical schools. Of note, 11.0% came from French-only speaking institutions. In our sample, we identified 27 (6.8%) professors who were deemed "teaching professors" as opposed to "research" professors.

In terms of first jobs, 81.3% of our sample were identified as being in their first job, 18.4% were not in their first job. This did not differ based on area of Psychology or pronouns. In terms of year hired, the overall χ^2 was trending significantly ($p = .08$). When examined by those hired in 2012-2016 versus 2017-2022 there was a significant difference ($\chi^2 = 7.76$, $p = .003$) with

[1] Author3 was a student working on the project and thus does not have a positionality statement

[2] For simplicity, moving forward, we use the term "women" for those using she/her pronouns and "men" for those using he/him pronouns.

10.9% being a non-first time hire in 2012-2016 and 22.8% being a non-first time hire in 2017-2022, representing a 47.8% increase in the number of faculty being hired from previous faculty positions.

What was the average number of publications upon being hired?

Overall, the average number of publications upon hire was 19.56 (SD = 14.52). Due to the significant differences in publications between those in teaching positions (M = 10.11, SD = 9.04) versus those in research positions (M = 20.25, SD = 14.61; t (397) = 3.55, $p < .001$), we removed teaching professors for the remainder of the analyses in Study 1.

The number of publications varied by year (F (10, 361) = 2.21, p = .017; see Figure 1). Post-hoc analysis revealed that those hired in 2020 had a higher number of publications than those hired in 2012. To compare our results to previous studies Pennycook and Thompson, (2018) findings we also examined the correlation between the year hired and the number of publications (r = .18, $p < .001$). Consistent with the approach from Pennycook and Thompson (2018), we examined this increase in the first 5 years to the last 5 years of our datapoints. When examined by those hired from 2012-2016 versus those hired 2017-2022, there was a 27.4% increase in the publications upon being hired. There was a marginally significant difference in the number of publications upon being hired between men (M = 22.86, SD = 16.37) and women (M = 19.65, SD = 13.77; t (338) = -1.94 p = .053). However, there was also a significant gender-by-year interaction, suggesting the gender differences in the number of publications varied across years (F(10, 318) = 2.24, p =.015; see Figure 2 for breakdown by year and gender), with what appears to be a closing gender gap in the last few years.

There was also a marginal difference in the number of publications based on whether the job was the first academic position (M = 19.42, SD = 14.60), with those who held a previous

position having a higher number of publications (M = 23.16, SD = 13.11; t (366) = 1.94, p = .053) than those of first hire. However, this did not differ by year or gender (p >.05).

There was a significant difference in the number of publications based on type of university (F (2,337) = 3.18, p =.043) when comparing undergrad-only universities (M = 14.53, SD = 9.87), comprehensive universities (M = 19.27, SD = 14.12) and universities with medical schools (M = 22.22, SD = 14.43). However, post-hoc analyses were not significant. There was also a significant difference based on location of the university including the size of the city (F (2,369) = 8.43, p < .001) with faculty hired in large cities having a significantly higher number of publications (M = 23.78, SD = 16.01) compared to medium (M = 17.91, SD = *13*.07, p < .001) and small cities (M = 16.40, SD = 12.20; p = .018). There was also a significant difference across provinces (F (2,365) = 4.93, p < .001), with those hired in Saskatchewan and the Maritimes having significantly fewer publications than Ontario (p = .002).

What are the average number of publications by Psychology research area upon being hired?

Most of the sample were hired in Clinical (n = 85; 22.8%), and Cognitive/Neuropsychology (Cog/Neuro; n = 103; 27.7%). The remaining sample was split between Developmental (n = 48; 12.9%), Social (n = 62; 16.7%), Industrial/Organization (IO; n = 15; 4.0%), Health (n = 11; 3.0%), Forensic (n = 9; 2.4%), Quantitative (n = 14; 3.8%), Experimental (n = 10; 2.7%), or other (n = 15; 4.0%). Due to the low sample size and similar number of publications across areas, we collapsed I/O, Health, Forensic, Quantitative, Experimental, and other areas into one category. There was a significant difference in gender across programs (χ^2 (9) = 10.92, p = .05; see Figure 3), with most areas having more women than men with the exception of Cog/Neuro, which was 50.0% split.

There was a significant difference in the number of publications based on area (F (5, 366) = 4.00, p = .002; see Figure 4). The only significant post-hoc test was Clinical and Cog/Neuro hires had significantly more publications than the Other area hires ($p < .05$), and Cog/Neuro had a higher number of publications compared to Social hires ($p < .01$). Results did not differ based on gender. Only two areas significantly increased from 2012-2016 to 2017-2022. Clinical psychology hires had an average of 16.18 publications in 2012-16 and 24.88 publications from 2017-2022 (F (1, 83) = 5.16, p = .03), a 53.77% increase. Developmental psychology went from 13.00 publications in 2012-2016 to 19.35 publications in 2017-2022 (F (1, 46) = 4.24, p = .05), a 48.85% increase.

How long did it take to obtain a position from graduation?

The average number of years to be hired was M = 4.05, SD = 3.22. The number of years to be hired was significantly higher for men (M = 4.56, SD = 3.30) compared to women (M = 3.79, SD = 3.10; t (338) = -2.16, p = .032). There was a significant correlation between year hired and number of years it took to obtain a job (r = .13, p =.02). When comparing the first three years of our review (2012-2014, M = 3.22) to the last three years (2020-2022; M = 4.50) there was a 39.8% increase in the amount of time it took to obtain a faculty position, representing almost a 1.5-year difference in time a candidate may have to spend in a post-doc. There was also a significant difference between areas of Psychology (see Figure 5). Based on a Tukey post-hoc analysis, the only significant difference was that it took longer to obtain a Cog/Neuro position compared to Social and other areas of Psychology ($p < .001$).

Where are professors being educated for their PhD?

Overall, 241 (64.8%) of professors were educated (i.e., PhD) in Canada, with 99 (26.6%) completing their PhD in the US, and 32 (8.6 %) completing their PhD Internationally. Of those

who completed their degree Internationally, 26 (83.9%) were from Europe, with the remaining being from Australia, Israel, and South America. However, this differed significantly by type of university ($\chi^2 = 37.83$, $p < .001$). For undergraduate universities, 93.3% of their professors were Canadian-trained; for comprehensive universities, 76.6% of their faculty were Canadian-trained; and for universities with medical schools, only 48.5% of their faculty hires were Canadian-trained. The remaining hires for medical schools came from the US (43.7%) and Europe (7.8%). There was a significant difference between where a candidate did their PhD and the number of publications (F (2, 368) = 9.62, $p < .001$). When comparing Canadian-trained (M = 18.40, SD = 14.59), US-trained (M = 21.47, SD = 12.14), and European-trained (M = 30.38, SD = 17.55) faculty members in terms of productivity upon being hired, the only significant difference was that those from European programs had more publications than both Canadian- and US-trained ($p <$. 001). There was no difference in training across the years hired. While there was no clear year-by-year trend of hiring non-Canadian trained faculty, the percentage of US-trained professors hired across years was at or above 30% in 2016 (31.3%), 2018 (29.8%), 2021 (30.2%) and 2022 (36.8%).

What are the average number of publications since being hired?

For the average number of publications since being hired, we removed those hired in 2022 as we were interested in publication rates while in an academic position, and those hired in 2022 had just begun their position upon data collection. The average number of publications per year (M = 4.16, SD = 4.84) did not differ based on year hired ($p > .05$), gender ($p > .05$), whether it was the faculty member's first job ($p > .05$), or where they completed their PhD ($p > .05$). It did differ based on area of Psychology (F (5, 327) = 3.81, $p < .001$; see Figure 7). Post-hoc

analysis revealed that Clinical Psychology had a higher number of per year publications compared to all other areas, except Experimental ($p < .05$).

To replicate previous findings (Pennycook & Thompson, 2018) we examined possible predictors of what explains the increase in publication numbers upon being hired. In a regression model (see Table 1), we entered the year hired, the number of years to obtain a job, gender, whether it was their first job, and whether the applicant was Canadian- or US-trained[3]. The model suggests that the year hired and time to obtain a job were independent predictors of the number of publications. Coming from a US PhD program was also an independent predictor (See Table 1).

Study 2

There were 97 entries in the quantitative survey data; however, 14 cases were removed due to incomplete data (less than 50% completion), 1 case was removed due to completion of the survey in less than 2 minutes, and 8 were removed as they did not meet eligibility criteria regarding date of hire (i.e., hired in current position from 2012-2022) resulting in $N = 74$ (76.3% retention rate). Due to the small sample size, we were limited in our ability to power our analyses; as such, most of the analyses presented below are descriptive in nature.

What are the trends/changes in demographics of faculty being hired within Psychology departments over the past 10 years?

The characteristics of the sample are shown in Table 2. Most of our sample identified as women (67.1%), white (87.8%), 27.1% were under age 35, 85.2% were married or living with a partner, and 58.9% had at least one child. Participants represented the Atlantic (10.8%), Central

[3] For the purposes of this analysis, those trained in other countries were removed

(66.2%), Prairies (12.2%), and West (10.8%) regions of Canada. For most participants (71.6%), this was their first academic position.

Most of the sample were in the areas of Clinical (26.0%), followed by Social (16.4%), Developmental (13.7%), Cog/Neuro (13.7%), and other (30.2%; e.g., IO, Health, etc.). In this sample, 26% of the sample were identified as teaching professors, 83.3% of whom identified as women and 73.7% were White. For research professors, 61.1% were women and 94.4% were White. To be consistent with our previous analyses, teaching professors were removed from further analyses.

What are the research profiles of new hires over the last 10 years?

Of the research-stream professors (n = 54), on average, it took 2.33 years (SD = 1.81) to obtain their first position, an average of 1.39 (SD = 0.54) postdoctoral fellowships with M = 2.63 (SD = *1.67*) years in postdoctoral study. Upon hire, based on those that completed the publication and grant section (n = 33), professors reported an average of 7.61 (SD = 6.42) first-authored publications and 15.03 (SD = 15.36) total publications. In terms of grants, the average number of professors with an external grant (e.g., tri-council or other research funding) as principal investigator was 0.87 (SD = 1.53) and as co-investigator was 0.61 (SD = 1.19). It should be noted that only 10 professors held an external grant as a NPA and 11 held a grant as a co-investor.

What are the barriers to getting a job in academia?

For the open-ended barriers question, our analyses categorized responses into four main themes: 1) frustration and hopelessness (n = 10), 2) location and moving barriers (n = 6), 3) feelings of "luck," (n = 5) and 4) references to the high standards in the field (n = 4). With regard to frustration and hopelessness, participants noted a range of negative emotions. For example,

one participant noted feeling “utterly hopeless” with another noting that they are “dissuading [their] graduate students from attempting this [going into academia].” Another noted that they had “totally given up on the chance and left academia” for a period of time. Finally, one participant simply stated, “it’s hell out there.” Several participants noted various difficulties related to location and moving, including where both partners were academics, concerns about moving to another country, and financial strain related to relocation. For example, one participant reported:

> I moved cities once for undergrad, once for grad school, once for internship, and once for my current Assistant Professor position…. The expectation to uproot ourselves multiple times during the prime of our life, all in the hopes of eventually securing an academic position, is a huge barrier for many folks.

Similar to the quantitative results, participants noted barriers related to being away from support networks. The notion of “luck” was also categorized, as some participants felt lucky to enter academia. For example, one participant noted, “I know I’ve been lucky to get a faculty job quickly and then to move to a new school when I wanted to relocate back home… I know lots of other PhD’s who have struggled to get even 1 [position].” However, another noted costs associated with this “luck”:

> I am one of the "lucky ones." But luck in this field means accepting living very far from aging parents, not having family around to support starting one's own family, delaying family planning to the point of having to deal with infertility…

Finally, participants noted the apparent increasing standards in the field: “I've seen too many amazing researchers leave the field because they couldn’t get a position.”

Discussion

This study sought to gain a better understanding of the current demographics, research profiles (e.g., publications, grants, training), and experiences, including barriers, in the Canadian Psychology academic job market through a multi-methods approach. Using a web-search method, demographics results highlighted that women were being hired at a higher rate than men, except for in Cog/Neuro. Overall, women took less time to obtain an academic position, were more likely to be teaching professors, and varied by years as to whether they had more or less publications than men. Research profiles upon hire, as measured by publications, indicated an overall 27.4% increase in the number of publications within the past 10 years. Several factors were related to the number of publications upon hire, including the Psychology area, where an applicant was trained (i.e., Canada, US, vs abroad), and location of the hiring university. Average number of years to obtain a faculty position increased by just under 1.5 years from 3.22 years in 2012-2014 to 4.50 years 2020-2022. This differed depending on area of psychology. Hiring practices related to training location varied by institution type with universities with medical schools hiring more than 50% of their faculty from non-Canadian PhD programs. Finally, when considering the experiences of academics in current positions, themes related to frustration and hopelessness, feeling "lucky," location considerations, and current standards and expectations were identified. We speak to each of these main findings below.

Overall demographics

Women represented a higher percentage of faculty hires than men, with 63.1% of our sample (Study 1) having she/her pronouns. According to the 2015 CPA student survey, 73.6% of graduate student respondents identified as being a woman (Canadian Psychological Association [CPA], 2016). Therefore, men may be entering the academic workforce at a slightly higher rate than women graduating from Canada. Our results suggest this is the case for Clinical Psychology

in particular. As of the 2017-2018 academic year, approximately 13.9% of those who graduated from a Clinical Psychology program identified as a man. In our sample, 27.4% of those obtaining a clinical position were men. Further, there were fewer than three professors (that we could find) that identified as having neither she/her or he/him pronouns, despite the increasing number of diverse students in Psychology programs pointing to a lack of gender diversity among recent hires in Psychology in Canada. It is possible that there is simply a delay from the increase in diverse graduate students to hiring. However, it is also possible that the incredibly high standard currently set for academic positions makes it increasingly difficult for those with diverse backgrounds to obtain a position. While beyond the scope of this paper's finding, discussions around merit-based hiring are becoming increasingly popular and should be considered when new academic positions arise (e.g., Hughes et al., 2012; Orupabo & Mangset , 2022).

We were also unable to determine ethnicity or race based on our web search, however, self-reports of race/ethnicity in our survey revealed that 87% of individuals identified as white. We did not provide a further breakdown of these groups due to small sample sizes. As such, there is a concern with regards to the racial/ethnic diversity of new faculty being hired into Psychology departments in Canada. These findings are in line with much-needed calls to increase diversity among Psychology faculty in Canada and internationally (Faber et al., 2023; Rodriguez-Seijas et al., 2023). Ensuring diverse hiring has become increasingly important, with the Canadian Research Chair (CRC) targets being set for 50% women, 29% racialized minorities, 4.9% Indigenous peoples, and 7.5% persons with disabilities holding chair appointments (Peters, 2022). This is an area that needs further attention and research to ensure Psychology departments represent the students we teach and populations we serve.

Research Productivity

The number of publications for research faculty (e.g., 40-40-20 splits) vs teaching faculty (e.g., 80-20 split) were significantly different in both samples, thus we removed teaching faculty from further analysis. Overall, we found a 27.4% increase in the number of publications from 2012-2016 compared to 2017-2022 (Study 1), with a significant positive correlation between number of publications and year. When examining both studies, it should be noted that applicants appeared to have a higher number of publications in our web search compared to our survey. This is likely due to the differences in methodology in the web search where we counted all publications up until the year a faculty member was hired in order to represent all items on a CV (e.g., those under review, in press), whereas in the survey we only asked participants to indicate how many publications they had when they were hired, without specifying under review/ in press papers. Interestingly, both the web search and survey reveal a very large variance in the number of publications with the standard deviation being around 15 each. We were only able to assess whether applicants had a grant as either principal or co-investigator in our survey data and found just 30% of respondents were a co-investigator on a grant, and about 30% were principal investigators, indicating that holding a grant is not common among those applying for Psychology faculty positions. This highlights the potential differences in hiring expectations based on a number of factors we speak about below.

In comparing our results with previous research on Cognitive Psychology faculty hires from 2006-2016 (Pennycook & Thompson, 2018), there are a striking number of consistencies. Pennycook and Thompson (2018) found a 57% increase in the number of publications when comparing 2006-2011 and 2012-2016. Although Pennycook and Thompson (2018) only examined Cognitive Psychology, the comparison across all areas of Psychology appears to demonstrate that there is a continued increase in the required number of publications to obtain a

faculty position, albeit the rate of publication increase has slowed from around 57% to 27% every five years. We also attempted to replicate Pennycook and Thompson's (2018) findings that the number of publications increased over the years regardless of the number of years in post-doc or other factors. We found similar results in that the year hired independently predicted the number of publications above and beyond the number of years in post-doctoral positions or whether the applicant was US-trained. Our results suggest that applicants should aim for 15-20 publications to be competitive; however, this varies by Psychology area and location, as discussed further below.

Productivity upon hiring (i.e., number of publications) and time to hire also varied by gender, whether it was a first-time applicant, type and location of university hiring, area of psychology, and where they were trained (Canada vs. US vs. other).

It was somewhat unexpected to find no gender difference in the number of publications upon hiring, and in some years, women had a higher number of publications upon hire than men (Krakauer et al., 2023). While women were more likely to be teaching professors, these participants were removed from all further analyses. Thus, this finding does not explain the gender difference across an average number of publications. There is evidence to show that the gender gap is closing in academic Psychology in Canada, with those women in their early- and mid-career producing at the same rate as men (Krakauer et al., 2023). It also took women significantly less time than men to secure a faculty position from the time of graduation, women were publishing at the same rate as men, and there was a significant gender difference in the areas of Psychology. Given that women are more likely to take parental leave during graduate school, in post-doctoral positions, or in their early careers (Morgan et al., 2021), the finding that it took women less time to secure a job and that their publication numbers were similar to men

were somewhat surprising. It is possible that women in Psychology increasingly perceive that they have to work harder than men to achieve similar outcomes and, therefore, are becoming more productive earlier in their careers (Kmec, 2013). Despite these gender differences, women continue to face additional barriers, particularly as post-doctoral fellows (e.g., inability to move, family obligations, maternity leave), that may deter them from continuing on academic trajectories (Ysseldyk et al., 2019). Thus, it is possible that women who are single or have additional privileges (e.g., supportive partners, family support, ability to move) can produce at the same rate as men while managing other gendered expectations (i.e., motherhood, dual roles at home) and are therefore able to pursue academia.

While we were unable to collect data on whether applicants also had children in the web search (Study 1), our survey (Study 2) revealed that 57.3% of respondents had at least one child. This is consistent with the Canadian average based on the 2021 census (58.2%) (Statistics Canada, 2023). Those in married or legal relationships in our sample (83%) were higher than the Canadian average (60.8%) (Statistics Canada, 2023). Similar to the productivity of women prior to obtaining their academic position, we did not find any gender differences in rate of publications since being hired. This is despite the fact that women, on average, engage in more service roles (Guarino & Borden, 2017).

The number of non-first times hires (i.e., held previous academic position) doubled over time from 10.90% to 22.80%. Despite this, those who held previous positions only had marginally more publications. In terms of type of universities, universities with medical schools and any school located in major cities tended to have a higher number of publications. This is somewhat unsurprising given there will be more demand for jobs in metropolitan areas.

Differences across areas of Psychology

We did find a number of differences across areas of psychology with regards to academic outputs and achievements. The number publications required for Clinical and Cog/Neuro were significantly higher than Other areas of psychology, and Cog/Neuro was higher than Social. Of note, two areas had a significant increase in the number of publications upon higher. Clinical psychology saw a 53.77% increase in publications, while Developmental had a 48.45% increase. The number of publications to obtain a Clinical Psychology position is now similar to Cog/Neuro. This is surprising given that most clinical positions require a candidate to be licensed or eligible for licensure in the province. The number of practicum hours required for most clinical programs is 600 (CPA, 2023). However, most students have well above these hours, often working 2-3 days a week clinically for most of their graduate training. They are then required to complete a one-year, full-time internship in a clinical placement (approximately 1800 hours), often with little to no dedicated research time. Further, some provinces, such as Ontario, require an additional year of supervised practice (1500 clinical hours), and all provinces require the successful completion of the EPPP, a jurisprudence exam, and many require an additional oral examination. These combined requirements take the candidate away from research. It is, therefore, unsurprising to find that clinical professors took an average of 4.7 years to be hired in their positions. One potential explanation for the number of publications is the internal and external pressure to produce research in clinical programs to obtain top-ranked internship positions.

Finally, where an applicant was trained appeared to factor into hiring practices, dependent on the type of university. Academia continues to be one of the most prominent jobs for Psychology graduates in Canada with a PhD, with the latest estimates being that 40% of those graduating with a PhD obtaining an academic position (CPA, 2015). This number is substantially

lower for Clinical Psychology programs, where the majority of graduates work as clinicians. However, these estimates are almost 10 years old and will require continued updating. Overall, we found that 64.5% (Study 1) and 77.6% (Study 2) of all hires in research (i.e., non-teaching) positions were training (i.e., obtained their PhD) in Canadian schools. However, universities with medical schools (e.g., Western, McGill, UofT) hired significantly fewer Canadian-trained (48.5%) and more US-trained candidates (43.7%). We share Pennycook and Thompson's (2018) concern regarding the low proportion of Canadian PhD hires and how these results do not bode well for our PhD graduates. While we could not gather data on people's citizenship upon being hired, only 7% of Psychology doctorate recipients in the US were international students in 2016 (Christidis et al., 2018). While it is certainly possible that some faculty members held both American and Canadian citizenship, it is also likely that universities with medical schools are hiring significantly more Americans. While all universities must include the phrase "All qualified candidates are encouraged to apply; however, Canadians and permanent residents will be given priority" (Government of Canada, 2022), universities can rely on the Temporary Foreign Worker Program (Government of Canada, 2023) to override this. The hiring of foreign trained academics is not uncommon with one article finding 70% of all philosophy professors to be trained in the US or Europe in 2009 (Groarke & Fenske, 2009). There continues to be ongoing discontent with these hiring practices.

Ongoing Productivity

Since being hired, the ongoing productivity of professors has been stable from 2012-2022 (Study 1). However, there was a difference across areas of Psychology, Clinical faculty are producing a higher number of publications per year compared to almost all other areas of Psychology (Krakauer et al., 2023). Clinical faculty are also more likely to take on a higher

number of graduate students due to CPA requirements and the popularity of the clinical programs. This increase in students may help faculty publish more manuscripts per year. It should be noted that Clinical faculty also must uphold professional standards to remain accredited by CPA (CPA, 2023) which often includes additional teaching, clinical supervision, and service roles related to professional clinical training.

Our survey and qualitative findings (Study 2) reflect our Study 1 results such that respondents main themes included frustration and hopelessness, location and moving barriers, feelings of luck, and high standards in the field. A number of negative emotions were coded and a lack of confidence in mentoring current trainees to enter academia with powerful quotes such as “dissuading [my] graduate students from attempting [to go into academia]” And “I've seen too many amazing researchers leave the field because they couldn’t get a position”. These feelings are consistent with notions that has found that Canada is experiencing a ‘*brain drain’* largely due to a lack of funding at the doctoral and post-doctoral level (McGowen, 2023). We are hopeful that the recent increase in post-doctoral funding through the tri-council (SSHRC, CIHR, NSERC) to $70,000 may assist those who experience financial strains to continue their pursuits of academia. However, to avoid a brain drain, there also needs to be an increase in academic positions, including replacing those retiring, and either maintaining or growing permanent academic positions. It should be noted that recent statistics have found the number of professors over the age of 65 have grown, while those under 45 have fallen, which limits the opportunities for new hires (Weingarten, 2018). There are also concerns that universities are converting these retired positions to precarious positions such as sessional or term-limited teaching positions who are poorly paid (Brasen, 2014).

Limitations

While this study has several strengths, such as the multi-method and comprehensive triple-coding approach to the web search, it is not without its limitations. For the web search, one limitation was the approach to counting publications. While we considered other approaches to using databases such as Web of Science (Krakauer et al., 2023), we opted to be overly inclusive and to count articles from Google Scholar or ResearchGate. These publicly available data points included a wide range of publication sources rather than restricted to those journals within a database. Although there is a higher chance of human error in counting publications, we accounted for this by having every person's publication numbers double-coded and 20% triple-coded by a third RA. It should also be noted that we included all articles published up until the year the person was hired (e.g., if hired in 2022, publications included those in 2022). This decision was based on our experience of being advised to include any article that was submitted, under review, or close to submission on application CVs. Therefore, we wanted to accurately represent the number of publications on applicant's CVs. Another weakness to the web search approach was availability of information, particularly for those at smaller universities including pronouns and type of position (teaching vs. research). While we were able to gather data from multiple sources (e.g., faculty website, Linkedin, lab websites, ResearchGate) we were only able to find pronouns for 90% of the sample, sometimes relying on news articles to obtain the correct pronouns. We took the pronoun approach as assuming gender based on name or image can be incorrect; however, it meant 10% of our sample had missing data for this point. We were also unable to obtain race/ethnicity data for Study 1. We found that less than 14% of individuals in Study 2 identified as racially or ethnically diverse. These findings are in line with previous research demonstrating the lack of diversity in Psychology in Canada. For teaching positions, some universities clearly stated that a professor was in a teaching role (e.g., University of

Victoria, University of Toronto), while most others did not. Due to our web search approach, it is also probable that we missed a number of people hired from 2012-2022. We relied on publicly available information and often could not find a year hired for every professor in the department. We did not rely on any knowledge that we knew about candidates personally that could not be found online. In terms of the online survey (Study 2), a notable limitation is the sample size, particularly compared to the number of professors identified in the websearch. We relied on both a sample of convenience over social media, however, we also attempted to contact each Psychology department to increase our sample. The low sample size is particularly evident in our reports of the number of publications and grants held. Thus, we interpret these results with caution. Finally, while we attempted to get access to the number of position postings over time, we were unable to access this data from various sources.

Conclusion

Based on our current study, the bar has been consistently raised for all areas of Psychology, with increases particularly salient for those in Clinical and Developmental Psychology. Mental health problems have been noted across Canadian academic faculty with COVID-19 increasing pressures (Bourgeault et al., 2023). Of note, in 2010, a Canadian study found that 24% of their academic participants had substantial psychological distress (Catano et al., 2010). The pandemic may have furthered these issues, particularly for women (Krukowski et al., 2021). These articles highlight the potential negative outcomes of continuing to increase productivity expectations for both new applicants and faculty. Our results also speak to systemic and personal barriers that may prevent talented trainees from entering and growing Psychology in Canada.

Table 1

Regression table predicting number of publications upon being hired for web search (Study 1)

	B	*SEB*	*β*
Year hired	.66	.24	.14**
Time to being hired	1.52	.25	.33***
Gender	.61	1.23	.20
First job	.23	1.96	.01
US PhD	2.64	1.17	.12*

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

Table 2

Characteristics of the online survey sample (Study 2)

	Total ($N = 76$)	**2012-2015** ($n = 15$)	**2016-2019** ($n = 18$)	**2020-2023** ($n = 43$)	χ^2, p-value
Gender (% Woman)	68.0%	40.0%	83.3%	71.4%	7.58, $p = 0.023$
Race (% White)	86.8%	93.3%	83.3%	86.0%	0.77, $p = 0.680$
Country of Origin					4.63, $p = 0.328$
% Canadian	75.0%	86.7%	66.7%	74.4%	
% American	14.5%	6.7%	27.8%	11.6%	
Highest Degree					4.12, $p = 0.390$
% Canadian	77.6%	86.7%	61.1%	81.4%	
% American	19.7%	13.3%	33.3%	16.3%	
Teaching Stream	25.3%	6.7%	29.4%	30.2%	3.46, $p = 0.177$

Figure 1

Average number of publications per year

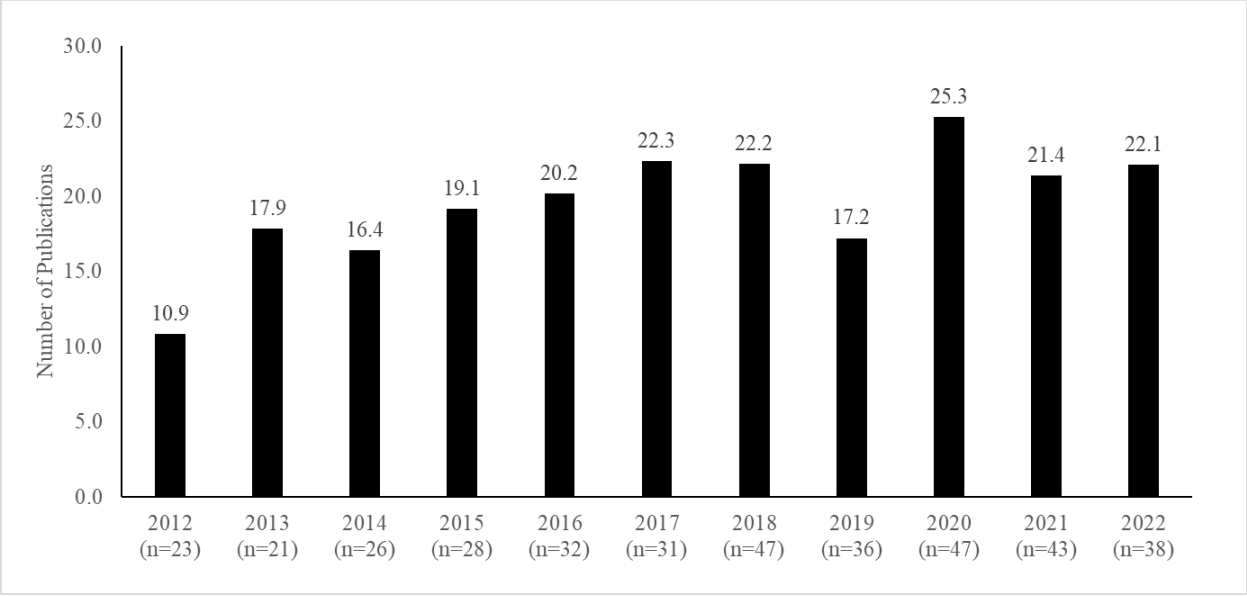


Figure 2

Average number of publications per year by gender

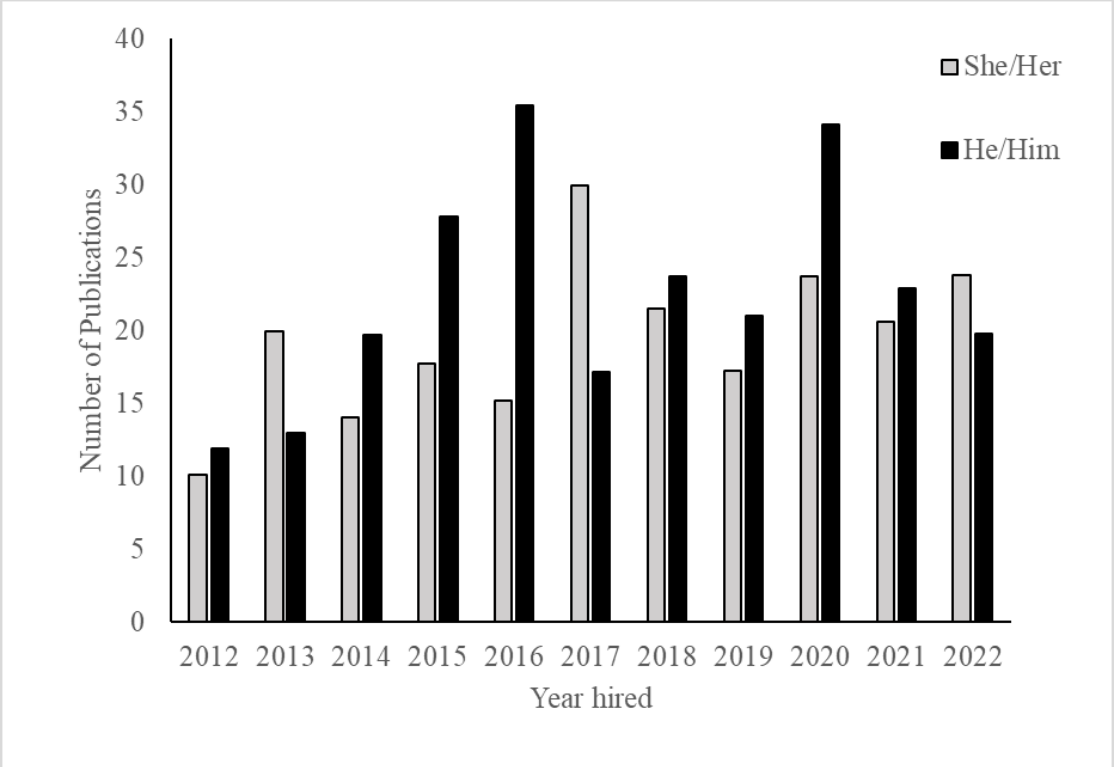


Figure 3

Gender ratios within the areas of Psychology

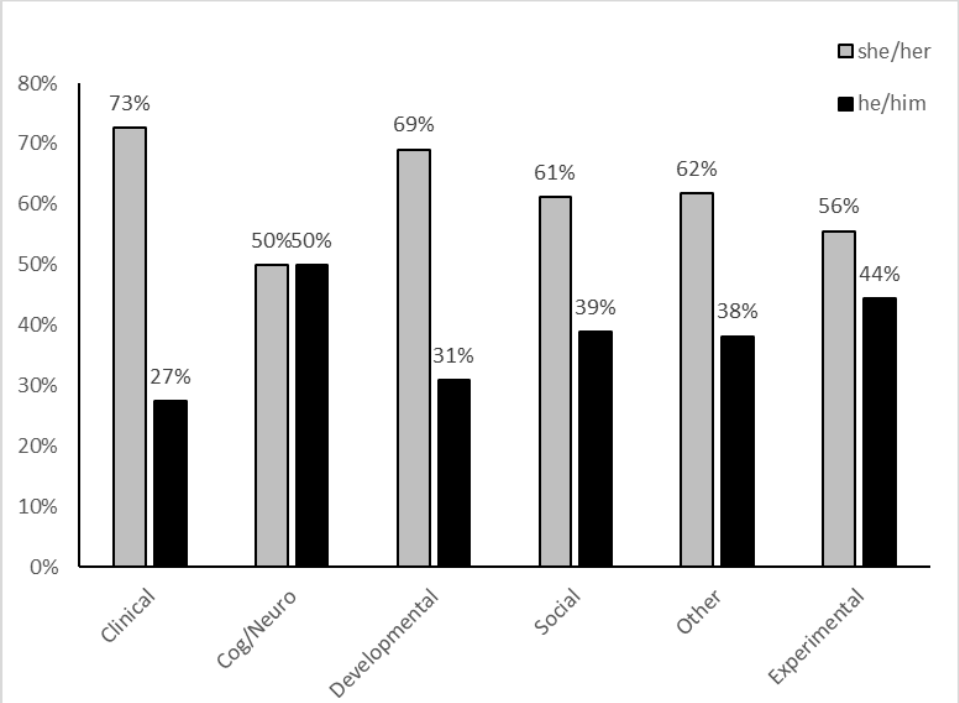


Figure 4

Number of publications based on area of Psychology

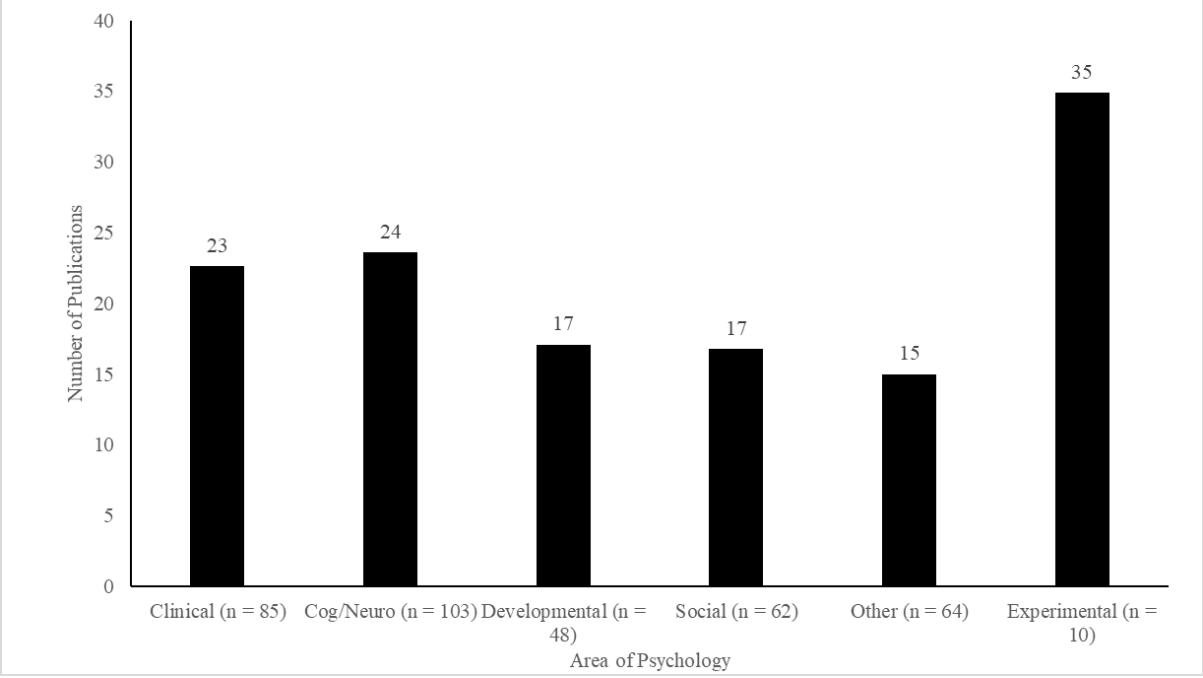


Figure 5

Number of years to be hired by area of Psychology

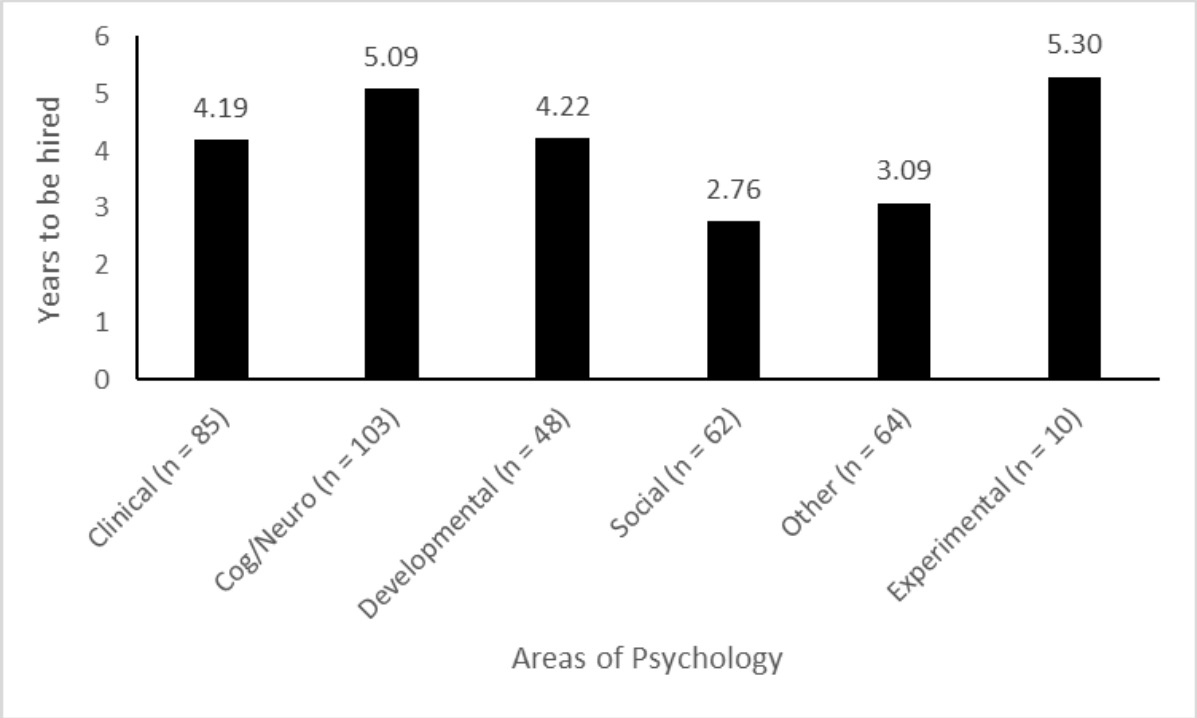


Figure 6

Percent of those who obtained a position that was not their first job

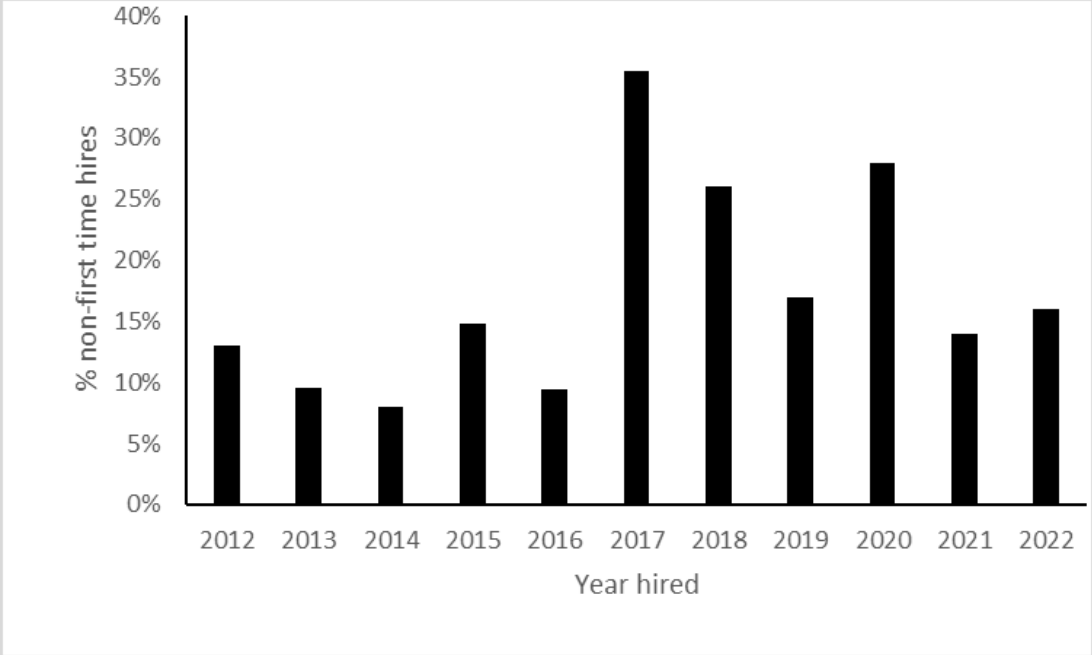
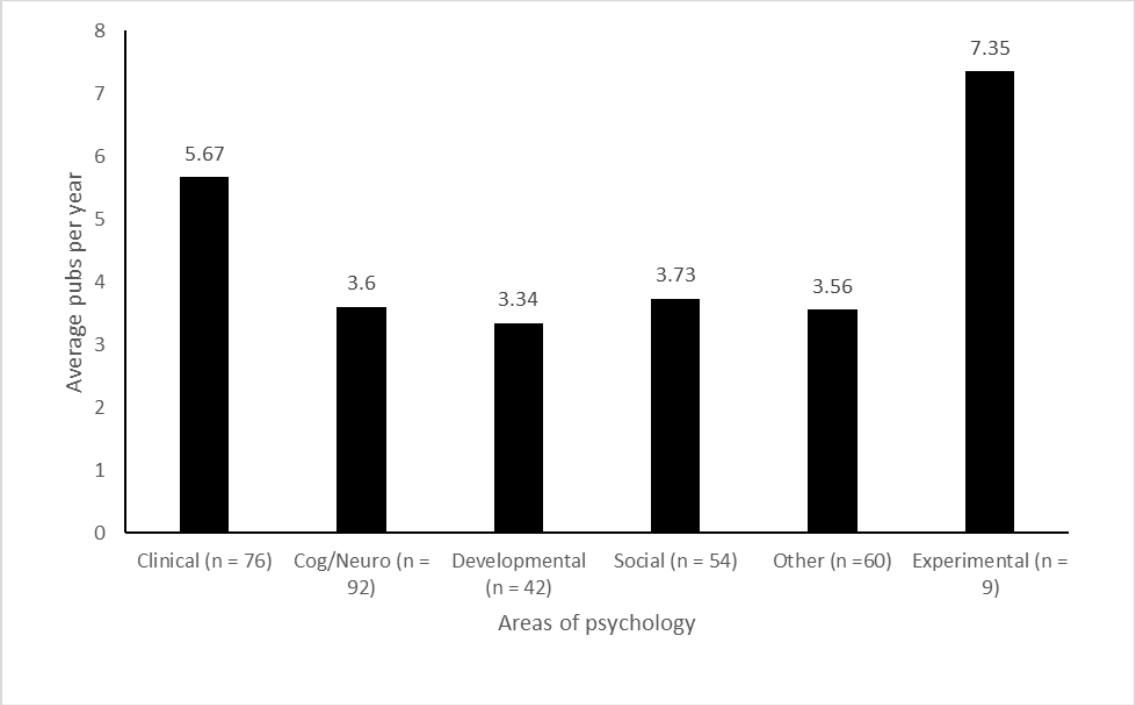


Figure 7

Average number of publications per year based on area of Psychology



References

Basen, I., (2014). *Most university undergrads are now taught by poorly paid part-timers*. CBC News. Retrieved on June 26, 2024 from https://www.cbc.ca/news/canada/most-university-undergrads-now-taught-by-poorly-paid-part-timers-1.2756024

Bourgeault, I., Mantler, J., & Power, N. (2021) Mental health in academia: The challenges faculty face predate the pandemic and require systemic solutions. *Academic Matters.* Retrieved on June 26, 2024 from https://academicmatters.ca/mental-health-in-academia-the-challenges-faculty-face-predate-the-pandemic-and-require-systemic-solutions/

Braun, V., & Clarke, V. (2022). Conceptual and design thinking for thematic analysis. *Qualitative Psychology, 9*(1), 3–26. https://doi.org/10.1037/qup0000196

Canadian Psychological Association. (n.d.). *Annual Report Table 1: Current Faculty – Professional Activities Over the Past Year.* https://cpa.ca/docs/File/Accreditation/Doctoral%20Stats%20-%202017-18.pdf

Canadian Psychological Association. (2023). *Accreditation Standards and Procedures for Doctoral Programmes and Internships in Professional Psychology, Sixth Revision.* https://cpa.ca/docs/File/Accreditation/CPA%202023%20Accreditation%20Standards_EN_Web.pdf

Canadian Psychological Association. (2015). *"Psychology Works" Fact Sheet: Applying To Canadian Graduate Schools.* https://cpa.ca/docs/File/Publications/FactSheets/PsychologyWorksFactSheet_ApplyingToCanadianGraduateSchools.pdf

Canadian Psychological Association. (2016). *2015 Psychology Graduate Survey (PGS): Final Report.* https://cpa.ca/docs/File/Publications/PGS_Final_Report_7Dec2016_ENFinal.pdf

Catano, V., Francis, L., Haines, T., Kirpalani, H., Shannon, H., Stringer, B., & Lozanzki, L. (2010). Occupational stress in Canadian universities: A national survey. *International Journal of Stress Management*, 17(3), 232–258. https://doi.org/10.1037/a0018582

Christidis, P., Lin, L., & Stamm, K. (2018). How many international students earn psychology research doctorates in the U. S.? Monitor on Psychology, 49(6). Retrieved from https://www.apa.org/monitor/2018/06/datapoint

Davis, J. C., Li, E. P. H., Butterfield, M. S., DiLabio, G. A., Santhagunam, N., & Marcolin, B. (2022). Are we failing female and racialized academics? A Canadian national survey examining the impacts of the COVID-19 pandemic on tenure and tenure-track faculty. *Gender, work, and organization, 29*(3), 703–722. https://doi.org/10.1111/gwao.12811

Faber, S. C., Williams, M. T., Metzger, I. W., MacIntyre, M. M., Strauss, D., Duniya, C. G., Sawyer, K., Cénat, J. M., & Goghari, V. M. (2023). Lions at the gate: How weaponization of policy prevents people of colour from becoming professional psychologists in Canada. *Canadian Psychology / Psychologie canadienne,* 64(4), 335–354. https://doi.org/10.1037/cap0000352

Government of Canada. (2022, November 16). *Hire a foreign academic – Recruitment and advertisement.* Retrieved January 23, 2024, from https://www.canada.ca/en/employment-social-development/services/foreign-workers/academic/recruitment.html

Government of Canada. (2023, May 2). *Hire a foreign academic: Overview.* Retrieved January 20, 2024, from https://www.canada.ca/en/employment-social-development/services/foreign-workers/academic.html

Groarke, L, & Fenske, W. (2009) PhD: To what end? Philosophy grads from Canadian universities are at a disadvantage in landing tenure-track jobs. *University Affairs.* Retrieved June 26, 2024 from https://universityaffairs.ca/features/feature-article/phd-to-what-end/

Gruber, J., Mendle, J., Lindquist, K. A., Schmader, T., Clark, L. A., Bliss-Moreau, E., Akinola, M., Atlas, L., Barch, D. M., Barrett, L. F., Borelli, J. L., Brannon, T. N., Bunge, S. A., Campos, B., Cantlon, J., Carter, R., Carter-Sowell, A. R., Chen, S., Craske, M. G., … Williams, L. A. (2021). The Future of Women in Psychological Science. *Perspectives on Psychological Science, 16*(3), 483-516. https://doi.org/10.1177/1745691620952789

Guarino, C.M., & Borden, V.M. (2017). Faculty Service Loads and Gender: Are Women Taking Care of the Academic Family? *Research in Higher Education,* 58(6), 672–694. https://doi.org/10.1007/s11162-017-9454-2

Hughes, A. K., Horner, P. S., & Ortiz, D. V. (2012). Being the Diversity Hire: Negotiating Identity in an Academic Job Search. *Journal of Social Work Education, 48*(3), 595–612. https://doi.org/10.5175/JSWE.2012.201000101

IBM Corp. (2021). IBM SPSS Statistics for Windows, Version 28.0. Armonk, NY: IBM Corp

IBM Corp. (2022). IBM SPSS Statistics for Windows, Version 29.0. Armonk, NY: IBM Corp

Kahn, J. H., & Scott, N. A. (1997). Predictors of Research Productivity and Science-Related Career Goals among Counseling Psychology Doctoral Students. *The Counseling Psychologist, 25*(1), 38-67. https://doi.org/10.1177/0011000097251005

Kmec, J. A. (2013). Why Academic STEM Mothers Feel They Have to Work Harder than Others on the Job. *International Journal of Gender, Science and Technology, 5*(2), 79–101. Retrieved from https://genderandset.open.ac.uk/index.php/genderandset/article/view/277

Krakauer, R. L., Drakes, D. H., Asmundson, A. J. N., & Carleton, R. N. (2023). Assessing the publication productivity of clinical psychology professors in Canadian psychological association-accredited Canadian psychology departments: A 10-year replication study. *Canadian Psychology / Psychologie Canadienne.* https://doi.org/10.1037/cap0000378

Krukowski, R. A., Jagsi, R., & Cardel, M. I. (2021). Academic Productivity Differences by Gender and Child Age in Science, Technology, Engineering, Mathematics, and Medicine Faculty During the COVID-19 Pandemic. *Journal of women's health* (2002), 30(3), 341–347. https://doi.org/10.1089/jwh.2020.8710

McCutcheon, J. M., & Morrison, M. A. (2018). It's "like walking on broken glass": Pan-Canadian reflections on work–family conflict from psychology women faculty and graduate students. *Feminism & Psychology, 28*(2), 231-252. https://doi.org/10.1177/0959353517739641

McGowen, S. (2023). Why Canada is losing the next generation of researchers. *University Affairs.* Retrieved June 26, 2024 from https://universityaffairs.ca/features/feature-article/why-canada-is-losing-the-next-generation-of-researchers/

Morgan, A. C., Way, S. F., Hoefer, M. J. D., Larremore, D. B., Galesic, M., & Clauset, A. (2021). The unequal impact of parenthood in academia. *Science advances, 7*(9), eabd1996. https://doi.org/10.1126/sciadv.abd1996

Odic, D., & Wojcik, E. H. (2020). The publication gender gap in psychology. *American Psychologist -n* https://doi.org/10.1037/amp0000480

Orupabo, J., & Mangset, M. (2022). Promoting Diversity but Striving for Excellence: Opening the 'Black Box' of Academic Hiring. *Sociology, 56*(2), 316–332. https://doi.org/10.1177/00380385211028064

Pennycook, G., & Thompson, V. A. (2018). An analysis of the Canadian cognitive psychology job market (2006–2016). *Canadian Journal of Experimental Psychology / Revue canadienne de psychologie expérimentale, 72*(2), 71–80. https://doi.org/10.1037/cep0000149

Peters, D. (2022, May 26). *Universities are ramping up targeted hiring to meet CRC equity goals.* https://www.universityaffairs.ca/news/news-article/universities-are-ramping-up-targeted-hiring-to-meet-crc-equity-goals/

Roberts, S. O., Bareket-Shavit, C., Dollins, F. A., Goldie, P. D., & Mortenson, E. (2020). Racial Inequality in Psychological Research: Trends of the Past and Recommendations for the Future. *Perspectives on Psychological Science,* 15(6), 1295-1309. https://doi.org/10.1177/1745691620927709

Rodriguez-Seijas, C., McClendon, J., Wendt, D. C., Novacek, D. M., Ebalu, T., Hallion, L. S., Hassan, N. Y., Huson, K., Spielmans, G. I., Folk, J. B., Khazem, L. R., Neblett, E. W., Cunningham, T. J., Hampton-Anderson, J., Steinman, S. A., Hamilton, J. L., & Mekawi, Y. (2024). The Next Generation of Clinical-Psychological Science: Moving Toward Anti-Racism. *Clinical Psychological Science,* 12(3), 526-546. https://doi.org/10.1177/21677026231156545

Statistics Canada. (2023, March 29). *Marital status, age group and gender: Canada and forward sortation areas.* Retrieved January 10, 2024, from https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=9810013301

Votta-Bleeker, L., Tiessen, M., & Murdoch, M. (2016). A snapshot of Canada's psychology graduates: Initial analysis of the 2015 Psychology Graduates Survey. *Canadian Psychology / Psychologie canadienne, 57*(3), 172–180. https://doi.org/10.1037/cap0000059

Xierali, I. M., Nivet, M. A., & Rayburn, W. F. (2021). Full-Time Faculty in Clinical and Basic Science Departments by Sex and Underrepresented in Medicine Status: A 40-Year Review. *Academic medicine : journal of the Association of American Medical Colleges, 96*(4), 568–575. https://doi.org/10.1097/ACM.0000000000003925

Weingarten, H. P., Jonker, L., Kaufman, A. & Hicks, M. (2018). *University Sustainability: Expenditures.* Toronto: Higher Education Quality Council of Ontario.

Ysseldyk, R., Greenaway, K. H., Hassinger, E., Zutrauen, S., Lintz, J., Bhatia, M. P., Frye, M., Starkenburg, E., & Tai, V. (2019). A Leak in the Academic Pipeline: Identity and Health Among Postdoctoral Women. *Frontiers in Psychology, 10*. https://doi.org/10.3389/fpsyg.2019.01297