Evidence Based Library and Information Practice

Factors Associated with the Prevalence of Precarious Positions in Canadian Libraries: Statistical Analysis of a National Job Board

Ean Henninger, Adena Brons, Chloe Riley and Crystal Yin

Article abstract

Objective - To collect and share information about the prevalence of precarious work in libraries and the factors associated with it.

Methods - The authors collected and coded job postings from a nationwide job board in Canada for two years. Descriptive and inferential statistics were used to explore the extent of precarity and its relationship with job characteristics such as job type, institution type, education level, and minimum required experience.

Results - The authors collected 1,968 postings, of which 842 (42.8%) were coded as precarious in some way. The most common types of precarious work were contracts (29.1% of all postings) and part-time work (22.7% of all postings). Contracts were most prevalent in and significantly associated with academic libraries and librarian positions, and they were most often one year in length. Both on-call and part-time work were most prevalent in school libraries and for library technicians and assistants, and they were significantly associated with all institution types either positively or negatively. Meanwhile, precarious positions overall were least prevalent in government and managerial positions. In terms of education, jobs requiring a secondary diploma or library technician diploma were most likely to be precarious, while positions requiring an MLIS were least likely. The mean minimum required experience was lower for all types of precarious positions than for stable positions, and the prevalence of precarity generally decreased as minimum required experience increased.

Conclusion - The proportion of precarious positions advertised in Canada is substantial and seems to be growing over time. Based on these postings, employees with less experience, without advanced degrees, or in library technician and assistant roles are more likely to be precarious, while those with managerial positions, advanced degrees, or more experience, are less likely to be precarious. Variations in precarity based on factors such as job type, institution type, education level, and minimum required experience suggest that employees will experience precarity differently both within and across library systems.

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Research Article

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Introduction

Precarious labour is an employment structure defined by the International Labour Organization as involving:

> uncertainty as to the duration of employment, multiple possible employers or a disguised or ambiguous employment relationship, a lack of access to social protection and benefits usually associated with employment, low pay, and substantial legal and practical obstacles to joining a trade union and bargaining collectively. (2012, p. 27)

Precarious labour takes many forms, all with the potential to produce material and psychological insecurity and vulnerability among workers. Current examples of precarious labour include jobs associated with the gig economy, the trend towards adjunctification in higher education, and the use of temporary and poorly paid workers in farms and processing plants.

Precarious labour also exists in all kinds of libraries and it affects workers at all levels. It can include workers in part-time or full-time positions, temporary or permanent positions, and on-call or auxiliary positions. Although authors in recent years have begun to address

the effects of precarious library work (Henninger, Brons, Riley, & Yin, 2019; Lacey, 2019; Skyrme & Levesque, 2019), there is still very little scholarship documenting the prevalence of precarious work or describing the characteristics of precarious jobs. Accordingly, this article focuses on examining the prevalence of precarious library jobs and the factors associated with them. It begins by situating itself relative to the literature on library job posting analyses and precarious employment. It continues by describing the methodology and the results of a study that involved collecting job postings from a nationwide job board over two years, coding the postings into various categories, and conducting descriptive and inferential statistical analyses. Finally, it discusses the results and their implications for job searching, hiring, employment, and more.

One way of describing the differences between precarious and stable jobs is to establish the prevalence of precarious work, as well as associations within that prevalence, such as education required, years of experience, or job position. Knowing how common precarity is and how it expresses itself within the profession will aid interested parties in imagining and enacting alternatives where desirable.

Literature Review

Although literature on the prevalence and characteristics of precarity in libraries is limited, the research that does explore this topic centers on surveys and analyses of job postings. Surveys are a common method of exploring the prevalence of certain characteristics in library jobs; however, there have been few surveys conducted and published specifically with precarity in mind. In Canadian academic settings, there have been surveys describing the prevalence of precarious work and its negative effects on individuals as well as academic institutions (Pasma & Shaker, 2018; Foster & Birdsell Bauer, 2019), but these surveys determine librarians in precarious contracts to be out of scope, despite the fact that many

librarians are faculty members at such institutions. Bladek (2019) pointed out that this omission is unfortunately common, with few reports or studies on precarity within academia including precariously employed librarians, and with LIS (Library and Information Studies) statistics rarely differentiating between full-time or part-time and temporary or permanent positions (p. 486). In the public context, a recent Canadian Union of Public Employees survey of over 800 public library employees in Canada classified 28% of respondents as precarious and a further 24% as vulnerable to precarity, with 49% in stable or secure positions (CUPE, 2017, p. 26).

In the United States, Wilkinson (2015) surveyed 73 current and former part-time librarians who graduated from MLIS (Masters in Library and Information Studies) programs between 2008-2012 and had held at least one part-time position following graduation (p. 348). For these part-time positions, the majority of respondents worked in academic and public libraries and over 55% worked concurrently in more than 1 position (Wilkinson, 2015, p. 348 & p. 352).

Another common means of exploring trends in library employment and characteristics of library-related jobs is through the analysis of job advertisements. Studies have explored trends in advertisements for librarian positions in areas such as government documents (Sproles & Clemons, 2019), digital initiatives (Skene, 2018), and electronic resources (Ferguson, 2018). Others have explored the relationship between posted qualifications and professional competencies or standards (Gold & Grotti, 2013; Hartnett, 2014; Henricks & Henricks-Lepp, 2014; Maciel, Kaspar, & vanDuinkerken, 2018). Additional studies have focused on assessing the professional skills required in postings for LIS program curriculum development (Messum, Wilkes, Peters, & Jackson, 2016; Wise, Henninger, & Kennan, 2011). However, such studies focus almost exclusively on positions requiring an MLIS degree, and very few explore

or note aspects related to precarity in their analyses.

One exception is a study by Wilkinson (2016), which analyzes 56 part-time librarian positions in Pennsylvania and New Jersey. Wilkinson (2016) found that the postings were primarily from academic libraries (48%) and public libraries (43%), with minimal postings from special libraries (7%) and school libraries (2%) (p. 74). In addition, she found that only 64% of the part-time postings included hours of work; of those that did indicate hours, the most common range was 16-20 hours (25%) (Wilkinson, 2016, p. 75).

Another exception is Maccaferri and Harhai's (2019) study of public library job advertisements, which incorporated an analysis of both part-time postings and postings that did not require an MLIS. Their study covered 1 year's worth of advertisements on a Pennsylvania library email list and analyzed 124 public library postings. Postings were fairly evenly divided between "professional" (MLIS-holding) positions (52.42%) and "non-professional" positions (47.58%) (Maccaferri & Harhai, 2019, p. 12). The study found that 94.35% of all jobs posted were permanent positions (Maccaferri & Harhai, 2019, p. 12). However, "professional positions were predominantly full-time (80%) while non-professional positions were predominantly part-time (86.44%)", representing a stark disparity based on educational level (Maccaferri & Harhai, 2019, p. 13). Unfortunately, the authors did not break down the number of work hours within these part-time positions, nor did they identify on-call or auxiliary postings in the analysis.

Reviewing the literature reveals a significant lack of information about the prevalence and characteristics of precarious library jobs. Despite some studies touching on the issue, the extent of precarity remains under-examined, with most surveys and job advertisement analyses having minimal inclusion of precarious positions. As

well, few studies use inferential analyses, which could enable authors to make generalizations or predictions about the broader population of actual jobs from job postings. According to Harper's (2012) review of 70 job advertisement analyses in LIS, this minimal use of inferential statistics is one criticism of the genre.

The scholarship that does exist primarily focuses on part-time jobs and does not include contract or on-call jobs. In some cases, this limitation may be due to data collection methods, as job aggregators or national email lists may not include part-time or limited-term positions. For example, in a study of entry-level librarian positions, Tewell (2012) captured 1385 postings over a year, of which only 78 (5.6%) were part-time (20 or fewer hours) or temporary (less than 1 year) (p. 414). Wilkinson (2016) concurs that job advertisement analyses often exclude part-time positions, resulting "in a severe lack of reliable information about the duties, hours, and salaries of part-time professionals and paraprofessionals in libraries." (p. 68). This exclusion may result in an overrepresentation of permanent full-time positions in analyses of job advertisements.

This article seeks to address some of these gaps through both descriptive and inferential analyses of a dataset representing two years' worth of job postings from a Canada-wide online job board.

Aims

The aim of this research study is to better understand the prevalence of precarious library work and the factors associated with it, providing insight into the landscape of library employment trends. The research questions for this project are:

- What is the prevalence of precarious library job postings in Canada?
  - Does the prevalence vary based on key characteristics of those postings?

- To what extent are different characteristics of library job postings associated with precarity?
    - Do the characteristics of job postings change based on whether or not a job is precarious or based on the specific type of precarity (i.e., contract, on-call, or part-time)?

Methods

The methodology for this study was initially informed by the authors' status as precarious contract workers themselves. They determined that analyzing advertisements from a single website would be a means of collecting information that was within the scope of their shared capacity. The website chosen for analysis was the *Partnership Job Board*, which is maintained by the British Columbia Library Association to support members of The Partnership, Canada's national network of provincial and territorial library associations.

The authors used a predetermined weekly schedule to review jobs posted on this site over the course of their assigned weeks, entering posting data into a shared spreadsheet, and saving copies of the postings to a shared drive. The authors assigned each posting a job ID (identification) number and then entered additional identifying data consisting of date posted, date closed, job title, institution name, city, and province or territory. They also collected and coded data for aspects of job postings, listed with coding criteria in the Appendix, that were decided a priori to be of potential interest in determining the prevalence of precarity and factors associated with it. Finally, note fields were used to provide any necessary context for how the postings were coded. A total of 1,968 postings were collected over a period of 2 years, from November 15, 2017 to November 14, 2019.

After collecting postings, the authors reviewed the spreadsheet for consistency and recoded postings in two categories. Institution types were recoded to split government positions into

their own category, and a previously existing "special" category was collapsed into "other." Additionally, the majority of the postings coded as "other" under the education level were recoded into other categories. The resulting data set was cleaned to support legibility and data filtering.

The data analysis methods employed consisted of descriptive statistics using Tableau, showing the frequencies and proportions of precarious jobs relative to non-precarious jobs, and inferential statistics using SPSS 25. The data used for inferential analysis consisted of two kinds of variables. There were seven nominal-level variables: three categories with multiple entries defining institution type, job level, or education level respectively, and four dichotomous categories defining whether or not a job was precarious, contract, on-call, or part-time, respectively. There were also two continuous, ratio-level variables, both expressed in months: contract duration and minimum required experience. Due to a tendency in job postings to round both contract length and minimum required experience to the nearest year, these two variables were not normally distributed. Given this, the broader population of actual jobs would likely replicate these non-normal distributions.

The authors performed Pearson chi-square tests for independence to determine if significant differences existed among institution type, job level, and education level, and each of the four dichotomous variables describing whether or not a job was precarious, contract, on-call, or part-time. These tests were appropriate to compare two nominal-level variables consisting of categorical and independent groups.

The authors additionally performed independent-sample Welch's t-tests to look for significant associations between the continuous variable of minimum months of experience required and each of the four dichotomous variables describing whether or not a job was precarious, contract, on-call, or part-time. These

tests were appropriate to compare differences in means between two independent samples where equal variance could not be assumed, and they remain robust for large and unequal sample sizes even when variables are not normally distributed. The authors also calculated confidence intervals for these tests.

In one instance, the authors calculated Spearman's rho to correlate the two ratio-level variables of contract length and minimum required experience. This non-parametric statistic using ranked data was appropriate given the non-normal distribution of these continuous variables.

For these analyses, the authors set the alpha level for statistical significance at $\alpha = 0.011$ based on the equation in Lakens (2018): $\alpha = 0.05/\sqrt{(1968/100)}$. Although α is conventionally set to 0.05 in many settings, sample sizes in this study were easily large enough to make weak effects statistically significant for sufficiently high values of α, increasing the chances of observing an effect where none existed.

Effect size is important to report along with statistical significance because it shows the magnitude of a change that one variable produces on another variable, allowing for more interpretation of that effect's importance. Accordingly, the authors calculated two measures of effect size: Cramer's V for chi-square tests, denoted as ϕ_c, and Hedge's g for t-tests, which was preferred to Cohen's d as it weights effect size based on sample sizes. Differences between means and the sizes of test values ($\chi 2$ and t) relative to other values for the same kinds of tests also give indications of effect size. For chi-square tests, the authors also calculated standardized residuals, which measure the strength of the difference between observed and expected values and show how much each category in a chi-square test contributes to the overall association. At $\alpha = 0.011$, a standardized residual contributes significantly if it lies outside of ± 2.54. As Cohen (1988) discusses, the exact meaning of effect size

depends in part on the context, content, and method of a given study. In the absence of any prior conventions for this kind of study, the authors used the conventions recommended by Cohen for Cramer's V listed in Table 1, and Hedge's g, where small = 0.2, medium = 0.5, and large = 0.8.

Table 1
Conventional Measures of Effect Size for Cramer's V [a]

		df		
		4	5	6
Effect Size	Small	.05	.05	.04
	Medium	.15	.13	.12
	Large	.25	.22	.20

[a] Note. *df* = degrees of freedom for contingency tables created for chi-square tests. Adapted from a table and conventions by Cohen (1988).

Results

Overall Prevalence

Over 2 years, the authors collected 1,968 job postings from the *Partnership Job Board* and coded them according to the methodology. Table 2 shows the overall prevalence of precarity and its subtypes. These subtypes were not mutually exclusive, as all on-call jobs were part-time, many contract jobs were also part-time, and some contract jobs were on-call.

Figure 1 shows that the number of jobs posted by province was uneven, with 955 jobs based in Ontario and 565 in British Columbia, together comprising 77.2% of all jobs posted. Postings from New Brunswick had the highest prevalence of precarious employment (67.4%), followed by Quebec (48.6%), British Columbia (45.7%), and Ontario (44.4%).

As seen in Figure 2, the prevalence of precarity increased from the first year of data collection to the second. In Year 1 (November 15, 2017 to November 14, 2018), precarious jobs made up 39.9% of all jobs posted. In Year 2 (November 15, 2018 to November 14, 2019), precarious jobs

Table 2
Overall Precarity in Dataset

		Type of Posting			
		Precarious (All)	Contract	On-Call	Part-Time
Job Postings	Observed Count	842	572	136	446
	% within Precarious Jobs	100.0%	67.9%	16.2%	53.0%
	% within Total Jobs	42.8%	29.1%	6.9%	22.7%
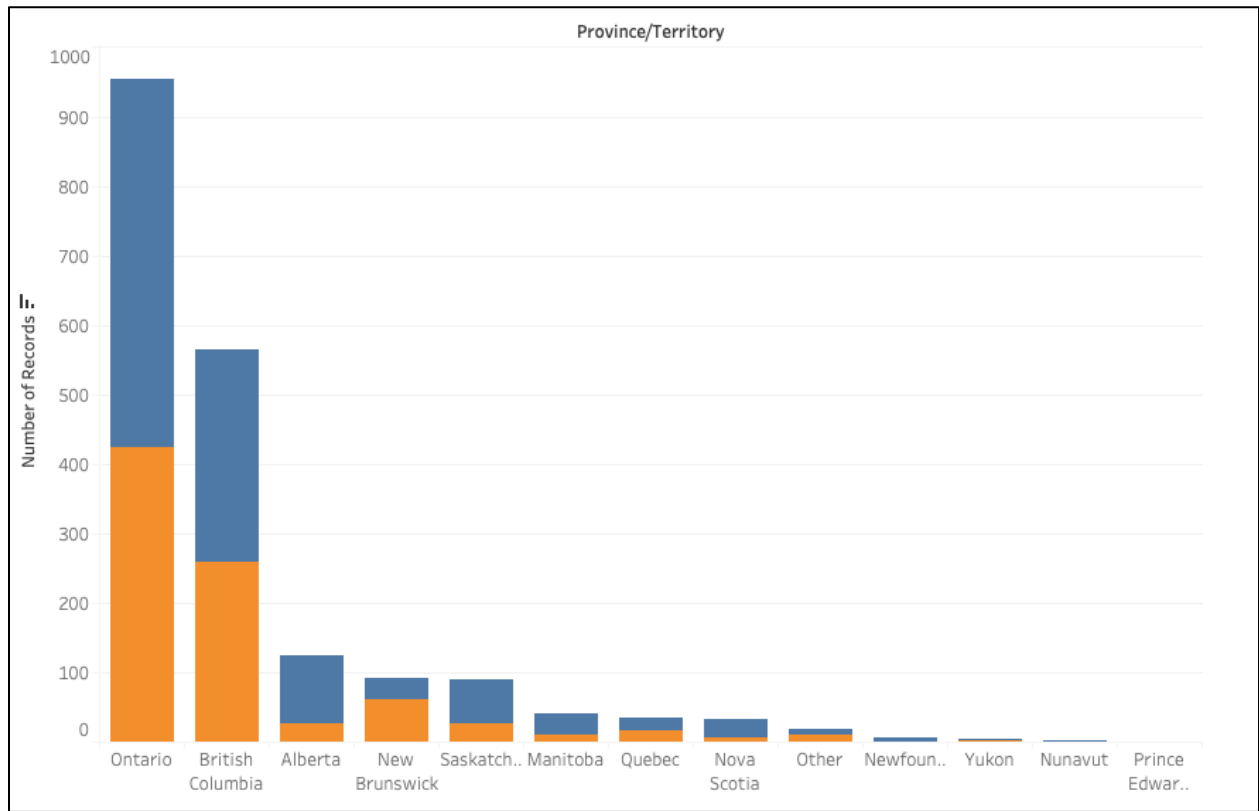
Figure 1
Job postings by precarity and province.
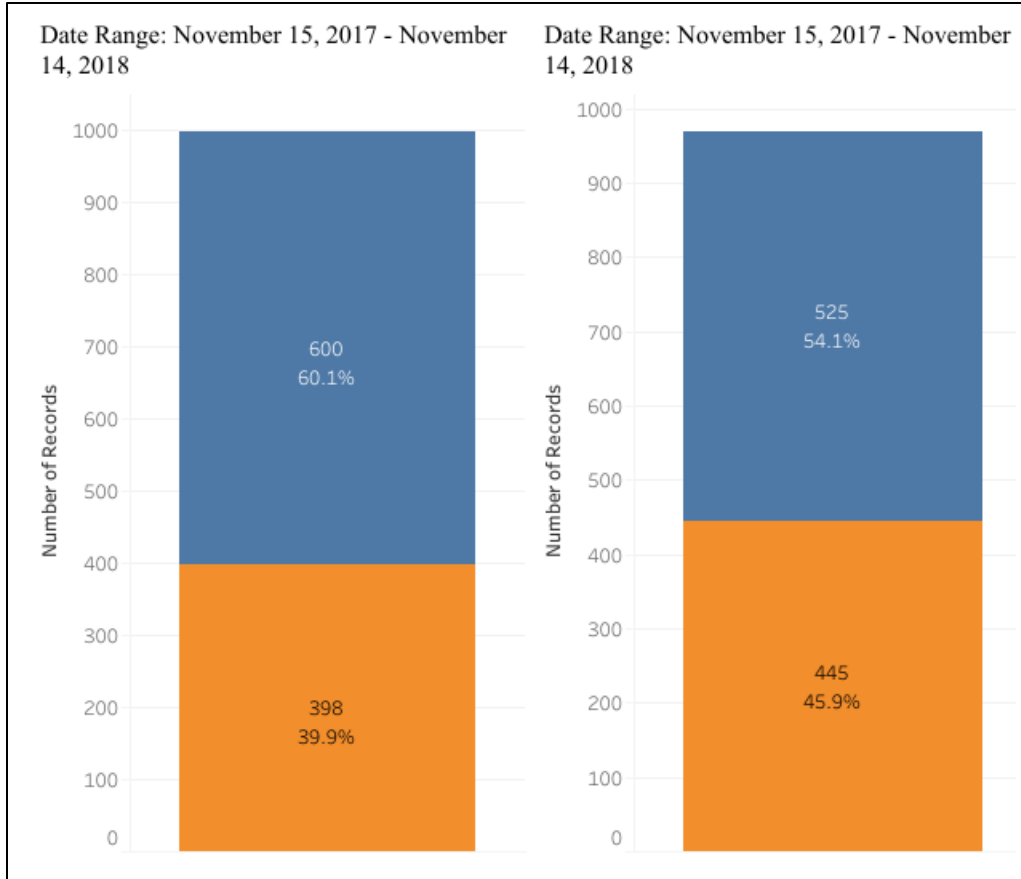
Figure 2
Job postings by precarity and year posted.

made up 45.9% of all jobs posted. Overall job postings were roughly equal in each year, with 998 jobs posted in Year 1 and 970 jobs posted in Year 2.

Institution Type

Of all jobs posted in this period, the majority were from public libraries (55.8%), followed by academic libraries (32.6%). When stable and precarious postings were analyzed by type of institution, as seen in Table 3, precarity was least prevalent among government library jobs (27.6%) and most prevalent among school library jobs (53.1%). The chi-square test showed a significant association between type of institution and whether or not a job was precarious χ^2 (4, N = 1968) = 13.07, p = .011, and the effect size was small, ϕ_c = .08. No single

category of institution significantly contributed to this association, meaning that no category had more or fewer precarious positions than expected.

Limited term contracts were the most prevalent in academic libraries (34.6%), followed by public libraries (26.2%), as seen in Table 4. They were least prevalent in school libraries (18.4%). There was a significant association between type of institution and whether or not a job was a contract χ^2 (4, N = 1968) = 19.20, p = .001, also indicating a small effect size, ϕ_c = .10. Academic libraries were the only significant driver of this association, with more contract postings than expected.

Table 5 shows that on-call postings were most prevalent for school libraries (18.4%) and least

Table 3
Overall Precarity by Institution Type

			Institution Type					
			Public	Academic	Government	School	Other	Total
Job Status	Stable	Observed Count	608	380	63	23	52	1126
		Expected Count	628.8	366.8	49.8	28.0	52.6	1126.0
		% within Institution Type	55.3%	59.3%	72.4%	46.9%	56.5%	57.2%
		Standardized Residual	-.8	.7	1.9	-1.0	-.1	
	Precarious	Observed Count	491	261	24	26	40	842
		Expected Count	470.2	274.2	37.2	21.0	39.4	842.0
		% within Institution Type	44.7%	40.7%	27.6%	53.1%	43.5%	42.8%
		Standardized Residual	1.0	-.8	-2.2	1.1	.1	
Total		Observed Count	1099	641	87	49	92	1968
		% of Total	55.8%	32.6%	4.4%	2.5%	4.7%	100.0%

Table 4
Contracts by Institution Type

			Institution Type					
			Public	Academic	Government	School	Other	Total
Job Status	Ongoing	Observed Count	811	419	66	40	60	1396
		Expected Count	779.6	454.7	61.7	34.8	65.3	1396.0
		% within Institution Type	73.8%	65.4%	75.9%	81.6%	65.2%	70.9%
		Standardized Residual	1.1	-1.7	.5	.9	-.7	
	Contract	Observed Count	288	222	21	9	32	572
		Expected Count	319.4	186.3	25.3	14.2	26.7	572.0
		% within Institution Type	26.2%	34.6%	24.1%	18.4%	34.8%	29.1%
		Standardized Residual	-1.8	2.6	-.9	-1.4	1.0	
Total		Observed Count	1099	641	87	49	92	1968
		% of Total	55.8%	32.6%	4.4%	2.5%	4.7%	100.0%

Table 5
On-Call Jobs by Institution Type

			Institution Type					
			Public	Academic	Government	School	Other	Total
Job Status	Regular	Observed Count	1002	617	86	40	87	1832
		Expected Count	1023.1	596.7	81.0	45.6	85.6	1832.0
		% within Institution Type	91.2%	96.3%	98.9%	81.6%	94.6%	93.1%
		Standardized Residual	-.7	.8	.6	-.8	.1	
	On-Call	Observed Count	97	24	1	9	5	136
		Expected Count	75.9	44.3	6.0	3.4	6.4	136.0
		% within Institution Type	8.8%	3.7%	1.1%	18.4%	5.4%	6.9%
		Standardized Residual	2.4	-3.0	-2.0	3.1	-.5	
Total		Observed Count	1099	641	87	49	92	1968
		% of Total	55.8%	32.6%	4.4%	2.5%	4.7%	100.0%

Table 6
Part-Time Jobs by Institution Type

| | | | Institution Type | | | | | |
			Public	Academic	Government	School	Other	Total
Job Status	Full-Time	Observed Count	796	548	82	26	70	1522
		Expected Count	849.9	495.7	67.3	37.9	71.2	1522.0
		% within Institution Type	72.4%	85.5%	94.3%	53.1%	76.1%	77.3%
		Standardized Residual	-1.9	2.3	1.8	-1.9	-.1	
	Part-Time	Observed Count	303	93	5	23	22	446
		Expected Count	249.1	145.3	19.7	11.1	20.8	446.0
		% within Institution Type	27.6%	14.5%	5.7%	46.9%	23.9%	22.7%
		Standardized Residual	3.4	-4.3	-3.3	3.6	.3	
Total		Observed Count	1099	641	87	49	92	1968
		% of Total	55.8%	32.6%	4.4%	2.5%	4.7%	100.0%

prevalent in government jobs (1.1%). There was a significant association between institution type and whether or not a job was on-call χ^2 (4, N = 1968) = 31.06, $p < .001$, again demonstrating a small effect size, ϕ_c = .13. School libraries contributed significantly to this association, with more on-call postings than expected, as did academic libraries with fewer than expected.

Finally, part-time postings were most prevalent in school library settings (46.9%) and least prevalent in government institutions (5.7%), as seen in Table 6. There was a significant association between type of institution and whether or not a job was part-time χ^2 (4, N = 1968) = 70.18, $p < .001$, indicating a medium effect size, ϕ_c = .19. All institution types significantly contributed to this association, with public and school library positions having more part-time positions than expected, and academic and government positions having fewer.

Job Type

Postings for librarian jobs were the most prevalent type of position represented in the 2-year period (37.4%), followed by managers (23.4%), and technicians (18.4%). Meanwhile, archivist postings were the least prevalent (1.8%). When analyzing the type of position for precarity, as seen in Table 7, precarity was most prevalent among assistant positions (69.8%) and least prevalent among manager positions (14.1%). Precarious manager positions were sometimes due to term limits for head or chief librarians, but the authors still coded these as precarious since they met the technical definition of a limited-term contract. There was a significant association between job type and whether or not a job was precarious χ^2 (5, N = 1968) = 242.00, $p < .001$, representing a very large effect size, ϕ_c = .35. Manager positions were a highly significant contributor to this association with far fewer precarious positions than expected, while assistant and technician positions also contributed with more than expected.

Limited term contracts were most prevalent among archivist and librarian positions (38.9% and 38.7% respectively), as seen in Table 8. There was a significant association between job type and whether or not a job was a contract χ^2 (5, N = 1968) = 118.58, $p < .001$, and the effect size was large, ϕ_c = .25. Manager and librarian positions were significant drivers of this association, with the former being more likely than expected to be contracts, and the latter being more likely than expected to be contracts.

Meanwhile, Table 9 demonstrates that on-call job postings were most prevalent among

Table 7
Overall Precarity by Job Type

			Job Type						
			Librarian	Manager	Technician	Assistant	Archivist	Other	Total
Job Status	Stable	Observed Count	384	396	167	62	20	97	1126
		Expected Count	421.7	263.8	207.1	117.3	20.6	95.5	1126.0
		% within Job Type	52.1%	85.9%	46.1%	30.2%	55.6%	58.1%	57.2%
		Standardized Residual	-1.8	8.1	-2.8	-5.1	-.1	.1	
	Precarious	Observed Count	353	65	195	143	16	70	842
		Expected Count	315.3	197.2	154.9	87.7	15.4	71.5	842.0
		% within Job Type	47.9%	14.1%	53.9%	69.8%	44.4%	41.9%	42.8%
		Standardized Residual	2.1	-9.4	3.2	5.9	.2	-.2	
Total		Observed Count	737	461	362	205	36	167	1968
		% of Total	37.4%	23.4%	18.4%	10.4%	1.8%	8.5%	100.0%

Table 8
Contracts by Job Type

			Job Type						
			Librarian	Manager	Technician	Assistant	Archivist	Other	Total
Job Status	Ongoing	Observed Count	452	408	277	131	22	106	1396
		Expected Count	522.8	327.0	256.8	145.4	25.5	118.5	1396.0
		% within Job Type	61.3%	88.5%	76.5%	63.9%	61.1%	63.5%	70.9%
		Standardized Residual	-3.1	4.5	1.3	-1.2	-.7	-1.1	
	Contract	Observed Count	285	53	85	74	14	61	572
		Expected Count	214.2	134.0	105.2	59.6	10.5	48.5	572.0
		% within Job Type	38.7%	11.5%	23.5%	36.1%	38.9%	36.5%	29.1%
		Standardized Residual	4.8	-7.0	-2.0	1.9	1.1	1.8	
Total		Observed Count	737	461	362	205	36	167	1968
		% of Total	37.4%	23.4%	18.4%	10.4%	1.8%	8.5%	100.0%

Table 9
On-Call Jobs by Job Type

			Job Type						
			Librarian	Manager	Technician	Assistant	Archivist	Other	Total
Job Status	Regular	Observed Count	689	459	315	178	36	155	1832
		Expected Count	686.1	429.1	337.0	190.8	33.5	155.5	1832.0
		% within Job Type	93.5%	99.6%	87.0%	86.8%	100.0%	92.8%	93.1%
		Standardized Residual	.1	1.4	-1.2	-.9	.4	.0	
	On-Call	Observed Count	48	2	47	27	0	12	136
		Expected Count	50.9	31.9	25.0	14.2	2.5	11.5	136.0
		% within Job Type	6.5%	0.4%	13.0%	13.2%	0.0%	7.2%	6.9%
		Standardized Residual	-.4	-5.3	4.4	3.4	-1.6	.1	
Total		Observed Count	737	461	362	205	36	167	1968
		% of Total	37.4%	23.4%	18.4%	10.4%	1.8%	8.5%	100.0%

Table 10
Part-Time Jobs by Job Type

			Job Type						
			Librarian	Manager	Technician	Assistant	Archivist	Other	Total
Job Status	Full-Time	Observed Count	621	440	201	91	34	135	1522
		Expected Count	570.0	356.5	280.0	158.5	27.8	129.2	1522.0
		% within Job Type	84.3%	95.4%	55.5%	44.4%	94.4%	80.8%	77.3%
		Standardized Residual	2.1	4.4	-4.7	-5.4	1.2	.5	
	Part-Time	Observed Count	116	21	161	114	2	32	446
		Expected Count	167.0	104.5	82.0	46.5	8.2	37.8	446.0
		% within Job Type	15.7%	4.6%	44.5%	55.6%	5.6%	19.2%	22.7%
		Standardized Residual	-3.9	-8.2	8.7	9.9	-2.2	-1.0	
Total		Observed Count	737	461	362	205	36	167	1968
		% of Total	37.4%	23.4%	18.4%	10.4%	1.8%	8.5%	100.0%

assistants (13.2%), and technicians (13.0%). They were least common for archivists (0.0%), and managers (0.4%), while librarians were close to the average at 6.5%. There was a significant association between job type and whether or not a job was on-call χ^2 (5, $N = 1968$) = 66.18, $p < .001$, indicating a medium effect size, $\phi_c = .18$. This association was significantly driven by manager jobs, which were much less likely to be on-call than expected, and by technician and assistant jobs, which were more likely to be on-call than expected.

Part-time job postings, as seen in Table 10, were very prevalent among assistants (55.6%) and technicians (44.5%). They were least prevalent among managers (4.6%) and archivists (5.6%). There was a significant association between job type and whether or not a job was part-time χ^2 (5, N = 1968) = 338.81, $p < .001$, indicating a very large effect size, ϕ_c = .42. This association was significantly driven by jobs of every type except for archivists, with manager and librarian jobs being less likely than expected to be part-time, and technician and assistant jobs more likely.

Education level

The authors excluded 75 postings from the analysis of education levels; 73 jobs that did not specify any educational qualifications and 2 postings that specified a minimum of Grade 10 education. Of the postings with required educational qualifications (n = 1893), jobs requiring a MLIS or equivalent were the most common (58.6%) and jobs requiring a library technician diploma were the next most common (22.6%). When looking at precarity and education level as seen in Table 11, precarious postings were most prevalent among jobs requiring some library coursework (90.6%) and jobs requiring a secondary diploma (85.7%). Rates were substantially lower for all other categories, with the lowest rate among jobs requiring a MLIS (35.3%). There was a significant association between educational level and whether or not a job was precarious χ^2 (6, N = 1893) = 98.18, $p < .001$, and the effect size was large, ϕ_c = .23. Jobs requiring some library coursework, secondary diplomas, library technician diplomas, or MLIS degrees were all significant drivers of this association. Jobs with MLIS degrees were less likely to be precarious than expected, while the rest were more likely than expected.

Limited term contracts were by far most prevalent among positions requiring some library coursework, comprising 78.1% of those positions as seen in Table 12, and likely

reflecting that many of these postings were meant to be completed during a library degree. They were least prevalent among jobs requiring other postsecondary degrees (22.0%) and library technician diplomas (22.7%). There was a significant association between educational level and whether or not a job was a contract χ^2 (6, N = 1893) = 53.50, $p < .001$, representing a medium effect size, ϕ_c = .17. Jobs requiring some library coursework were the only significant contributors to this association, being more likely than expected to be contracts.

Table 13 demonstrates that the on-call employment structure was most prevalent among postings requiring secondary diplomas (17.1%), some library coursework (12.5%), and library technician diplomas (11.4%). Meanwhile, no on-call jobs required a MAS (Master of Archival Studies) (0.0%). There was a significant association between educational level and whether or not a job was on-call χ^2 (6, N = 1893) = 40.17, $p < .001$, and the effect size was medium, ϕ_c = .15. However, 4 cells in this test (28.6%) had an expected count of less than 5, resulting in a substantial loss of statistical power. Jobs requiring library technician diplomas or MLIS degrees were the only significant drivers of this association, with the former being more likely and the latter being less likely than expected to be on-call.

Part-time jobs were extremely prevalent among postings that required a secondary diploma (80.0%), as seen in Table 14. Part-time postings were least prevalent when requiring a MAS or MLIS degree (7.7% and 10.4% respectively). There was also a significant association between educational level and whether or not a job was part-time χ^2 (6, n = 1893) = 283.01, $p < .001$, indicating a very large effect size, ϕ_c = .39. Postings requiring library technician diplomas and secondary diplomas significantly contributed to this association by being more likely than expected to be part-time, as did postings requiring an MLIS, which were less likely than expected to be part-time.

Table 11
Overall Precarity by Education Level

| | | | Education Level | | | | | | | |
			MLIS or equivalent	Lib tech diploma/ equivalent	Other postsecondary	MLIS/ lib tech diploma	Secondary diploma	Some library coursework	MAS or equivalent	Total
Job Status	Stable	Observed Count	718	205	123	28	5	3	16	1098
		Expected Count	643.3	248.3	121.2	31.3	20.3	18.6	15.1	1098.0
		% within Education	64.7%	47.9%	58.9%	51.9%	14.3%	9.4%	61.5%	58.0%
		Standardized Residual	2.9	-2.7	.2	-.6	-3.4	-3.6	.2	
	Precarious	Observed Count	391	223	86	26	30	29	10	795
		Expected Count	465.7	179.7	87.8	22.7	14.7	13.4	10.9	795.0
		% within Education	35.3%	52.1%	41.1%	48.1%	85.7%	90.6%	38.5%	42.0%
		Standardized Residual	-3.5	3.2	-.2	.7	4.0	4.2	-.3	
Total		Observed Count	1109	428	209	54	35	32	26	1893
		% of Total	58.6%	22.6%	11.0%	2.9%	1.8%	1.7%	1.4%	100.0%

Table 12
Contracts by Education Level

| | | | Education Level | | | | | | | |
			MLIS or equivalent	Lib tech diploma/ equivalent	Other postsecondary	MLIS/ lib tech diploma	Secondary diploma	Some library coursework	MAS or equivalent	Total
Job Status	Ongoing	Observed Count	782	331	163	37	21	7	18	1359
		Expected Count	796.2	307.3	150.0	38.8	25.1	23.0	18.7	1359.0
		% within Education	70.5%	77.3%	78.0%	68.5%	60.0%	21.9%	69.2%	71.8%
		Standardized Residual	-.5	1.4	1.1	-.3	-.8	-3.3	-.2	
	Contract	Observed Count	327	97	46	17	14	25	8	534
		Expected Count	312.8	120.7	59.0	15.2	9.9	9.0	7.3	534.0
		% within Education	29.5%	22.7%	22.0%	31.5%	40.0%	78.1%	30.8%	28.2%
		Standardized Residual	.8	-2.2	-1.7	.5	1.3	5.3	.2	
Total		Observed Count	1109	428	209	54	35	32	26	1893
		% of Total	58.6%	22.6%	11.0%	2.9%	1.8%	1.7%	1.4%	100.0%

Table 13
On-Call Jobs by Education Level

			Education Level							
			MLIS or equivalent	Lib tech diploma/ equivalent	Other postsecondary	MLIS/ lib tech diploma	Secondary diploma	Some library coursework	MAS or equivalent	Total
Job Status	Regular	Observed Count	1065	379	195	49	29	28	26	1771
		Expected Count	1037.5	400.4	195.5	50.5	32.7	29.9	24.3	1771.0
		% within Education	96.0%	88.6%	93.3%	90.7%	82.9%	87.5%	100.0%	93.6%
		Standardized Residual	.9	-1.1	.0	-.2	-.7	-.4	.3	
	On-Call	Observed Count	44	49	14	5	6	4	0	122
		Expected Count	71.5	27.6	13.5	3.5	2.3	2.1	1.7	122.0
		% within Education	4.0%	11.4%	6.7%	9.3%	17.1%	12.5%	0.0%	6.4%
		Standardized Residual	-3.2	4.1	.1	.8	2.5	1.3	-1.3	
Total		Observed Count	1109	428	209	54	35	32	26	1893
		% of Total	58.6%	22.6%	11.0%	2.9%	1.8%	1.7%	1.4%	100.0%

Table 14
Part-Time Jobs by Education Level

|			Education Level							
			MLIS or equivalent	Lib tech diploma/ equivalent	Other postsecondary	MLIS/ lib tech diploma	Secondary diploma	Some library coursework	MAS or equivalent	Total
Job Status	Full-Time	Observed Count	994	245	158	34	7	19	24	1481
		Expected Count	867.6	334.8	163.5	42.2	27.4	25.0	20.3	1481.0
		% within Education	89.6%	57.2%	75.6%	63.0%	20.0%	59.4%	92.3%	78.2%
		Standardized Residual	4.3	-4.9	-.4	-1.3	-3.9	-1.2	.8	
	Part-Time	Observed Count	115	183	51	20	28	13	2	412
		Expected Count	241.4	93.2	45.5	11.8	7.6	7.0	5.7	412.0
		% within Education	10.4%	42.8%	24.4%	37.0%	80.0%	40.6%	7.7%	21.8%
		Standardized Residual	-8.1	9.3	.8	2.4	7.4	2.3	-1.5	
Total		Observed Count	1109	428	209	54	35	32	26	1893
		% of Total	58.6%	22.6%	11.0%	2.9%	1.8%	1.7%	1.4%	100.0%
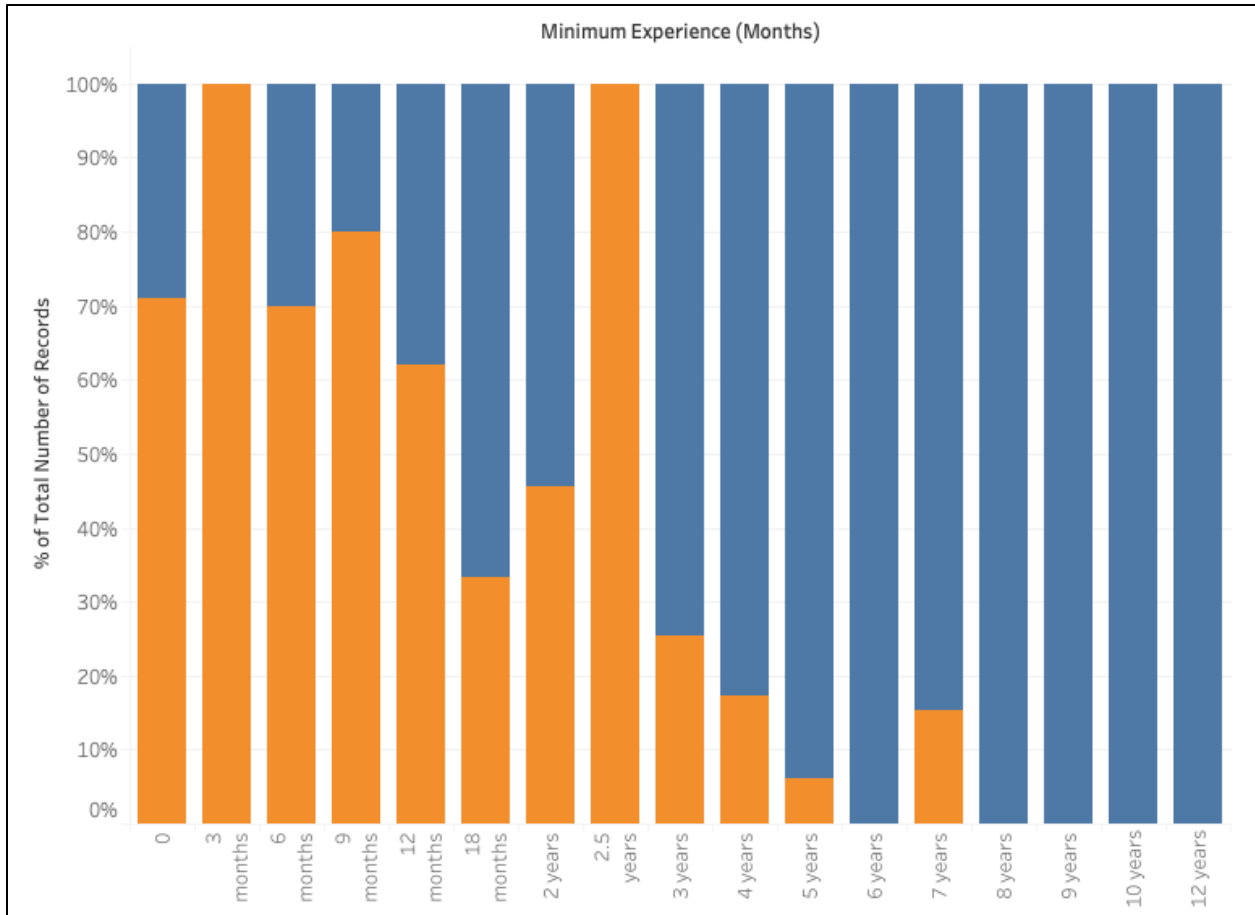
Figure 3
Job postings by precarity and minimum required experience.

Minimum required experience

Almost half of postings (*n* = 890, 45.2%) did not specify the minimum experience required for the position and were excluded from this analysis. Of the remaining postings (*n* = 1078, 54.8%), the prevalence of precarity generally decreased as experience increased, as seen in Figure 3. Of the postings that required less than 1 year of experience (*n* = 88), 71.63% were precarious. Of the postings requiring 1 year of experience (*n* = 162), 62.3% were precarious. For positions requiring more than 1 year of experience (*n* = 828), only 27.5% were precarious.

For the postings that listed a minimum required amount of experience, t-tests showed that on average the non-precarious jobs (*M* = 41.07, SE = 0.91) required more months of experience than precarious jobs did (*M* = 21.48, *SE* = 0.72). This difference of -19.59 months, 98.9% CI [-22.54, -16.63], was significant $t(1073.58) = -16.88$, $p < .001$, demonstrating a large effect size, $g = 0.94$. Ongoing jobs (*M* = 36.92, *SE* = 0.82) required more months of experience on average than contract jobs (*M* = 23.75, *SE* = 1.02). The difference of -13.17 months, 98.9% CI [-16.52, -9.82], was also significant $t(580.75) = -10.03$, $p < .001$, and represented a medium effect size, $g = 0.59$. On average, jobs with stable hours (*M* = 34.95, *SE* = 0.72) required more months of experience than on-call jobs (*M* = 15.71, *SE* = 1.55). This difference of -19.24 months, 98.9% CI [-23.68, -14.80], was significant $t(79.50) = -11.28$, $p < .001$, showing a large effect size, $g = 0.86$.
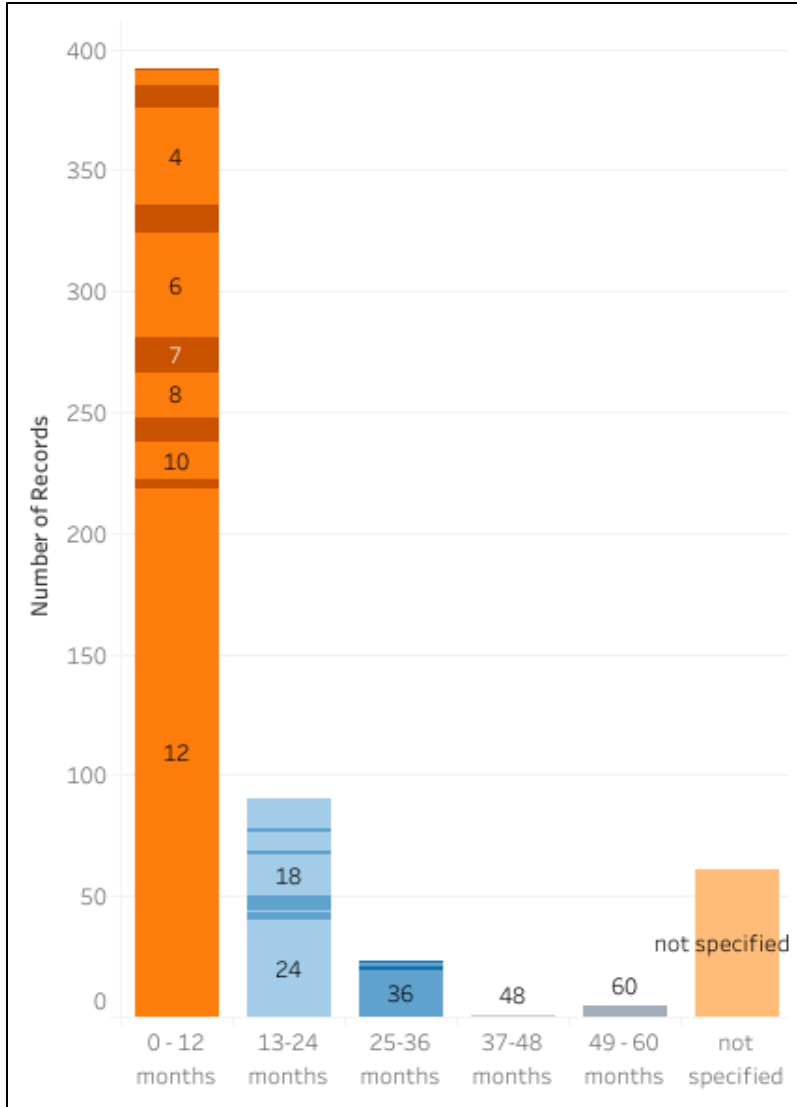
Figure 4
Contract positions by contract duration.

Finally, full-time jobs (*M* = 37.85, *SE* = 0.80) required more months of experience on average than part-time jobs (*M* = 18.54, *SE* = 0.70). The difference of -19.31 months, 98.9% CI [-22.03, -16.60] was significant $t(806.37) = -18.14$, $p < .001$, and had a large effect size, $g = 0.90$.

Contract Length

Temporary positions comprised 29.1% (n = 572) of the total postings. The authors coded these postings according to contract length as described in the Appendix and as seen in Figure 4. One-year contracts were by far the most common, comprising 38.1% of all temporary positions. An additional 30.4% of contracts were for less than 1 year. For job postings that reported both contract length and the minimum months of experience required (*n* = 214), Spearman's rho found a significant correlation between the 2 variables, $p < .001$, and a small effect size, $r_s = .25$, meaning that contract length tended to increase along with minimum required experience.
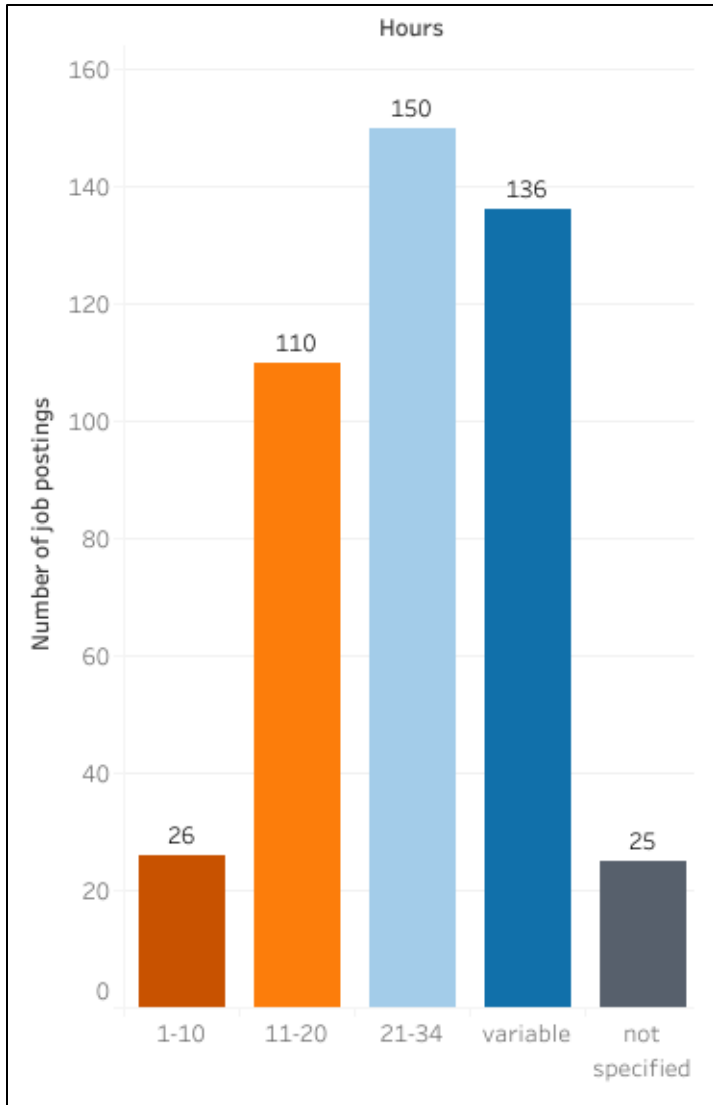
Figure 5
Part-time postings by hours of work per week.

Among part-time postings (n = 446) as seen in Figure 5, the most common assignments of hours per week were 21-34 (33.6%) and 11-20 (24.6%). A substantial portion of postings (30.5%) had variable hours, indicating on-call work.

Discussion

Overview

The results show that precarious work is substantially and perhaps even increasingly prevalent in library job postings, with the percentage of precarious postings on the *Partnership Job Board* rising from 39.9% in the first year of data collection to 45.9% in the second year. The landscape of precarious work varied, with important differences in prevalence and type of precarity based on the type of institution, type of position, and the educational or experiential requirements involved.

Results from inferential statistics indicate that while precarious jobs were prevalent overall, they were not more likely to occur in one type of

library over another. The results show that academic institutions were more likely to post contract positions than expected, corresponding with research conducted into sessional and adjunct labour in academia (Pasma & Shaker, 2018; Foster & Birdsell Bauer, 2019) and showing that libraries are not immune to academic labour conditions, despite often being excluded from such studies. Meanwhile, public libraries were more likely than expected to post for on-call and part-time positions. School libraries saw the highest prevalence of precarity, while government postings saw the least overall.

There were significant associations between whether a job was precarious and the type of position being advertised. Library assistant and library technician postings were most likely to be precarious, while manager positions were least likely. These findings indicate that the prevalence of precarious employment in libraries overall is greater than suggested by previous research, which mainly focuses on librarian positions held by people with a MLIS (Mayo & Whitehurst, 2012; Wilkinson, 2016).

Precarity was also strongly associated with the minimum level of education required for the position. For example, jobs requiring a secondary diploma or library technician diploma were much more likely than expected to be precarious than expected, especially in terms of on-call and part-time work, while jobs requiring MLIS degrees were much less likely than expected to be precarious.

Looking at minimum required experience, the results also show significant differences between precarious and non-precarious jobs. Contract jobs had the highest mean minimum experience at about 24 months, the lowest mean difference relative to stable jobs at around 13 months, and the smallest effect size, suggesting that this form of precarity, involving regular working hours and in many cases full-time employment, requires more experience than others. By contrast, on-call jobs had the lowest mean minimum experience at about 16 months,

suggesting that the least stable form of precarious work is also the easiest to get, at least based on experience.

The mean minimum required experience was significantly higher for stable jobs in all cases, and precarious work was less prevalent among positions requiring more experience, suggesting that available positions are less likely to be precarious as people gain more library experience. At the same time, the mean minimum experience was between one and two years for all categories of precarious jobs, suggesting that prior work experience is required even for precarious jobs. This lack of stable, entry-level positions combined with the amount of minimum experience typically required for all kinds of positions indicates that people can expect to be precariously employed for the first few years of their time in libraries.

The uneven distributions among these results suggest that workers will not experience precarity equally within institutions or across libraries as a whole. Library employees who are early in their careers without advanced degrees, or in paraprofessional positions, are more likely to be working in precarious positions. These employees will therefore be the most likely to experience the stressors associated with precarity, such as financial instability, burnout, and poor mental health.

Meanwhile, those in stable positions will be the most insulated from the effects of precarity, while also having the most power to affect policy, hiring, retention, and other factors relating to the wellbeing of precarious colleagues. These positions are most likely for staff in managerial positions with several years in the field, usually requiring a MLIS or equivalent.

Limitations

The results of this study may not be fully representative due to the limitations of job posting analyses as a method. Although

collected data should approach a representative distribution as the sample gets larger, it is possible that the actual population of jobs is more or less precarious than observed here. Factors such as the authors' definition of precarious work, their decision to code jobs as stable where their status was unclear, the fact that not all job postings are necessarily filled, and the fact that not all library jobs are posted to *Partnership* may all affect the results' generalizability. Indeed, based on the high prevalence of librarian jobs and jobs requiring MLIS degrees relative to other kinds of jobs, it is likely that *Partnership* is primarily used for library jobs where organizations prefer having nationwide exposure and paying the listing fee. Other jobs may be distributed internally, on library websites, or via municipal or provincial job boards, and job categories such as archivist jobs or government jobs may be posted in still other places. As a result, there may be a greater or lesser proportion of precarious jobs than shown in this dataset. Comprehensive data on actual jobs from library systems, though it would be difficult to gather, could provide a useful contrast to the data represented here. Finally, it is important to acknowledge the limitations inherent in a positivist approach. Removing these postings from the contexts of their creation and circulation and reducing them to categories in a coding framework will necessarily produce a partial view of precarious work, with a limited ability to note anything about the material processes that produce precarious jobs or the people who hold them. Other approaches may support a more holistic view of this topic. While these limitations should be taken into account, the existing data still points towards many significant differences and associations, as observed above, and can form a strong basis for future research.

Future Research

The authors did not conduct analyses combining three or more variable categories for this article, in order to maintain focus on the primary research questions and for the sake of brevity.

However, further analysis could investigate specific aspects of precarity, such as differences in precarity between academic librarians and public librarians, or between managers with library technician diplomas and managers with MLIS degrees. As well, researchers could apply methodologies such as content analysis to the postings collected for this study to determine, for instance, what proportion of contract positions list the rationales for the contracts, or whether the ways in which postings list salary ranges varies between precarious and stable jobs. The authors hope that making their dataset publicly available and archiving the original postings will help in this regard.

The current findings raise other issues for future inquiry as well. The distribution of different subtypes of precarity across institution types may result from different service models, and future research could seek to determine the causes of precarity within different institution types. Meanwhile, looking at precarious jobs by education level reveals disparities based on educational qualifications. The issue of precarity and non-MLIS positions remains understudied even in comparison to the scant research on library precarity overall, so further research is needed here too. This study focused on precarity within the Canadian context, and additional research could compare levels and distribution of precarity with datasets from other geographic areas.

The prevalence of precarity among entry-level jobs and jobs requiring lower levels of education also raises questions about pipeline, hiring, and retention issues with implications for equity, diversity, and inclusion in libraries. It is already known that precarious workers are more likely to be racialized, women, LGBTQ+, or have a disability (Cranford & Vosko, 2006; Bernhardt, 2015; CUPE, 2017). These results make clear that, whether through education or years of experience, the jobs that are the most accessible to the most people are also more likely to be precarious. In the quest for stable jobs, people from historically and presently marginalized

groups must contend with racism, sexism, ableism, homophobia, and transphobia, in addition to the stresses of precarious work. Given the barriers to equity, diversity, and inclusion before, during, and after hiring, processes in the predominantly white library profession's (Galvan, 2015) precarious employment structures deserve more attention in relation to these problems.

Conclusion

This study aimed to establish a better understanding of the prevalence of precarious work and the factors associated with it in Canadian libraries. The authors collected and coded job postings from a national job board over a period of two years and conducted statistical analyses that revealed significant differences in job precarity among different levels of experience and education, and different types of jobs and institutions. Contracts and part-time work were the most common types of precarious employment, with a majority of contracts being for one year or less and about a third of part-time positions having variable hours. Precarity was especially prevalent among school libraries, paraprofessional positions, positions requiring less education, and positions requiring two years of experience or less. By contrast, it was least evident in government libraries, managerial positions, positions requiring MLIS or MAS degrees, and positions requiring three years of experience or more. Precarious jobs also required less experience on average than stable jobs. These findings show that precarious work is prevalent in Canadian libraries and that this prevalence varies based on job characteristics.

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Appendix
Coding Fields, Categories, and Criteria for Job Postings

Field	Categories	Notes
Job Type	Archivist, assistant, librarian, manager, technician, other	Archivist = positions requiring a MAS or equivalent Assistant = positions using language such as assistant, associate, or clerk, typically not requiring library-specific credentials Librarian = positions requiring an MLIS or equivalent Manager = positions with direct supervisory responsibilities requiring any kind of degree Technician = positions requiring a library technician diploma or equivalent Other = positions not fitting any of the above categories
Institution Type	Academic, government, public, school, other	Positions were coded according to the kinds of institutions in which they were based.
Part-Time	Full-time, part-time	Positions specifying 35 or more weekly hours were coded as 'full-time,' while those specifying fewer were coded as 'part-time.' Positions that did not specify a number of hours and were not coded as on-call were assumed to be full-time.
Number of Hours	1-10, 11-20, 21-30, 35+, variable, not specified.	Positions were further broken down based on ranges of hours worked. Full-time jobs were assumed to be 35+ hours, and part-time jobs that did not specify hours were coded as 'not specified.'
On-Call	Regular, on-call	Positions that explicitly used language such as auxiliary, casual, on-call, and occasional, as well as postings which explicitly stated varying schedules and hours of work, were coded as 'on-call.'
Contract	Ongoing, contract	Positions that explicitly used language such as contract, term-limited, sessional, and temporary were coded as 'contract.'
Contract Duration (Months)	[number of months], not specified	Coded based on the posting. Duration was rounded to the nearest full month for durations expressed in weeks or specific date ranges. Postings listing contracts as lasting 'up to' a period of time were coded as lasting the maximum duration. Contracts that did not specify duration were coded as 'not specified.'
Precarious?	Yes, no	Any position coded as on-call, contract, or part-time was coded as 'yes.'

Education Level	Library technician diploma or equivalent, MAS or equivalent, MLIS or equivalent, MLIS or library technician diploma, other postsecondary degree, secondary diploma, some library coursework, not specified, other	Coded based on the minimum educational level required in the posting. Postings that did not require a specific educational status were coded as 'not specified.'
Minimum Experience (Months)	[number of months], not specified	Coded based on the posting. Postings that required experience 'up to' a certain amount were coded as 0 months since there was explicitly no lower bound. Postings that did not specify minimum required experience were coded as 'not specified.'