

**Abstract**

Identifying criteria of academics more likely to secure an assistant professorship is vital for preparing graduate students for the job market. To identify such criteria, the CVs of current assistant professors at communication programs were scraped. Specifically, 73 CVs from individuals at programs considered to be among the top 20 in the US. Results reveal that the majority of assistant professors were male, had an average of 11.19 publications with 4 being first authors, 87 citations according to GoogleScholar, and the majority were not straight out of graduate school. In addition, communication graduate students were surveyed about their thoughts on the job market and reported that they believed an average of 4.48 publications was sufficient for the job market. Implications of these results are discussed, and suggestions for how to support academics desiring tenure tracks jobs are offered.

*Keywords:* Academic job market, graduate student mentorship, publish or perish

## **Understanding Publication Pressure and Who Gets Assistant Professors Jobs in Communication**

An important consideration for prospective communication graduate students is what their future career path looks like, and more specifically, the path from the first year of a PhD to securing a tenure-track job. Coming up with a clear answer to what a typical graduate student path looks like will help programs better prepare their students for the job market and help prospective communication graduate students get the resources they need to succeed down the road. In this article, we aim to clarify important considerations for students interested in getting a tenure-track (TT) job at a top 20 communication program by reporting the results of an analysis of current assistant professors curriculum vitae (CV).

An article by Diego A. Reinero (2019), “The Path to Professorship by the Numbers and Why Mentorship Matters”, discusses what a typical path from graduate student to assistant professor looks like based on analyses on the CV of assistant professors at top tier psychology programs. For psychology folks that secured a TT job at an R1 university ( $n=112$ ) ranked within the US top 10 psychology programs, 83% had a postdoc at some point, the average number of publications prior to being hired was 16, and the average number of teaching assistantships was a mere 1. While these findings are important for understanding aspects of the psychology academic job market, the findings cannot be directly applied to the communication academic job market. First, the data only speaks to qualifications of candidates at a handful of top tier psychology programs. Second, communication is distinct from psychology and job market qualifications in one market are not directly translatable to the other. Repeating the US Psychology Job Market

study, but with assistant professors in communication, is likely to reveal a number of important differences.

To better address the qualifications needed for a TT job in communication and publishing pressure, we scraped data from CVs of assistant professors at the top 20 ranked communication programs in the US according to the 2019 Shanghai Ranking, and compared the results to graduate students' perceptions of publication benchmarks. First, we outline commonly cited sources about preparing graduate students for the job market, and what the job market typically looks like in terms of openings and application. Then, we specify how the data was collected and analyzed. Lastly, we report the results and discuss what the results mean for graduate students that want a TT job, and how graduate programs can best prepare students. In addition, we consider the implications and potential mitigators of the publish or perish culture.

### **Job Market Assumptions and Student Preparation**

Graduate students are expected to juggle numerous responsibilities throughout their training such as teaching, research, publishing, managing a lab or undergraduates, coursework, and planning a research agenda. Graduate students must also balance obligations outside of graduate school such as personal and financial responsibilities. For example, one blog post indicates that mothers in PhD programs work almost 100 hours per week (Santos, 2018). With such a difficult balance for graduate students, it is no wonder that a recent movement has taken hold within academia to acknowledge the mental health crises and improve the quality of life for students (Evans et al., 2018). In addition to the previous concerns, graduate students are frequently preoccupied with what the job market has in store for them. What's a graduate student

to do in order to balance school, research, finances, self-care, and a life outside graduate school, all to land a job?

Opinion articles published in *The Chronicle of Higher Education*, *Nature*, and *Science* often feature tips to graduate students about how to succeed in graduate school. Some common themes from those articles that we have selected to include here: Time management skills because quality work takes time (Toor, 2019), the ability to support your peers rather than dumping on them or competing against them, dedication, determination, and diligence, luck (Van bavel, Lewis Jr., & Cunningham, 2019), and taking breaks (Bjornmalm, 2019) to focus on what brings you joy outside of academia (Westreich, 2020). Unfortunately, this advice does not address the core question of what a graduate student can do to better the odds of obtaining an academic job, but to simply manage and handle the time spent during graduate school. That said, determining the habits and tips that recently hired assistant professors practiced throughout their time in graduate school is certainly valuable to know and may be a fruitful area of research, but is outside the scope of this paper.

Instead, looking at the numbers found on the job market may be a useful place to start in order to understand the likelihood of obtaining a job offer. Quickly perusing the National Communication Association's (NCA) official website brings you to a page on what to expect for the academic job market and how to prepare for your job interview, especially during these uncertain times. From 2005-2010, an average of 555 faculty positions were advertised across the communication discipline each year, and an average of 1,115 PhDs in communication were awarded each year (Fogarty, 2010). Although the average number of applications for each job

was not reported, the logical conclusion based on those numbers is that there are not enough jobs for the number of students coming out of their programs. However, statistics on job calls to PhDs conferred within the past five year from NCA suggest the job market was able to rebound after the 2008 recession. In the 2016- 2017 academic year, 825 jobs were advertised, 672 PhDs were conferred, and in the 2017-2018 academic year, 745 jobs were advertised and 626 PhDs were conferred. Further breakdown of job postings revealed that most ( $n = 163$ ) were general calls, followed by advertising/public relations/strategic calls ( $n = 126$ ), and the majority of job calls were for assistant professors ( $n = 373$ ). Of course, with the current recession and pandemic, this trend is likely to change but analysis of the current data on the communication job market is outside the scope of this paper.

On the surface, the positive trends of job openings to PhDs conferred over the past 5 years suggest a relatively positive outlook for individuals desiring a TT job studying communication. Are communication graduate students' fears about the job market misguided? Likely not. Even if the job market appears strong, the current “publication arms race” (see Feldman Barrett, 2019) and the “publish or perish” mentality has created a culture among graduate students of overworking and overcommitting. Therefore, the fears graduate students have about inadequacy as an academic may not be based on their chances at securing a TT job but the culture of constantly competing and comparing throughout their graduate training (Nolte, 2020). Below, we describe the methodology used to determine what accomplishments or experiences, on average, that assistant professors share in order to give students and programs a more clear perspective on training expectations.

## **Methods**

### **Data Scraping**

### **Participants**

Curriculum vitae (CV) of 75 assistant professors were included for analysis with 2 entries removed for the final analysis because the year the individual was hired was not found. Assistant professors were selected if they were listed on their communication program website and posted their CV. Inclusion criteria also required that assistant professors be hired at universities within the US and listed on the Shanghai ranking of top 20 communication programs. Shanghai ranking is an independent ranking organization, and has been cited as "the most widely used annual ranking of the world's research universities" (Altbach, 2010). Shanghai ranking is also commonly used for recruiting graduate students (i.e., programs often put the ranking on their websites). Additionally, only universities in the US were considered given the majority of PhD graduates indicate a desire to stay in the US, and 75% of PhD graduates with VISAs also finding employment in the US (NSF, 2017). Visiting scholars, adjunct faculty, lecturers, were excluded so the data would better reflect the qualifications of tenure-track assistant professors. The final analysis included 73 entries. While race was not recorded due to the difficulty in acquiring this information from CVs, university profiles, GoogleScholar, etc., 48(64%) of the individuals were assumed to be women. See figure 1a for a breakdown of gender. Most assistant professors 44 (60%) received their PhD in communication, with other areas of study including journalism (3), psychology (4), history (1), and political science (1).

## **Procedure**

The methods and procedures were based on Reiner (2019), and materials provided on the US Psychology Job Market open science framework page (<https://osf.io/z8rhg/>). Data from CVs were scraped manually and entered into a master table by hand. Data included any CV information prior to and up to the year that professors were hired. Department websites, Google Scholar, and personal websites were checked to locate the information. Coded CV items included: Name, current institution, year of hiring, number of prior faculty positions, number of postdocs, year PhD was received, number of years since receiving PhD, institution PhD was received, total publications up to and including the year of hiring (including encyclopedia entries, journal articles, white papers, and chapters), total conference proceedings up to and including the year of hiring, number of first author papers up to and including the year of hiring, cumulative number of Google Scholar citations at the year of hiring, number of instances participant was listed as instructor of record, and number of teaching assistantships.

## **Graduate Student Response Survey**

### **Participants**

A total of 126 responses were gathered from communication students across the US, although 46 participants failed to finish the study resulting in a final total of  $N = 80$ . To maximize anonymity of participants, limited demographic information was collected and demographic information focuses on their graduate student experiences. Seven participants were international students. Participants reported being funded through an assistantship ( $n = 57$ ), a

fellowship ( $n = 11$ ), or not being funded at all ( $n = 12$ ). Teaching was the most common assistantship ( $n = 41$ ), followed by other ( $n = 10$ ), and then research ( $n = 6$ ).

**PhD Students.** Participants in their PhD program ( $n = 64$ ) ranged from 1-6+ years in their program with 10.9% in their first year, 25% in their second year, 25% in their third year, 21.9% in their fourth year, 12.5% in their fifth year, 3.1% in their sixth year, and 1.6% past their sixth year. About 36% of participants were PhD candidates.

**Masters Students.** A total of 16 participants were masters students with 56.3% in the first year of their program.

### ***Procedure***

Following IRB approval, a Qualtrics survey was disseminated among graduate students in communication to assess beliefs about work life balance. Specifically, we disseminated the survey via a National Communication Association listserv, to communication program listservs at universities across the US, and via the researchers personal, academic Twitter accounts. Participation was voluntary. The survey included questions on mental health, stressors, work expectations, publish or perish, and program climate (i.e., relationship with their advisor/faculty members). Only the results on publish or perish are presented here, and the other results are presented elsewhere. The number of publications one should have to get a tenure track job, and the importance of teaching. Participants gave consent and then answered general questions about their graduate school experiences. Participants then answered questions on their perceived publication expectations, followed by their perceptions of publish or perish in the field.



Participants then answered questions about their mental health. At the end, participants were provided with links and hotlines to various mental health resources.

### **Variables of Interest**

***Publication Assumptions.*** To assess participants' views of publications and the job market, participants were asked “What do you think is the average number of publications a graduate student should have when entering the academic job market?” ( $M = 4.53$ ,  $SD = 2.70$ ). To be more specific, we also asked “In your opinion, how many publications would qualify a graduate student for a position at a top research university? Please enter a number.” ( $M = 7.12$ ,  $SD = 4.13$ ) and “In your opinion, how many publications would qualify a graduate student for a position at a teaching university? Please enter a number.” ( $M = 3.33$ ,  $SD = 2.53$ ). Participants could respond with numbers 0-99.

***Publish or Perish Culture.*** Pressure that graduate students may be under to publish was assessed using a 7-point Likert scale (1- *strongly agree* to 7- *strongly disagree*) with the items “Do you believe your advisor(s) has a culture of ‘publish or perish’?” ( $M = 3.10$ ,  $SD = 1.64$ ) and “Do you believe your department has a culture of ‘publish or perish’?” ( $M = 2.14$ ,  $SD = 1.41$ ). Impact of publish or perish culture was measured with the item “How do you feel the publish or perish culture has impacted your graduate experience?” with response options ranging from 1- *extremely positively* to 5- *extremely negatively* ( $M = 1.91$ ,  $SD = 1.02$ ).

### **Results**

### **Curriculum Vitae Scraping**

In terms of individual trajectory, the majority of individuals (48%) started their job immediately after receiving their PhD, followed by those who had a faculty position at another university (29%), then those who had a postdoc position (19%), and finally those who had completed a post doc and had a previous faculty position (4%; See figure 1b). On average though, most individuals hired at these programs either completed multiple post docs or had a position elsewhere first. For reference, the average time from program completion to starting their current assistant professorship was 2.26 years, with a range of 0 to 15 years. To describe the PhD granting institutions of the individuals, a word cloud of the university names was included (See figure 1c).

**Teaching Record.** On average, individuals were listed as an instructor of record (IoR) 5.44 times and listed as a teaching assistant (TAships) 3.70 times. Many individuals did not list their previous teaching roles resulting in 26 individuals being excluded for the IoRs, and 31 individuals excluded for the TA analyses. To compare these averages to other fields, a t-test was conducted comparing the average IoR and TA positions of individuals hired in communication departments compared to those hired in psychology departments. Results reveal a significant difference between the average number of both IoR ( $t(47) = 2.62, p = .01$ ) and TAships ( $t(42) = 1.86, p = .07$ ) for those in the fields of communication and psychology. In both cases, the average IoR and TAships were higher for assistant professors in communication departments.

**Publication and Conference Record.** The median number of publications for the included individuals was 10 ( $M = 11.19, SD = 8.43$ ), with a median of 4 ( $M = 5.41, SD = 4.08$ ) of

those publications being first author. The median of google citations was 87, and an average of 218.21( $SD = 371.34$ ) citations suggesting the data is right skewed. On average, individuals presented 19.96 conference papers, presentations, and posters. For a visual of the publications, see figure 2. Of those that were straight out of grad school, the median number of publications was 7( $M = 8.15$ ,  $SD = 4.67$ ), with median of 3( $M = 3.97$ ,  $SD = 2.69$ ) first author publications, and 67 ( $M = 89.62$ ,  $SD = 82.51$ ) google citations.

A correlation to look at the number of publications and year hired was conducted to investigate if publication expectations are increasing over time, but the correlation was not significant ( $r(73) = .14$ , 95% CI [-0.09, .36]; see Figure 3). An outlier with 59 publications was identified in the data and after removing the outlier, the correlation was significant ( $r(72) = .30$ ,  $p = .01$ ). The number of publications is positively correlated ( $r = .44$ ,  $p < .001$ ) with years since PhD completion.

### **Impact of Publication Pressure**

A significant negative correlation was found between advisors ( $r(79) = -.23$ ,  $p < .01$ ) and department's ascription of publish or perish culture ( $r(79) = -.33$ ,  $p = .003$ ) and graduate student's experience. As publish or perish culture becomes more prevalent, graduate students' experiences become increasingly negative. However, 12.5% of participants indicated that the publish or perish culture had no impact on them, and no participants indicated they had been extremely negatively impacted.

### **Hypothesis Testing**

To test the hypothesis that the number of publications needed perceived by graduate students is greater than the actual number of publications for those getting assistant professorships, a t-test comparing the mean of idealized pubs to actual pubs was conducted. Results revealed that the average number of publications for assistant professors ( $M=11.19$ ) was over double the average number of publications graduate students believed was needed when entering the job market ( $M=4.53$ ) ( $t(151) = 6.70$ , 95% CI [-8.62, -4.70]). The difference between assistant professor publications and the number graduate students believed was needed at top schools was also statistically significant  $t(151) = 3.85$ , 95% CI [-6.17, -1.99]. Therefore, H1 was not supported.

### **Discussion**

Identifying criteria of academics more likely to secure an assistant professorship is vital for preparing graduate students for the job market. To identify such criteria, the CVs of current assistant professors at communication programs were scraped. Specifically, 73 CVs from individuals at programs considered to be among the top 20 in the US, and compared to responses from graduate students on . The median number of publications, citations, conference work, teaching experiences, and prior faculty or post doc positions were calculated. The implications of these results are discussed below.

**Broad Implications*****Mental Health Crises***

Pursuing a PhD is a rewarding yet difficult experience, requiring resilience, and perseverance. In the last three-years, three prominent studies exploring graduate student mental health have been published in Nature (Evans et al., 2018; Woolston, 2019; Woolston, 2020). The results of these studies show that mental health problems in graduate students aren't just a serious problem, they're a crisis. One third of graduate students report having anxiety or depression (Woolston, 2019) and 2% of graduate students report suicide ideation (Silverman et al., 1997). Significant contributors to the mental health crisis include job market uncertainty, financial concerns, poor advisor relationship, and toxic work environments (Woolston, 2019). Additionally, these problems are theorized to be a result of high demands on students with limited resources and direction (Flaherty, 2019).

Performance expectations in graduate school are often unclear, requiring graduate students to be highly self-motivated and disciplined to progress. In a survey with 2,001 graduate students, 67% indicated they stressed out over time to completion, and 59% indicated they stressed out over not knowing how they were performing in their program (CFSO, 2011). For comparison, graduate students report higher stress levels and mental health problems than those in other, more-structured, advanced degree programs such as medical school (Toews et al.). Providing benchmarks to contrast against the nearly impossible performance expectations outlined here, as well as realistic job market discussions may reduce some of the stress associated with unknown expectations.

Specifically, surveys investigating mental health problems indicate that these issues can be mitigated through increased dialogue, trainings, and focusing on incentivizing metrics, like strong mentorship, outside of academic achievements (Canadian Federation Students-Ontario, 2011; Isaacson, 2019; Schminaski & Alperin, 2018). Including statistics about graduate student outcomes in such trainings or discussions may improve faculty and university administrators' understanding of the job market and career options available to graduate students. Ultimately, tackling graduate student mental health is a dire need that requires large institutional changes and solutions beyond the scope of this paper. However, we hope that our findings contribute to the understanding of stressors that contribute to the current graduate student mental health crises.

### **Publish or Perish and Academic Expectations**

Broadly, the job market appears intimidating. Institutions place considerable weight on publications as an indicator of an applicant's future success (Schminaski & Alperin, 2018). For

graduate students interested in securing a job at a top communication program, they either need to secure a position somewhere else first, or work towards publishing seven articles while in their program. Furthermore, our results show that four of those articles should be first authored.

Graduate students interested in staying in communication post-grad may want to consider finding ways to become involved in projects early on and may benefit from leading projects before they are on the job market. The problem is, as our results show, when advisors pressure graduate students to publish they hold more negative views about their program experience. This problem is even more significant for graduate students that are in departments that have a strong publish or perish culture. However, a sizable (12%) number of graduate students surveyed reported that their advisors and departments did not have a publish or perish culture. Furthermore, there is a clear discrepancy between expectation and reality when comparing student publication perceptions to the reality of recent hires. Combining the results of negative program views and impact of publish or perish department cultures, awareness of this additional discrepancy could potentially lead to detrimental effects for graduate student well-being.

The available bandwidth of graduate students makes taking on more responsibilities difficult. Results here indicate that individuals hired in communication programs have taken on more teaching roles than individuals hired in psychology programs. On the one hand, this suggests that communication places a strong emphasis on teaching, but also suggests that adding more to a student's plate may be detrimental. Developing research and teaching skills takes time and succeeding in both may not be a realistic expectation for graduate students. For example, faculty that put in more teaching hours received less pay and were less likely to get tenure than

their peers that spent less time teaching (Fairweather, 1993). To succeed as an instructor seems to come at the cost of research productivity, but achievements in teaching carry less weight in the academy (Schminaski & Alperin, 2018). Therefore, communication graduate programs may want to help offset the hardships graduate students face because of their increased teaching responsibilities (for recommendations, see Flaherty, 2016). Although calls have been made to change how achievements across research, teaching, and service are weighted, these calls do not seem to be answered.

The results here seem to indicate that the culture of publish or perish is alive and well, with an individual's publication heralded as the primary indicator of their contribution to the field, and their improvement to society's understanding of an issue. Not only is publish or perish alive and well based on this assessment, but it is to also be noted that it is likely becoming even more prominent. Results here show that the publication expectations are continuing to increase over time, alluding to continuing and even an increased perpetuation of this culture.

### ***Mitigating Publication Pressure***

Despite the current trend of academics needing to publish more and more, academics are sounding the alarm on issues associated with increasing pressure to publish. Some major issues associated with the publish or perish culture include data fabrication, lack of reproducibility (Open Science Collaboration, 2015), and a gap in publications between those with greater access to resources than those without access to resources (Schminaski & Alperin, 2018).

One solution to these issues that's relevant here is to put less emphasis on publication as an indicator of an individual's potential. Individual's journal prestige of publications,



independent funding and fellowships, and number of citations, also are important factors in securing a tenure track job (Fernandes et al., 2019), but examining the impact of these factors was outside the scope of this investigation. The academy often overlooks mentorship as an indicator of contribution to the field, despite good mentorship being key to graduate students' well-being and completing their programs (Evans et al., 2018). Celebrating strong mentors and pairing graduate students with multiple mentors (i.e. peer mentor, faculty mentor in addition to an advisor), may help graduate students feel more capable and cared for. Academics that have multiple avenues to grow and succeed may produce better science, and scientists. One would hope that the communication field is engaging in these important conversations and is willing to confront the rampant publish or perish culture that exists.

### **Limitations**

The data reported here provides a mere glimpse into the criteria most sought after for a selection of assistant professors. Universities that are listed as R1's place more emphasis on research so the number of publications here may be higher than publications non-R1 universities expect. In addition, the programs here are top tanked and are highly competitive. This may bias the results reported here. Lastly, although data entries were double checked, it is possible errors occurred during the manual entry process. Considering the number of entries, it's unlikely a coding error affected the overall results. Given that there are an estimated 600-800 communication graduate students, our sample size is considerably small. In addition, we did not ask students for demographic information so we can not draw conclusions about how diverse or

representative this study's sample is. We intended this study as exploratory to get a sense of the problem and that the results, even from this small sample size, still carry weight.

### **Future directions**

A more in-depth examination of the quality of publications and hiring may provide more insight into the publish or perish culture within communication. Another interesting area of exploration is between mentorship, social network ties, and career trajectory. Linking the individuals and their data from this investigation to their social networks (based on project collaborators) may explain differences in publication experiences and career trajectory. While some previous research has looked at this specific to their program's PhD graduates (see XX MSU PUBS), a broader and more current analysis would benefit our growing and increasingly interdisciplinary field. Mentorship appears to be a key factor to graduate student success, but more research is needed to identify what characteristics are important in a mentor, and what mentors can do to best support their mentees. This data was collected prior to Covid-19 which greatly affected institutions hiring procedures, workforce demographics (i.e. tenure track professors staffed compared to instructors). Graduate students, of course, experienced hardships such as interruptions to their access to resources and research programs, as well as numerous other stressors that affected their livelihoods outside of their graduate experiences. The work here may serve as an interesting comparison to the job market and graduate student experience pre and post Covid.

### **Conclusion**

The investigation here reveals that the average graduate student believes about 5 publications are needed to secure a tenure track job, whereas most assistant professors are hired with about 11 publications. This suggests that students may be underprepared in their publication record when they enter the job market and that students need to publish nearly 3-4 papers a year, with at least 1 being first author. In addition, assistant professors hired in communication departments typically have more teaching experience than those in other fields, such as psychology. As a result, communication programs should provide students with greater research resources and mentorship to ensure they can balance the increased responsibilities without detrimental effects to their mental health or graduate experience.

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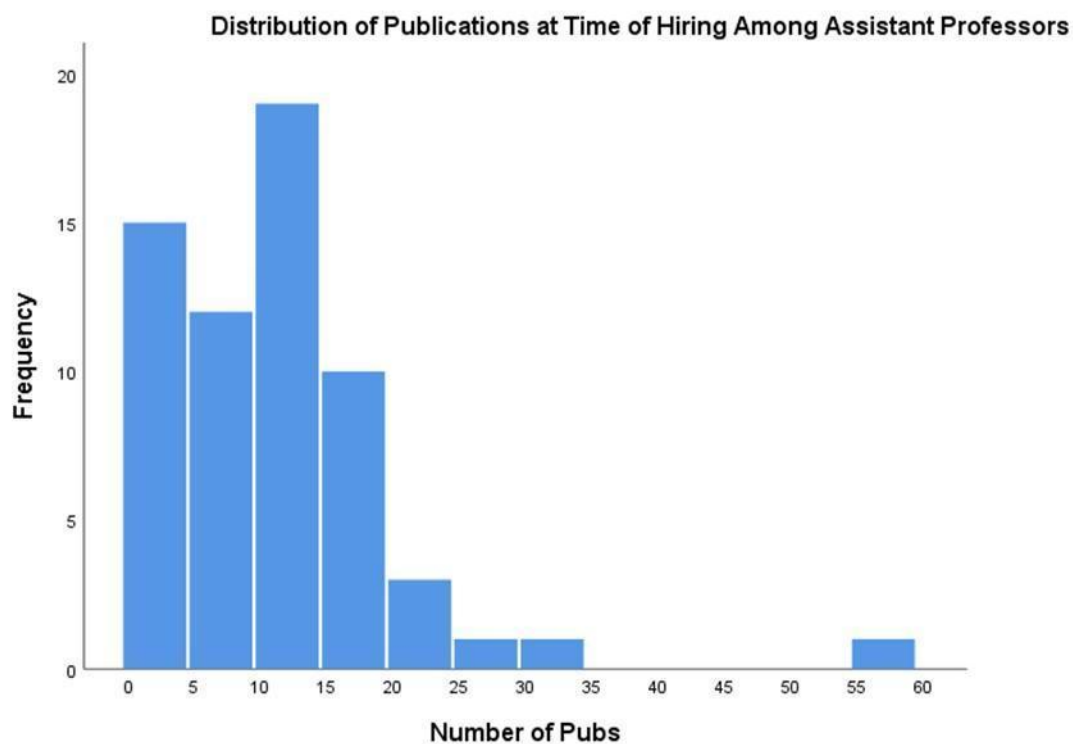
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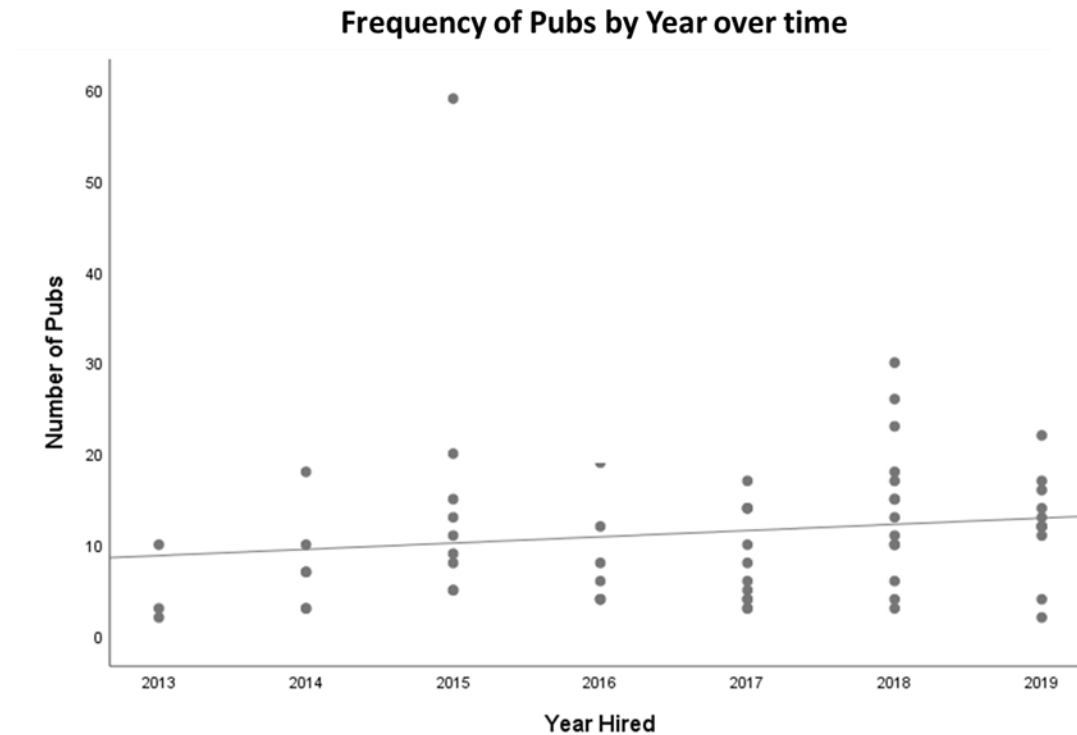
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*Figure 1.* The graphic in 1a reveals the percent female to percent male, while 1b reveals the breakdown of career trajectory. 1c The word cloud (shows which PhD granting institutions the assistant professors received their PhD from, and how often the institution appeared with the max being a total of 3 appearances.



*Figure 2.* Data on the number of publications at the time of hiring for assistant professors ( $n = 73$ ) at the top 20 communication programs. Publications included only journal and book chapters.



*Figure 3.* The plot depicts the trend in the year assistant professors were hired and their total number of publications at that time. The correlation was not significant (95% CI [-0.09, 0.36]), unless the outlier was removed ( $r = .30, p = .09$ ).