

Why the Academic Pipeline Leaks: Fewer Men than Women Perceive Barriers to Becoming Professors

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Women are underrepresented in the professoriate compared to men; this study was designed to examine whether systemic barriers associated with parenting discourage women from pursuing academic careers. Data from 468 female and male graduate students were collected through an online questionnaire. More men than women intend to pursue academic careers. Parenting and mobility issues—but not research or teaching issues—were more negatively associated with entering the professoriate for women than for men. However, women were not more interested in having children than men were. Results support the hypothesis that women self-select away from academia in response to perceived systemic barriers related to parenthood. To ensure quality and equity in academia, universities should enact policy that addresses the realities of childbearing and childrearing women.

KEY WORDS: gender; higher education; graduate study; family; academia.

The educational procession of undergraduate students through academia to tenured professorships is referred to as “the Pipeline.” Reductions in group representation (e.g., women, ethnic/racial minorities) at succeeding stages in academia are referred to as “leaks.” It is well documented that there are fewer women than men in tenured or tenure-track positions, as has traditionally been the case (Canadian Association of University Teachers [CAUT], 2003; European Technology Assessment Network [ETAN], 2002; National Center for Education Statistics [NCES], 2002). Historically, this difference has been attributed to the smaller number of women who pursued undergraduate degrees, of whom even fewer went on to obtain graduate degrees (see, e.g., NCES, 2002, for trends). Since the 1970s, however, increasing numbers of women have entered the academic

pipeline, and women now outnumber men at the undergraduate level (CAUT, 2003; NCES, 2002), which has led many to assume the inevitability of more women in the professoriate in the near future.

Although there was a dramatic increase in the number of women at the undergraduate level between 1960 (35%) and 2000 (57%), women still make up only 41% of the professoriate in the United States (NCES, 2002), and this figure includes lecturer/instructor positions where women predominate but have little opportunity for advancement. In addition, women still make up a considerable minority of assistant professors compared to the proportion of women currently in graduate school (CAUT, 2003; NCES, 2002). The underrepresentation of women on faculty and the issues academic women face have been well reviewed (e.g., Aisenberg & Harrington, 1988; Caplan, 1993; Collins, Chrisler, & Quina, 1998; Simeone, 1987).

Various reasons have been proposed to explain the paucity of women being hired for tenure-track positions compared to men including, for example, overt sex discrimination. Although overt

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sex discrimination in its various manifestations has been a potent way to keep women out of academia (see, e.g., The Chilly Collective, 1995), there is, at present, conflicting evidence of discrimination in hiring practices. For example, researchers have shown that men and women were more willing to vote to hire a man than a woman based on identical curriculum vitae (Steinpreis, Anders, & Ritzke, 1999). Yet, others have reported that women were actually hired more often than their representation in the applicant pool would predict (e.g., Irvine, 1996; Kimura, 2002), thus countering claims of systemic discrimination against women at the hiring level. Some have offered biological/essentialist explanations for the lower number of women in academia. This position holds that women self-select away from academic careers because they are biologically predisposed to prefer child-rearing and family roles to professional roles (e.g., Kimura, 1999). However, there is no evidence to support this contention.

Another way to account for the paucity of women in the professoriate is that women experience and/or perceive covert or systemic barriers, and there is evidence for self-selection: though women may make up 36.1% of the PhD graduate pool (CAUT, 2002), they make up only 28.9% of the applicant pool for academic jobs (Kimura, 2002), a significant drop in women's representation from the PhD graduate pool to the academic job applicant pool. Despite some claims that men are discouraged from applying for tenure-track positions (e.g., Kimura, 1997), it appears that it is women who are discouraged. Indeed, the proportion of women declines at each stage along the pipeline, from undergraduates (58.9%), Master's students (52.3%), doctoral students (36.1%), and academic job applicants (20%; CAUT, 2002; Kimura, 1997). Figures for job applicants frequently include applicants to lecturer/instructor positions, and so the proportion of women applying for tenure-track positions may even be considerably lower.

There may be several types of systemic barriers that lead female graduate students to downgrade academia as a career choice. For example, in Western cultures, women engage in a much larger proportion of childrearing responsibilities (Pittman, Teng, Kerpelman, & Solheim, 1999), even when both parents are professionally employed (Biernat & Wortman, 1991; Wilkie, Ferree, & Ratcliff, 1998). Far from supporting a biological disposition toward childrearing, evidence has shown that this difference in responsibilities only occurs for mundane tasks; men and women spend equal amounts of time play-

ing with their children (Biernat & Wortman, 1991), and women report discontent with unequal distributions of household labor (Ruble, Fleming, Hackel, & Stangor, 1988). Valian (1998) detailed how our gender schemas (i.e., implicit notions of masculinity and femininity) lead us to expect different behaviors and roles from men and women; women may internalize the feminine gender role expectation of being a primary caregiver, and come to see this role incompatible with the long work hours associated with academia. Also, a meta-analysis of self-esteem has shown that women generally score lower than men on ratings of self-esteem, though the difference is small (Kling, Hyde, Showers, & Buswell, 1999), so it is possible that women feel less fit for the 'rigors' of academia.

In addition, studies have shown that women, and particularly those with university degrees, are more likely to prefer men who are highly educated for long-term relationships (Blackwell & Lichter, 2000; Buunk, Dijkstra, Fetchenhauer, & Kenrick, 2002). Perhaps women are more concerned than men about difficulties of the dual-career or dual-academic couple. It may also be that the mobility generally required to pursue an academic career (e.g., move for graduate school, move for postdoctoral position, move *again* for university post) is particularly discouraging to women. For example, married women in postdoctoral positions reported more ambivalence than did men about remaining in academia, in part due to mobility concerns (Mason & Goulden, 2002).

Golde and Dore (2001) conducted a large-scale survey of doctoral students to examine their education and career expectations, and found that fewer women than men planned on a faculty career. In a newsletter article presenting additional results (Cook, 2001), Golde reported that for women, family balance and geography were negatively associated with planning on a faculty career; how other variables affect graduate students' intentions to pursue academic careers remains unexplored.

In this study, I examined whether more women than men self-select away from academia in response to specific systemic barriers as opposed to a global disinclination. This research provides a novel and timely addition to the literature, as issues of women in academia and discriminatory hiring practices are hotly debated with little empirical evidence. The major hypothesis of this study was that factors associated specifically with childrearing and mobility

discourage women from pursuing academic careers, as opposed to factors such as interest in research or teaching, research competence, or finances. It was expected that (1) fewer women than men would report an intention to become a professor; (2) women would report factors associated with parenting and mobility as more relevant to their career decisions than would men; (3) women's career decisions would be more negatively (or less positively) influenced than men's by factors associated with parenting and mobility.

METHOD

Participants

A total of 643 graduate students at the University of Western Ontario (UWO) participated in this study. Participation was solicited through e-mail sent directly from the investigator or via department administrators. Only one department (Computer Science) refused to forward the e-mail to its graduate students, and no replies were received from graduate students in History. All other graduate programs were represented in this sample. The UWO Faculty of Graduate Studies has four divisions, all of which were represented in this sample (see Table I): Arts, Biosciences, Physical Sciences, and Social Sciences. It is difficult to know how many students received the e-mail while data were being collected, but on the basis of overall graduate enrollment, an absolute minimum response rate can be estimated to be 18%. Data were collected in July and August of 2003.

To focus on 'academic feeder' programs, only students in research-based graduate programs were included. Analyses were therefore conducted on the results from 458 graduate students: 260 women (mean age = 28.85 years) and 198 men (mean age = 29.62 years). Fifty-four participants were international students. The majority of students were het-

erosexual ($n = 432$); the remainder were gay men or lesbians ($n = 11$) or bisexual ($n = 8$), and no participants described themselves as transgendered. The predominance of heterosexuality in the sample precluded analyses based on sexual orientation. Data on race/ethnicity were not collected, and are not available from the institution.

Procedure

Ethics approval was received from the UWO Research Ethics Board. Participants received an e-mail with a brief description of the study, which did not mention gender issues, and a link to the on-line questionnaire (see below for contents). The first page of the on-line questionnaire was an informed consent form, and individuals consented to participate by opening the questionnaire. After participants submitted the questionnaire, an on-line debriefing form opened. Five prizes of \$30.00 were awarded randomly after all data were collected.

Materials

Participants completed an online questionnaire designed for this study (see below). At the end of the questionnaire, participants were invited to add any comments they wished.

Demographics

Data were collected on gender, age, international/domestic student status, relationship status, parenthood status, sexual orientation, department and division, and nearby family. Relationship questions included whether the respondent had a partner in academia, and, if so, the partner's

Table I. Frequencies and Percentages of Graduate Students by Academic Division

Division	Women			Men		
	<i>n</i>	% of division	% of women	<i>n</i>	% of division	% of men
Arts ($n = 60$)	36	60	14	24	40	12
Biosciences ($n = 191$)	130	68	50	61	32	31
Physical Sciences ($n = 102$)	39	38	15	63	62	32
Social Sciences ($n = 102$)	53	52	21	49	48	25
Total ($N = 455$)	258			197		

educational/career stage and intention to be a professor. Parenthood questions included desire for, and total number of, children, and the preferred age and educational/career stage to have children. Finance questions included sources of funding, financial support from advisor, and perception of sufficient funding. Education questions included degree and year, time to obtain degree, gender of advisor, estimate of hours/week worked, estimate of advisor's hours/week worked, and advisor's relationship and parenthood status.

Intent to Pursue an Academic Career

Participants indicated their intention to be a professor on a 5-point scale (1 = *definitely yes*, 2 = *probably yes*, 3 = *maybe*, 4 = *probably no*, 5 = *definitely no*). Participants were then asked to rank from 1 (highest) to 10 (lowest) the influences of each of 10 factors on the decision to pursue an academic career. These factors were research competence, interest in teaching (teaching), the "academic environment," the "academic lifestyle," plans for parenthood, factors concerning a (or a potential) partner/spouse (partner), extended family (family), changing universities/ability to settle down (mobility), salary/finances (finances), and interest in research. Mobility was intended to capture the aspect of changing universities while pursuing an academic career and its corollary of being able to settle down in one place. Participants also indicated how these factors affected their desire to pursue an academic career on an 11-point scale (−5 = *very strongly negative*, −4 = *strongly negative*, −3 = *moderately negative*, −2 = *somewhat negative*, −1 = *weakly negative*, 0 = *no influence*, +1 = *weakly positive*, +2 = *somewhat positive*, +3 = *moderately positive*, +4 = *strongly positive*, +5 = *very strongly positive*). Also on the 5-point scale, participants indicated to what extent they thought having children was compatible with pursuing an academic career, and to what extent having a successful relationship with a spouse/partner was compatible with pursuing an academic career. Participants were asked to indicate whether they thought academic or nonacademic was a better career path for people who want to be parents. Participants were also asked to describe the availability of nonacademic jobs in their area on a 5-point scale (1 = *widely available*, 2 = *somewhat available*, 3 = *barely available*, 4 = *unavailable*, 5 = *not sure*).

RESULTS

Hypothesis Testing

Entering the Professoriate

The first hypothesis in this study was that women would be less likely than men to report an intention to become professors; this was supported (see Fig. 1). To test this, men and women were asked whether they intended to be professors, and responded with definitely or probably yes, maybe, or definitely or probably no. To control Type I error, an omnibus chi-square analysis was conducted, which was significant, $\chi^2(2, N = 449) = 11.38, p = .003$. Two-sample z tests were then used to compare the proportions of men and women with each response. Significantly more men than women stated definitely or probably yes, $z = 2.54, p < .01$, and significantly fewer men than women stated probably or definitely no, $z = 3.42, p < .001$. There was no significant difference in the proportion of men and women who stated maybe, $z = .66, ns$. Thus, men were more likely than women to report an intention to enter the professoriate.

Ranking of Influences on the Pursuit of an Academic Career

The second hypothesis was that women would find factors associated with parenting and mobility more relevant to their decisions to pursue academic careers than would men. To test this, men and women ranked from highest (1) to lowest (10) the influence of 10 factors on their decisions to enter academia. Data were analyzed with a MANOVA. This hypothesis was supported, $F(10, 447) = 2.34, p = 0.011$ (see Fig. 2 for average rankings). Women's average rankings for plans for parenthood, $F(1, 456) = 7.26, p = 0.007$, and mobility, $F(1, 456) = 4.21, p = 0.041$, were significantly higher than men's. Women's average ranking of research competence was lower than men's, but not significantly so, $F(1, 456) = 3.34, p = .068$. There were no significant differences between women and men in their rankings of interest in research, $F(1, 456) = 0.795, p = 0.373$, teaching, $F(1, 456) = 0.08, p = 0.778$, partner, $F(1, 456) = 2.04, p = 0.154$, family, $F(1, 456) = 0.90, p = 0.344$, finances, $F(1, 456) = 1.98, p = 0.160$, academic environment, $F(1, 456) = 0.12, p = 0.735$, or academic lifestyle, $F(1, 456) = 0.06, p = 0.812$.

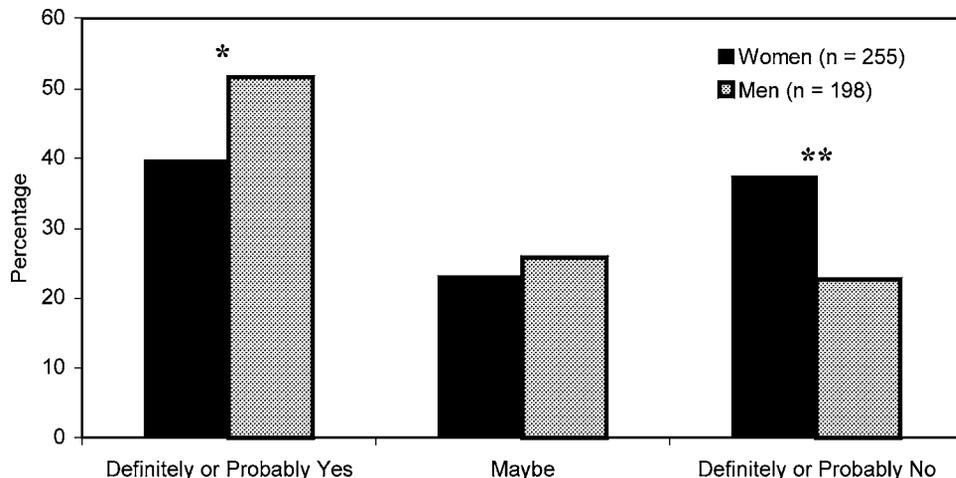


Fig. 1. Percentage of men and women who plan to become professors. ** $p < .01$. *** $p < .001$.

Research interest was ranked highest by both women and men, followed by other factors that concern academia directly (lifestyle, environment, teaching, finances); lower were the other factors—mobility, partner, plans for parenthood, and extended family.

Thus, men and women ranked the majority of factors equally, and both ranked research interest

and other direct academic variables highest. However, women reported parenthood and mobility more relevant to their decisions to enter academia than men did, even though these factors were less likely than research interest and other direct academic factors to influence their decisions to pursue academic careers.

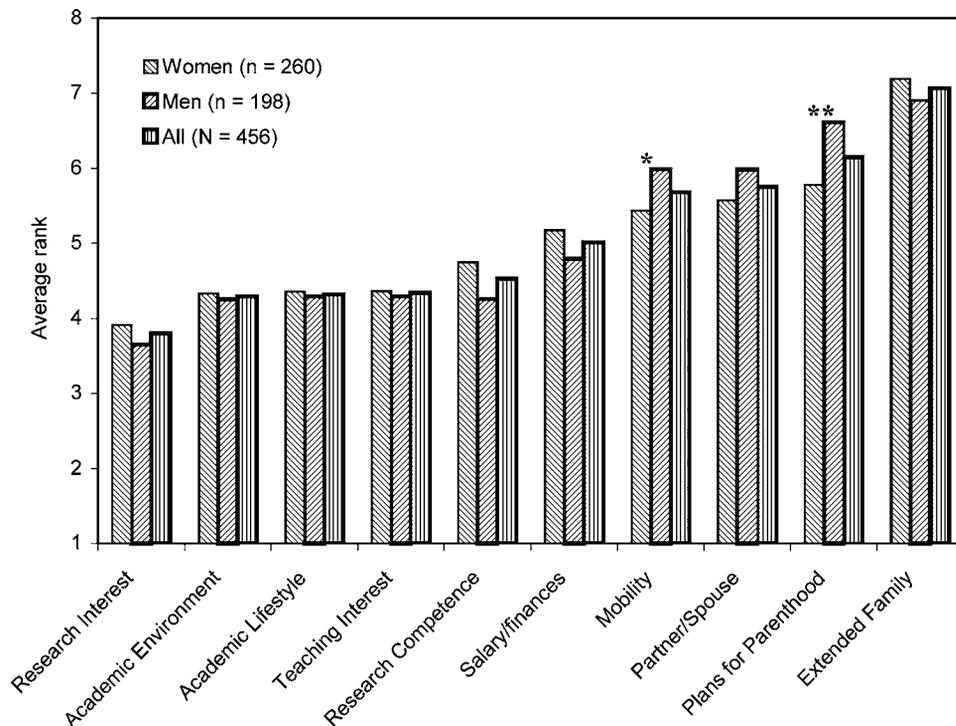


Fig. 2. Average rankings of the effects of 10 variables on the intention to pursue an academic career (1 = highest; 10 = lowest). * $p < .05$. ** $p < .01$.

Influences on the Pursuit of an Academic Career

The third hypothesis was that women were more negatively (or less positively) influenced to enter academia than men by factors associated with parenting and mobility; this hypothesis was supported. Participants were asked to indicate whether the 10 variables had negative, neutral, or positive influences on their intentions to pursue academic careers. To control Type I error, omnibus chi-square analyses were conducted. Following significant omnibus analyses, two-sample z tests were used to ascertain whether the proportion of men and women differed in terms of the positive, negative, or neutral influence of the variable.

The omnibus chi-square analyses showed that proportions (see Table II) significantly differed by gender for plans for parenthood, $\chi^2(2, N = 456) = 26.25, p < .001$, mobility, $\chi^2(2, N = 456) = 6.50, p < .05$, academic environment, $\chi^2(2, N = 456) = 15.16, p < .001$, and academic lifestyle, $\chi^2(2, N = 456) = 16.31, p < .001$. There were no significant differences by gender for interest in research, $\chi^2(2, N = 457) = 3.25, ns$, teaching, $\chi^2(2, N = 456) = .03, ns$, research competence, $\chi^2(2, N = 455) = 1.01, ns$, partner, $\chi^2(2, N = 455) = 0.80, ns$, extended family, $\chi^2(2, N = 456) = 3.02, ns$, or finances, $\chi^2(2, N = 455) = 3.97, ns$. Significantly more women than men stated that mobility, $z = 2.55, p < .01$, plans for parenting, $z = 5.11, p < .001$, the academic environment, $z = 4.05, p < .001$, and the academic lifestyle, $z = 4.05, p < .001$, had a negative influence on their intentions to pursue academic careers. Significantly fewer women than men stated that the academic

environment, $z = -3.57, p < .001$, and the academic lifestyle, $z = -4.12, p < .001$, had a positive influence on their intentions. Significantly fewer women than men stated that mobility, $z = -1.78, p < .05$, or plans for parenting, $z = -4.45, p < .001$, had a neutral influence.

Thus, women found factors related to parenting, mobility, and perceptions of academia more negatively and less positively related to their decisions to pursue academic careers, even though men and women were similarly influenced by other factors, including interest in research.

Congruence of Academia with Life Choices

These hypotheses concerned mixing life choices and academia. To control Type I error, omnibus chi-square analyses were conducted. Following significant omnibus analyses, two-sample z tests were used to ascertain whether the proportion of men and women differed by response.

The first hypothesis, that women would be less likely than men to agree that 'having children is compatible with pursuing an academic career,' was supported, $\chi^2(2, N = 457) = 11.24, p = .004$. When asked whether they agreed with this statement, significantly more men than women stated definitely or probably yes, $z = -2.81, p < .001$, significantly fewer men than women stated definitely or probably no, $z = 3.42, p < .001$, and there was no significant difference the numbers of men and women who were not sure, $z = 0.31, ns$.

Table II. Percentage of Participants at Level of Influence of 10 Variables on the Decision to Pursue an Academic Career by Gender

Variable	Influence					
	Negative		Neutral		Positive	
	Men	Women	Men	Women	Men	Women
Plans for parenthood	11.0%	29.4%***	65.7%	45.3%***	23.3%	25.3%
Mobility	26.3%	37.4%**	42.6%	34.4%*	31.0%	28.2%
Academic environment	23.6%	41.0%***	6.6%	5.4%	69.7%	53.6%***
Academic lifestyle	18.1%	34.4%***	5.6%	6.9%	76.3%	58.6%***
Research competence	13.1%	16.4%	8.1%	8.9%	78.8%	74.9%
Teaching interest	14.6%	14.8%	6.6%	7.0%	78.8%	78.3%
Partner/spouse	20.4%	23.9%	46.9%	44.8%	32.7%	29.1%
Extended family	11.7%	17.4%	71.6%	65.6%	16.8%	16.9%
Salary/finances	36.6%	36.8%	12.2%	18.6%	51.2%	44.6%
Research interest	15.5%	13.0%	2.7%	5.8%	81.8%	81.0%

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

The second hypothesis, that women would be less likely to agree that ‘having a successful relationship with a spouse/partner is compatible with pursuing an academic career,’ was not supported, $\chi^2(2, N = 457) = 0.20, p = .916$.

There was no a priori hypothesis about whether women or men would be less likely to pick “academic” or “non-academic” as a better career path for people who want to be parents. There was a non-significant trend for fewer men than women to think that “nonacademic” was a better career path for people who want to be parents, $\chi^2(1, N = 417) = 2.75, p = .097$.

In sum, it appears that having children was seen as more compatible with academia by men than by women, but the compatibility of a having a relationship with academia was perceived similarly by men and women.

Post hoc analyses (correlations) were conducted to explore associations with these variables and intentions to enter the professoriate. For both men and women, planning not to enter the professoriate was significantly positively correlated with agreeing that having children was not compatible with pursuing academic careers, $r(447) = .15, p = .002$, with agreeing that a successful relationship with a partner was not compatible with pursuing an academic career, $r(447) = .15, p = .002$, and with indicating that a nonacademic career was better for people who wanted to be parents, $r(408) = .21, p < .001$.

These three variables were entered into a regression analysis to see if they significantly predicted men’s and women’s intentions to become professors. Only the regression analysis for women was significant, $F(3, 228) = 5.83, p = .001$. This suggests that though planning not to become professors was associated with believing that parenthood and having a relationship were incompatible with pursuing academic careers by both men and women, these beliefs were not actually predictive of men’s intentions to become professors. The regression analysis was significant for women, but of the three variables entered, only the belief that a nonacademic career path was better than an academic career path for people who want to be parents was a significant predictor of women’s intention to be professors, $t(3, 228) = 3.39, p = .001$. Thus, only women’s decisions to enter the professoriate were significantly predicted by perceiving parenthood, but not relationships, as more suitable to nonacademic than academic careers.

Life and Academic Factors

Family plans

Analyses were conducted to examine whether men and women differed significantly in their plans to become parents. Two-sample z tests were used to compare proportions of men and women with specific responses. There was no significant difference between the proportions of women and men who planned to have children, $z = 0.58, ns$, were not sure if they wanted to have children, $z = 1.00, ns$, or did not plan to have children, $z = -1.17, ns$. Thus, men and women did not differ in predisposition toward becoming parents.

To see if men and women wanted to have children at different stages in their career, chi-square analyses were conducted. In terms of timing, significantly fewer women than men were unsure of when they wanted to have children, $\chi^2(1, N = 458) = 9.53, p = .002$. Significantly more women than men wanted to have children during work for or after receipt of their Master’s degree, $\chi^2(1, N = 458) = 10.32, p = .001$, as well as during work for or after receipt of their doctorate degree, $\chi^2(1, N = 458) = 4.60, p = .020$. There was no significant difference between the numbers of women and men who wanted to have children during or after their postdoctoral position, $\chi^2(1, N = 458) = 0.10, p = .445$, or when they obtained a nonacademic job, $\chi^2(1, N = 458) = 0.001, p = .545$, tenure-track appointment, $\chi^2(1, N = 458) = 1.04, p = .200$, or tenured position, $\chi^2(1, N = 458) = 0.73, p = .303$. There was a nonsignificant trend for more women than men to want to have children when they obtained a lecturer/instructor position, $\chi^2(1, N = 458) = 2.79, p = .075$.

In terms of age, significantly more women than men had a preferred age for when they would like to have their next or first child, $\chi^2(1, N = 388) = 10.82, p = .001$. When men and women with no age preference were removed from the data set, women stated that they would most prefer to have children at a significantly younger age than men did, $t(357) = -2.46, p = .014$.

Therefore, though there was no difference between the proportion of men and women who wanted to have children, more women than did men had a specific career stage and age at which they wanted to have children, and women wanted to have children at a younger age than did men. Thus, women

were more likely than men to have made temporal plans for having children.

Parenthood and Relationship Status

Analyses were conducted on parenthood and relationship status to see whether men and women differed in parenthood and relationship status. There was no significant difference between the numbers of men and women who were married or in common-law relationships,³ $\chi^2(1, N = 458) = 0.96, p = .189$. Significantly more men than women had children, $\chi^2(1, N = 458) = 9.51, p = .002$. Significantly fewer men than women had family living nearby, $\chi^2(1, N = 454) = 6.21, p = .008$. There was no significant difference between the numbers of men and women with partners in academia, $\chi^2(1, N = 458) = 0.10, p = .755$.

Academic factors

Analyses were conducted to examine whether there were any gender differences in academic factors. In answer to whether they received enough funding to live comfortably, there were no significant differences between the proportions of men and women who responded yes, just barely, or no, $\chi^2(2, N = 446) = 3.61, p = .164$. There was no significant difference in perceived nonacademic job availability by gender, $\chi^2(4, N = 450) = 0.95, p = .917$. There was no significant difference in the number of hours per week women and men worked, $t(440) = -0.51, p = .614$.

Academic Division

There were no hypotheses concerning academic division and gender (see Table I for men and women in each academic division), though it was generally expected that men and women would show the same pattern regardless of academic division. There were no significant interactions between gender and division for entering the professoriate, rankings of influences on the pursuit of an academic career, influences

on the pursuit of an academic career, or congruence of academia with life choices.

DISCUSSION

The purpose of this study was to address whether more women than men self-select away from academia in response to specific systemic barriers. In agreement with Golde and Dore (2001), results from the present study show that fewer women than men intend on pursuing academic careers.

Results show that men and women expressed similar views on most issues, and only differed on factors concerning parenting, mobility, and related perceptions of academia. For example, when they ranked influences on their intention to pursue an academic career, women and men ranked interest in research, teaching, and research competence similarly, but women ranked mobility and plans for parenthood higher than men did. Thus, when deciding whether to pursue an academic career, women may be more likely than men to include such related factors as parental leaves, childcare, and geographic mobility in their considerations. Though men and women do not differ in how research interest, competence, and teaching (all positively) influence their decision to pursue academic careers, more women than men indicate that mobility, plans for parenthood, and the academic environment and lifestyle are a negative influence on their intention to become professors. In accordance with the present study's findings, Cook (2001) reported that women ranked parenthood and geographic issues more negatively than men did in relation to their intentions to enter academia. The present study expands upon these findings to show that the gender difference is selective, and is not a general negative valuation of all academic factors. Beyond a mere extension, these data provide strong evidence that fewer women than men choose to enter academia not because of a lesser interest in research or a greater interest in family networks or childrearing, as the essentialist position suggests (e.g., Kimura, 1999).

Women do not self-select away from academia because of partner issues or a focus on teaching, though research has shown that women are perceived as being more interested in teaching than research (Miller & Chamberlin, 2000). Instead, women self-select away from academia because of issues related to parenting and mobility. For example, though women and men see academia as less suitable for

³The Ontario government defines a "common-law relationship" as two people who have been living together in a conjugal relationship for at least 1 year. It is likely that not all of the respondents were aware of this specific legal definition.

parents or people with partners, the perception of academia as less appropriate for individuals with children significantly predicts women's, but not men's, plans to enter the professoriate. That more men than women think that academia is compatible with having children, despite no gender differences in desire to have children, supports this contention. Not surprisingly, men and women appear to view both academia and childbearing differently.

As equal numbers of men and women in this study reported a desire to have children, it appears that family-related concerns are not woman-specific. Instead, the realities of having children concern women more than men; women are more certain of when they want to have children, and they view the geographic mobility involved in pursuing academic careers more negatively than men. The period of time involved in pursuing an academic career (graduate school, postdoctoral position, working toward tenure), as opposed to a career in other sectors, coincides with nearly the entirety of reproductive years for women, a fact often noted—and noted wryly—by participants in the present study and many other authors (e.g., American Association of University Professors [AAUP], 2001; Armenti, 2004; Graham, 1970; Ward & Wolf-Wendel, 2004). Results show that women want to have children at younger ages than men do, and women are more certain at which career stage they want to have children. This strongly suggests that women are well aware of the need to plan childbearing in accordance with both their fertility and their career stage. Men and women obviously view childbearing differently: men view it as something that will happen; women view it as something they need to fit into their lives and careers. Indeed, one study (Mason & Goulden, 2002) showed that men with early babies (prior to 5 years post-PhD) were strikingly more successful in earning tenure than were women with early babies or even individuals without babies. Obviously, having children is not problematic, but making time to have them might be.

University administrators certainly can address this issue; increased on-site quality childcare, fully funded parental—including paternal—leaves, and the recognition that hypermobility may not be an option would create the perception that academia is as hospitable to mothers as other workplaces are. These improvements could also be applied to graduate students, so that women and men learn first-hand that being a parent is not incompatible with pursuing academic careers. University reports

(e.g., Berkeley [Mason & Goulden, 2002]; Duke [Roth, 2003]; Massachusetts Institute of Technology [Committee on Women Faculty, 1999]), and others (e.g., AAUP, 2001; Equal Rights Advocates, 2003; Kite et al., 2001; Simeone, 1987) have made continual calls for these and other changes, but have been largely ignored by academic officials and university administrators. On the basis of the evidence from the present study, it is reasonable to propose that the lack of quality childcare, unequal/uncertain access to paid parental leaves, and geographic hypermobility are institutional barriers specific to women.

Universities that wish to attract the most meritorious doctoral graduates—some of whom will be women who wish to have children—should increase quality childcare and parental leave supports for faculty, postdoctoral researchers, and graduate students, and encourage other universities to do so as well. This would help institutions doubly, by increasing their attractiveness to potential candidates in their own hiring pool and by increasing the number of women in the general pool of qualified graduates. As some men are either primary caregivers or involved in equitable parenting, positive policies would help attract excellent male candidates as well.

Future researchers should examine whether universities with superior parenting policies produce women graduates who are more interested in pursuing academic careers. It would also be interesting to examine whether universities with positive parenting policies have a more proportionate representation of women in their own applicant pools. Research also should be conducted to determine which benefits are associated with hypermobility, or work toward eliminating a possibly unnecessary barrier. The leaky pipeline issue would certainly benefit from a longitudinal approach, whereby reported intentions about becoming professors could be translated into or contrasted with actual faculty appointments for the same cohort. This study provides evidence that women, more than men, self-select away from academia in response to specific systemic barriers related to parenting and mobility as opposed to other aspects inherent to the professoriate. With this evidence, the practice of assuming that women are less represented in academia because they are simply less interested ought to stop, especially because this belief was never predicated on empirical evidence. Many academics and administrators see the nonrepresentative number of women in academia as a nonproblem, and this too should come to an end. Many descriptive

reports have detailed barriers specific to women in academia, generally in scientific fields, and women in other fields have received less attention (Mason & Goulden, 2002). Others have reported the difficulties parents—particularly mothers—face in academia (e.g., Armenti, 2004; O'Reilly, 2003; Simeone, 1987; Ward & Wolf-Wendel, 2004; Wilson, 1999). However, few hypothesis-driven studies have been published on the topic of women in academia, and skeptics have used the descriptive nature of previous reports to claim that they are less than useful in determining causation and are politically motivated. I hope that the data from the present study will help to convince some of these individuals that the problem truly exists at an institutional level, affects woman selectively, and is remediable. Universities, academics, and administrators interested in the most meritorious applicants and professors should ensure they are doing all they can to attract them.

ACKNOWLEDGMENTS

Prizes for participation were funded by the UWO Graduate Teaching Assistants' Union and the Society for Graduate Students, with support from the UWO Women's Caucus. A brief report derived from this study was distributed at UWO. E. Evans, L. Kenton, S. B. Lattanzio, C. Tenk, C. J. Wilbur, and G. van Anders provided helpful suggestions and criticisms. Dr C. Golde, J. S. Hoshoooley, Dr M. E. Kite, G. van Anders, Dr P. A. Vernon, and C. J. Wilbur reviewed early drafts of this paper, for which I am extremely grateful. Dr J. C. Chrisler provided excellent editorial suggestions.

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