“Eight Days a Week”: A National Snapshot of Academic Mothers’ Realities in Canadian Psychology Departments.

Article in Canadian Psychology · March 2016
DOI: 10.1037/cap0000049

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Jessica M. McCutcheon
University of Saskatchewan
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Melanie A Morrison
University of Saskatchewan
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“Eight Days a Week”: A National Snapshot of Academic Mothers’ Realities in Canadian Psychology Departments

Jessica M. McCutcheon and Melanie A. Morrison
University of Saskatchewan

Contemporary research on women in academia suggests that faculty women who become mothers often find themselves in disadvantaged positions compared with academic fathers and their nonparenting male and female counterparts. Limited empirical attention has been directed toward understanding the barriers reported by women faculty, particularly those within Canadian academic settings. To address this omission, we analysed data from 275 psychology faculty members (190 women, 85 men) across 69 psychology departments within Canadian colleges and universities. We investigated the differential experiences of academic mothers and academic fathers in relation to their research output, time spent on workplace and household tasks, and work–family conflict. Results indicated that academic mothers spend significantly more time on childcare than academic fathers, despite having significantly fewer children, and they report significantly more work–family conflict. As well, women, regardless of parental status, had significantly lower research output than men. This comparative study of psychology faculty men and women provides insight about the disparities that exist between academic mothers and fathers. Drawing from the findings, recommendations for improved institutional supports are identified and discussed.

Keywords: mothers, fathers, academia, childcare, work–life balance

Researchers (e.g., Faludi, 1991; Schwartz, 1989) in the late 1980s and early 1990s explored and critiqued the phenomenon of the “mommy track” (i.e., prioritising mothering) by noting that professional mothers are relegated to lower-status and lower-paying jobs because of perceived expectations associated with their parental roles (Cummins, 2012). In academic settings, the discrimination associated with perceived mommy tracking has been put forth to explain, in part, the “leaky pipeline” (van Anders, 2004) and “pyramid problem” (Mason, 2011). The leaky pipeline and pyramid problem are used to describe the tendency for university faculty who are women to occupy the lowest levels of the academic hierarchy. That is, at each successive level within academic institutions, the representation of women decreases (van Anders, 2004). Of the teaching positions at universities within Canada, 40% are occupied by women, almost half of them are mothers (CAUT, 2013), and so parental status may indeed be involved in the disproportionate representation of women at the highest academic ranks.

Research has suggested that women faculty perceive the current climate in academic institutions to be less than welcoming to mothers (Castañeda & Isgro, 2013). Armenti (2004) interviewed 19 Canadian women professors who had engaged or anticipated having to engage in strategies to minimise the negative repercussions associated with their motherhood status (e.g., not being hired, negative effect on promotion and tenure reviews), and alleviate disapproval from colleagues. Results from the qualitative analysis revealed that participants with grown children reported having timed their pregnancies to coincide with the end of the academic year, and younger professors who might have started to have children opted to delay pregnancies until they had secured tenure. Overall, the perceived lack of support for academic mothers may cause some women to leave academia, delay tenure or promotions, or accept positions at teaching-focused, as opposed to research-focused, universities to prioritise their families (Damiano-Teixeira, 2006).

In an effort to understand the barriers faced by academic women, Comer and Stites-Doe (2006) developed a theoretical model of three factors that complicate (or facilitate) one’s ability to balance academic and parental roles. First, the phase of a woman’s career (i.e., pre- or posttenure) and the stage of her family can affect a woman’s role-balancing capacity. Women professors who have preschool-aged children, and women who are working toward tenure, have been theorized to experience greater difficulty. Second, the extent to which a woman’s partner contributes to household and childcare tasks affects a woman’s role-balancing capacity; specifically, the greater the contributions from one’s partner, the better a woman’s ability to balance roles. Indeed, compared with live-in support from other relatives, only spousal/partner support has been found to actually decrease the hours mothers work inside the home (Abroms & Goldscheider, 2002). Third, institutional factors (e.g., placement in a research- or teaching-focused university, work–family culture, and presence/absence of campus childcare) can affect women’s role balancing.

Despite the plethora of variables that could theoretically result in barriers for women, much of the empirical work examining differences between academic women and men has relied extensively on one key metric, namely, their respective publication records. Researchers consistently find that faculty men produce

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This article was published Online First March 10, 2016.
Jessica M. McCutcheon and Melanie A. Morrison, Department of Psychology, University of Saskatchewan.
Correspondence concerning this article should be addressed to Jessica M. McCutcheon, Department of Psychology, Arts Building, University of Saskatchewan, 9 Campus Drive, Saskatoon, Saskatchewan, Canada, S7N 5A5. E-mail: jessica.mccutcheon@usask.ca
greater research output, and identify the ranks of assistant and full professor where this gap is most noticeable (e.g., Carleton, Parkerson, & Horswill, 2012; Nakhaie, 2002; Stack, 2004). Although number of publications is undoubtedly an important metric to consider, Ward and Wolf-Wendel (2004) caution that discrepancies in academic women’s productivity (compared with academic men) may be due to breaks women take to have children. Therefore, publication records should be examined concurrently with other variables that may theoretically influence productivity, such as parental status. To examine this in greater detail, Stack (2004) assessed the productivity of 11,231 American doctoral recipients and found that those who had offspring under the age of 11 were significantly more productive than scholars who had no children. However, when taking into consideration both age of the children and gender of the participants, findings revealed that research productivity was significantly less for women who had preschool-aged children compared with all other groups.

The Present Study

Much of the existing literature on academic climate is borne of the experiences of women residing in the United States (e.g., O’Laughlin & Bischoff, 2005; Stack, 2004) and is predominantly qualitative in nature (e.g., Armenti, 2004; Damiano-Teixeira, 2006). In contrast, of the relatively smaller number of studies (e.g., Barata, Hunjan, & Leggatt, 2005; Schneider, Baker, & Stermac, 2002) on academic climate within Canadian academic institutions, most have focussed almost exclusively on graduate students and, notably, make no mention of parental responsibilities. The purpose of the present study, therefore, was to address these omissions in the literature by quantitatively investigating the experiences of Canadian academic faculty members who are parents and, in so doing, presenting a snapshot of their realities in institutions that are structured, according to Barata et al., (2005), to “accommodate the life courses of men.” Until further data are collected from academic faculty within a Canadian context, generalising the findings from American studies is premature and potentially unwarranted, as is extrapolating findings from other commonwealth countries such as the United Kingdom and Australia, the latter of which has systems that are highly differentiated from Canada insofar as their professorial ranks, promotion systems, programs, and curricula (European University Institute, 2015). A large-scale national study can offer greater generalizability and can directly compare academic mothers’ experiences with fathers’ to determine if disparities exist in Canada.

Hypotheses were formulated through a critical review of the literature. First, as found by other researchers (Carleton et al., 2012; Nakhaie, 2002; Stack, 2004), it was anticipated that faculty men would have significantly greater research output than faculty women and that parental status would mediate this relationship. Second, and in line with existing literature (e.g., Nakhaie, 2009; O’Laughlin & Bischoff, 2005; Sutor, Mecom, & Feld, 2001), it was expected that faculty mothers would report spending significantly more time on housework and childcare than faculty fathers, and fathers would spend significantly more time on research than mothers. Third, across qualitative studies, faculty women have been found to possess greater levels of worry related to role balancing (Armenti, 2004; O’Laughlin & Bischoff, 2005); it was therefore hypothesised that mothers would report greater levels of work–family conflict than fathers, and that time spent on workplace and household tasks, as well as number of children, would mediate that relationship.

Method

Participants

Participants were recruited using a two-pronged approach. Introductory letters were first sent to chairs of psychology departments within Canada, who were then asked to distribute the researchers’ ethically approved study-invitation letters to their faculty or grant permission to the researchers to send study-invitation letters to their faculty directly. Psychology departments (or departments with faculty specialising in psychology) from 70 universities and colleges were initially contacted. One department chair dissented; therefore, faculty members from 69 Canadian universities and colleges received study-invitation letters. Invitations to participate also were sent by e-mail through Canadian Psychological Association’s (CPA) section listservs. In total, 337 faculty members (222 women, 115 men) participated in the study, and data from both parents and nonparents were collected.

Given the objectives of the study, which were to elucidate the experiences of faculty members who are actively parenting, 62 parents with children over the age of 18 were removed from the analyses. Of the 275 participants remaining, 158 (108 women, 50 men) reported having children under the age of 18, and 117 (82 women, 35 men) indicated they were childless. The childless participants were retained in the sample to serve as a comparison group. Mothers ranged in age from 31 to 66 ($M = 42.04, SD = 7.89$), whereas women who were nonparents ranged from 27 to 65 ($M = 40.30, SD = 9.54$). Fathers had an age range of 29 to 66 ($M = 45.57, SD = 9.70$) and men who were nonparents ranged in age from 32 to 69 ($M = 41.89, SD = 10.04$).

Materials

Dependent variables. Descriptive information can be found in Table 1.

Research output. Research output was assessed using participants’ self-reported number of publications from the time they became a faculty member until the time they completed the survey. A cumulative research-output score was calculated using Nakhaie’s (2002) weighting scheme, by which publications are assigned the following values: nonrefereed publications (articles/book chapters) = 2; refereed publications (articles/book chapters) = 3. The publication weights were summed and then divided by three. Nakhaie’s formula was used so that a composite and comparable publication metric could be calculated.

Time spent on workplace and household tasks. To measure time spent on research, administration, teaching, housework, and childcare, participants responded on a 10-point frequency scale for each task. To minimise the cognitive burden of providing an exact
hourly estimate for average time spent on these tasks per week, the response options used increases ranging from less than 1 hour to more than 40 hours per week. Increments were recoded for analysis using the middle value of each increment (i.e., less than 1 hour was recoded as 0, 1–5 hours as 3, 6–10 hours as 8, 11–15 hours as 13, 16–20 hours as 18, 21–25 hours as 23, 26–30 hours as 28, 31–35 hours as 33, 36–40 hours as 38, and more than 40 hours as 43). Nineteen people neglected to answer the amount of time they spent on workplace tasks; therefore, individual mean imputation was used.

Work–family conflict. To the authors’ knowledge, no existing scale of work–family conflict considers the unique work experiences of university faculty. The existing scales do not allow for the relative flexibility and independence of an academic position; thus, a work–family-conflict measure that would be applicable to all faculty members was created by the researchers (see Appendix). The scale consisted of four items relating to faculty members’ ability to manage the conflicting demands of work and family. Participants responded using a 7-point frequency scale (0 = Never; 6 = Always), and responses were summed to create a total scale score ranging from 0 to 24. Higher scores signified greater work–family conflict. The four-item scale exhibited marginal scale-score reliability (Cronbach’s $\alpha = .64$; 95% CI = [.54, .73]).

Covariates and Predictor Variables

Rank. The ranks of full professor (coded as 4), associate professor (coded as 3), assistant professor (coded as 2), and other1 (e.g., lecturer, term appointment; coded as 1) were used. The sample included 58 full professors (36 women, 22 men), 88 associate professors (62 women, 26 men), 79 assistant professors (58 women, 21 men), and 45 participants (31 women, 14 men) were classified as other (e.g., lecturer, sessional instructor).

Time as a faculty member. To measure number of years spent as a faculty member, participants selected one of 10 increments ranging from less than 1 year to more than 40 years (1 = less than 1 year; 2 = 1–5 years; 3 = 6–10 years; 4 = 11–15 years; 5 = 16–20 years; 6 = 21–25 years; 7 = 26–30 years; 8 = 31–35 years; 9 = 36–40 years; 10 = more than 40 years).

Institution type. Participants responded with a yes or no to the question, “Does your institution offer a graduate degree in psychology?” Institutions without graduate programmes were coded as 1 and those with graduate programmes were coded as 2.

Overall, 202 participants (138 women, 64 men) reported that their institutions had graduate programmes and 72 (51 women, 21 male) indicated that their institutions did not.

Number of children. Participants indicated how many children they had on a scale from 0 to 5 or more. As few participants (n = 4) reported having more than three children, number of children was categorised as 0, 1, 2, or 3+. In total, 113 (42% women, 40% men), 54 (23% women, 12% men), 68 (22% women, 31% men), and 36 (12% women, 17% men) participants fell in each category, respectively. A $\chi^2$ analysis revealed that, among parents, number of children was not independent of gender, $\chi^2(2) = 6.54$, $p = .038$. The adjusted standardized residuals indicated that women ($z = 2.6$) were significantly more likely than men ($z = -2.6$) to have only one child.

Work-related stress. Work-related stress was measured using a 4-item scale4 (see Appendix) designed by the researchers. While scales measuring work-related stress exist, the unique stressors associated with an academic faculty position and its relative flexibility were not captured in these existing scales. Created through a review of occupational stress scales, we focussed the current measure on participants’ workload, feelings of guilt when not working, job demands, and time pressures. Participants responded with how often they experienced stress in these domains using a 7-point frequency scale (0 = Never, 6 = Always). Responses were

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1 An exploratory factor analysis was conducted on the four-item Work–Family Conflict Scale to determine its factor structure. The analysis, using principal axis factoring with oblique rotation (direct oblimin with a delta set at zero), determined that the scale was unidimensional. The lone factor accounted for 53.85% (eigenvalue = 2.15) of the variance. Providing support for the construct validity of the measure, scores on the Work–Family Conflict Scale were found to correlate strongly with work-related stress. The relationship between work–family conflict and work-related stress has been demonstrated in numerous studies (e.g., Fu & Shaffer, 2001; Hammer, Saksivik, Nytrø, Torvatn, & Bayazit, 2004).

2 At some institutions, “lecturer” or “instructor” are the only ranks available.

3 An exploratory factor analysis was conducted on the four-item Work-Related Stress Scale. Principal axis factoring using oblique rotation (direct oblimin with a delta set at zero) was conducted. An examination of the resulting eigenvalues and the scree plot revealed that the scale was unidimensional. The lone factor accounted for 73.92% (eigenvalue = 2.96) of the variance. Scores on the Work-Related Stress Scale were found to correlate strongly with work–family conflict, lending support for its preliminary construct validity.

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### Table 1

**Descriptive Information**

<table>
<thead>
<tr>
<th>Descriptor</th>
<th>Possible range</th>
<th>Skewness parents (SE)</th>
<th>Kurtosis parents (SE)</th>
<th>Total parents mean (SD)</th>
<th>Mothers mean (SD)</th>
<th>Fathers mean (SD)</th>
<th>Childless women mean (SD)</th>
<th>Childless men mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output</td>
<td>—</td>
<td>1.95 (.20)</td>
<td>3.72 (.39)</td>
<td>26.16 (31.41)</td>
<td>19.84 (23.75)</td>
<td>39.73 (40.61)</td>
<td>18.70 (23.39)</td>
<td>45.76 (52.86)</td>
</tr>
<tr>
<td>Administration</td>
<td>0–43</td>
<td>2.11 (.19)</td>
<td>5.23 (.38)</td>
<td>8.95 (7.77)</td>
<td>8.46 (7.36)</td>
<td>10.00 (8.57)</td>
<td>9.05 (7.06)</td>
<td>9.11 (7.78)</td>
</tr>
<tr>
<td>Teaching</td>
<td>0–43</td>
<td>.73 (.19)</td>
<td>−10 (.38)</td>
<td>18.89 (9.49)</td>
<td>19.06 (8.34)</td>
<td>18.52 (11.68)</td>
<td>20.29 (9.65)</td>
<td>17.69 (9.38)</td>
</tr>
<tr>
<td>Research</td>
<td>0–43</td>
<td>.80 (.19)</td>
<td>.61 (.38)</td>
<td>13.67 (8.28)</td>
<td>13.62 (7.51)</td>
<td>13.78 (9.83)</td>
<td>13.53 (8.36)</td>
<td>17.99 (9.83)</td>
</tr>
<tr>
<td>Housework</td>
<td>0–43</td>
<td>1.43 (.19)</td>
<td>4.34 (.38)</td>
<td>12.11 (6.78)</td>
<td>12.54 (6.68)</td>
<td>11.20 (6.98)</td>
<td>8.85 (5.64)</td>
<td>8.29 (4.43)</td>
</tr>
<tr>
<td>Childcare</td>
<td>0–43</td>
<td>−13 (.19)</td>
<td>−123 (.38)</td>
<td>24.16 (13.75)</td>
<td>27.35 (13.65)</td>
<td>27.18 (11.04)</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Stress</td>
<td>0–24</td>
<td>.09 (.19)</td>
<td>−20 (.38)</td>
<td>12.41 (4.62)</td>
<td>13.30 (4.30)</td>
<td>10.48 (4.75)</td>
<td>12.56 (4.88)</td>
<td>11.09 (4.16)</td>
</tr>
<tr>
<td>WF Conflict</td>
<td>0–24</td>
<td>−.04 (.20)</td>
<td>−28 (.39)</td>
<td>10.78 (4.03)</td>
<td>11.30 (3.70)</td>
<td>9.70 (4.51)</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

**Note.** Number of publications; administration = hours spent on administration per week; teaching = hours spent on teaching per week; research = hours spent on research per week; housework = hours spent on housework per week; childcare = hours spent on childcare per week; stress = work-related stress; WF conflict = work–family conflict.

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1. For example, associate professor (coded as 3). 2. An exploratory factor analysis was conducted on the four-item Work–Family Conflict Scale to determine its factor structure. The analysis, using principal axis factoring with oblique rotation (direct oblimin with a delta set at zero), determined that the scale was unidimensional. The lone factor accounted for 73.92% (eigenvalue = 2.96) of the variance. Providing support for the construct validity of the measure, scores on the Work–Family Conflict Scale were found to correlate strongly with work-related stress. The relationship between work–family conflict and work-related stress has been demonstrated in numerous studies (e.g., Fu & Shaffer, 2001; Hammer, Saksivik, Nytrø, Torvatn, & Bayazit, 2004).
summed to create a total scale score ranging from 0 to 24, with higher scores reflecting more frequent work-related stress. The Stress Scale exhibited good scale score reliability (Cronbach’s α = .88; 95% CI = [.85, .91]).

Procedure
Participants were presented with a consent form that explained the study’s purpose, assured them of their anonymity and freedom to withdraw, and informed them that the researchers’ Institutional Research Ethics Board had approved the study. Participants were then presented with the survey, which took approximately 20 min to complete. Participants were thanked electronically for their involvement, debriefed, and given the opportunity to enter a lottery for one of five $100 gift cards.

Results
Research Output
To examine what factors might contribute to their disparate publication rates, regression analyses were conducted separately for men and women due to the substantial difference between men’s (M = 40.96; SD = 45.70) and women’s (M = 19.34; SD = 25.53) research output, F(1, 252) = 14.81, p < .001, η² = .06, even after controlling for rank, years as a faculty member, institution type, and time spent on research. In addition to these covariates, which are associated with research output in the existing literature (e.g., Carleton et al., 2012; Comer & Sites-Doe, 2006; Nakhaie, 2002; Stack, 2004), parental status also was included in the analyses. Prior to conducting the analyses, the data were examined to ensure that no assumptions were violated. One outlier participant, who had a publication rate over 3 SDs above the mean, was removed from the analysis (Osborne & Overbay, 2004). To assess whether multicollinearity existed, the intercorrelations between variables were examined and were within an acceptable range. Further, variance-inflation factor scores were below 1.85 and tolerance values exceeded .54, suggesting that multicollinearity was not an issue (Myers, 1990; Field, 2009). To ensure that the errors were independent, a Durbin–Watson test was conducted with a resulting value of 1.65 for the analysis of women and 2.04 for the analysis of men, which satisfies Field’s (2009) criterion that the value fall between 1 and 3. However, due to a nonnormal sample distribution (see Table 1 for skewness and kurtosis values), bootstrapping was used.

The regression analysis for faculty women was significant (see Table 2) with the variables accounting for 48.9% of the variance in research output. Rank, years as a faculty member, institution type, and time spent on research were found to significantly predict women’s output, accounting for 11.2%, 5.4%, 1.5%, and 3.1% of unique variance, respectively. These results suggest that, among women, higher ranked faculty, those who have been faculty members longer, work at institutions with graduate programmes, and spend more time on research have greater research output. The regression analysis for faculty men also was significant, with the variables accounting for 46.4% of variance in output. Only rank and time spent on research were found to significantly predict men’s research output, accounting for 9.9% and 2.5% of unique variance, respectively. Parental status did not emerge as a significant predictor in either analysis.

Time Spent on Workplace and Household Tasks
Separate ANCOVAs were conducted to determine if men and women differed in the amount of time they allocated to workplace tasks (i.e., research, teaching, and administration). Due to their significant correlations with the dependent variables, rank and institution type were included as covariates for the analysis of time spent on teaching and research, and rank and years as faculty members were included as covariates in the analysis for time spent on administration. Nonparents were included as a comparison group and a Bonferroni correction was used to account for multiple comparisons. The analysis of time spent on research revealed that institution type, F(1, 264) = 19.33, p < .001, η² = .07, was a significant covariate; however, none of the analyses for the three

<table>
<thead>
<tr>
<th>Variable</th>
<th>R</th>
<th>R²</th>
<th>F</th>
<th>b</th>
<th>β</th>
<th>t</th>
<th>p</th>
<th>r_xy</th>
<th>sr</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Women (n = 178)</td>
<td>.67</td>
<td>.49</td>
<td>33.08**</td>
<td>-1.36</td>
<td>- .03</td>
<td>- .52</td>
<td>.571</td>
<td>.02</td>
<td>- .03</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rank</td>
<td>10.11</td>
<td>.42</td>
<td>6.14*</td>
<td>.001</td>
<td>.62</td>
<td>.33</td>
<td>[7.49, 12.69]</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Years as faculty</td>
<td>4.18</td>
<td>.28</td>
<td>4.27*</td>
<td>.001</td>
<td>.52</td>
<td>.23</td>
<td>[2.28, 6.57]</td>
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<td></td>
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<tr>
<td>Institution type</td>
<td>6.97</td>
<td>.13</td>
<td>2.27*</td>
<td>.008</td>
<td>.25</td>
<td>.12</td>
<td>[2.78, 11.64]</td>
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<tr>
<td>Time spent on research</td>
<td>.54</td>
<td>.18</td>
<td>3.22*</td>
<td>.001</td>
<td>.28</td>
<td>.18</td>
<td>[2.77, 8.3]</td>
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<tr>
<td>Men (n = 79)</td>
<td>.68</td>
<td>.46</td>
<td>12.62**</td>
<td>- .52</td>
<td>- .01</td>
<td>- .06</td>
<td>.959</td>
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<tr>
<td>Rank</td>
<td>5.40</td>
<td>.26</td>
<td>2.29*</td>
<td>.060</td>
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<td>.03</td>
<td>[4.61, 11.70]</td>
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<tr>
<td>Institution type</td>
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<td>.636</td>
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<td>.03</td>
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<td>Time spent on research</td>
<td>.82</td>
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<td>1.84*</td>
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<td>.16</td>
<td>[0.09, 1.47]</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. Coding: gender (male = 1; female = 2); rank (other = 1; assistant professor = 2; associate professor = 3; full professor = 4); years as faculty (1 = less than 1 year; 2 = 1–5 years; 3 = 6–10 years; 4 = 11–15 years; 5 = 16–20 years; 6 = 21–25 years; 7 = 26–30 years; 8 = 31–35 years; 9 = 36–40 years; 10 = more than 40 years); institution type (without graduate programmes = 1; with graduate programmes = 2).

*p < .05. **p < .001. 95% confidence intervals are based on 1,000 bootstrap samples.
workplace tasks showed significant differences based on gender or parental status.

Two independent t tests were conducted to determine if fathers and mothers differed in time spent on childcare and housework. The analysis for time spent on childcare yielded a significant Levene’s test, therefore, equal variances were not assumed. The analysis was statistically significant, t(117) = 4.92, p < .001, d = .81. As predicted, academic mothers (M = 27.35, SD = 13.75) spend significantly more time on childcare activities per week than academic fathers (M = 17.28, SD = 11.04). No gender difference was found for the amount of time spent on housework.

Work–Family Conflict

An independent-samples t test was conducted to determine if mothers and fathers differed in their levels of work–family conflict. The analysis was significant, t(152) = 2.34, p = .021, d = .39, with faculty women (M = 11.30, SD = 3.70) reporting significantly higher levels of work–family conflict than faculty men (M = 9.70, SD = 4.51). To determine which variables predicted work–family conflict for faculty men and women, a hierarchical regression analysis was conducted. Key assumptions for the statistical procedure were checked prior to the analyses. The intercorrelations between variables were examined, variance-inflation factor scores were below 2.10, tolerance values exceeded .47, and the Durbin–Watson test generated a result of 1.85. The assumption of homoscedasticity did not appear to be violated upon examination of the residual scatterplot.

Institution type, rank, years as a faculty member, research output, number of hours spent on household and work activities, work-related stress, number of children, and gender were included in the first step, and the interactions of the variables with gender were included in the second step (see Table 3). The analysis was statistically significant, with the variables in the first step accounting for 38.3% of the variance in work–family conflict scores. Only work-related stress was found to be a significant predictor of work–family conflict, accounting for 27.4% of unique variance. The analysis indicated that there is greater work–family conflict among faculty who have greater work-related stress. In the second step, only the interaction between gender and work-related stress was found to be a statistically significant predictor, accounting for 2.2% of unique variance in work–family conflict scores. This finding suggests that work-related stress affects fathers’ work–family conflict to a greater extent than it does for mothers.

Discussion

The present study offers insight into the contemporary experiences of academic parents affiliated with psychology departments across Canada and contributes to possible explanations for the “leaky pipeline” (van Anders, 2004) or “pyramid problem” (Mason, 2011). An examination of the research output of academic parents, using nonparents as a comparison group, revealed that, regardless of parental status, women have significantly lower research output than men. Rank and time spent on research appear to predict men’s and women’s output similarly; however, years as a faculty member and institution type only emerged as significant predictors of women’s output. These differences need to be interpreted cautiously given the low amount of unique variance in output accounted for by these variables (5.4% for years as faculty and 1.5% for institution type). Institution type (i.e., the presence or absence of a graduate programme) was used as a proxy to represent research- versus teaching-focussed institutions. Therefore, it is not surprising that working at an institution that could be classified as comparatively more research-focussed would predict greater research output. Likewise, years as an instructor predicted

<table>
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<tr>
<th>Variable</th>
<th>R</th>
<th>R²</th>
<th>F</th>
<th>β</th>
<th>t</th>
<th>r²</th>
<th>sr</th>
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<tr>
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<td></td>
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<tr>
<td>Gender</td>
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<td>.38</td>
<td>9.23**</td>
<td>-03</td>
<td>-.31</td>
<td>.17</td>
<td>-.02</td>
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<td>Rank</td>
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<td>-.13</td>
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<tr>
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<td>-.19</td>
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<td>.02</td>
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<td>-.13</td>
<td>-.02</td>
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<tr>
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<td>.83</td>
<td>.16</td>
<td>.06</td>
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<td></td>
<td></td>
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<tr>
<td>Time spent on household tasks</td>
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<td>.01</td>
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<td>Number of children</td>
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<td>-.11</td>
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<td>5.49**</td>
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<td>-.35</td>
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<tr>
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<td>-.06</td>
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Note. Coding: gender (1 = male; 2 = female); rank (other = 1; assistant professor = 2; associate professor = 3; full professor = 4); institution type (without graduate programmes = 1; with graduate programmes = 2). * p < .05. ** p < .001.
research output, as faculty tend to publish more with each successive year.

Although parental status did not emerge as a significant predictor of research output, it may have had an indirect effect on the analysis. Stack (2004) posits that the presence of young children may disproportionately affect the publication rates of women as compared with men. Unfortunately, children’s ages were not included in the present study. Other possibilities should also be explored to account for the disparity between women’s and men’s research output. One plausible explanation relates to the area of psychology in which men and women are concentrated. Within psychology, women appear to be concentrated in the undervalued “soft” fields (e.g., developmental, child psychology), and they are substantially outnumbered in the comparatively “hard” fields (e.g., neuroscience; Kite et al., 2001). A recent study of Canadian psychology graduate students found a trend (although not reaching statistical significance) for experimental students to have greater research output than clinical students (Peluso, Carleton, Richter, & Asmundson, 2011). This gap may potentially increase over time.

Results confirm past studies (e.g., García-Mainar, Molina, & Montunegua, 2011; Suitier et al., 2001) that show that mothers spend significantly more time on childcare than fathers. Women participants in the present study engaged in approximately 10 hr more childcare per week than men. No significant differences were found between men and women in hours spent on housework or workplace tasks. However, in the analysis of work–family conflict, academic mothers reported greater levels than fathers. Work-related stress was found to be the only predictor of men’s and women’s work–family conflict. Byron (2005), who conducted a meta-analytic review of 61 studies investigating work–family conflict, concluded that demographic variables such as gender are poor predictors when considered in isolation. Instead, gender may have an indirect effect on work–family conflict by interacting with other variables, such as family stress or number of children. The present study revealed that gender and work-related stress interacted to predict work–family conflict; however, it accounted for only 2.2% of unique variance and it was men’s work–family conflict that was affected more by work-related stress. Future researchers should consider other variables in conjunction with gender to determine why women experience greater work–family conflict.

Based on these findings, and in an effort to address the “leaky pipeline” problem in which university faculty women are concentrated in the lowest academic ranks, a number of recommendations can be made to improve the existing climate for academic mothers in Canadian universities and colleges. Specifically, disparities found between academic mothers’ and fathers’ levels of work–family conflict, time spent on childcare, and research output may contribute to women’s underrepresentation in the upper echelons of the academic hierarchy. Institutional supports, including family-friendly policies and programs (e.g., modified duties; tenure-clock extensions; dependent-care travel funds; work/life assistance programs offering support for personal issues; and referrals for services such as childcare, eldercare, and financial management) and high-calibre, university-affiliated day-care services should be available.

However, in addition to the implementation of polices and practices that could alleviate work–family conflict for academic mothers by giving them more flexibility to manage their familial demands, efforts to reduce faculty women members’ work-related stress, which was the greatest predictor of work–family conflict, also should be a priority.

Future researchers should consider what work-related factors might contribute to women’s increased levels of stress. For instance, research suggests that workplace climate may be experienced and perceived differently by faculty women than faculty men (Krefting, 2003; Foster et al., 2000). Foster et al. (2000) found in a study of 507 medical school faculty women that they felt unwelcome in the scientific community, that their professional environment was less supportive of women, that they were not taken as seriously as men, and that they were not sought for collaborations to the same extent as their male colleagues. Krefting (2003) refers to the day-to-day obstacles faced by women in academia as “microinequities.” Further, Krefting (2003) cautions that the subtle sexism of these microinequities is especially difficult to combat, as they are often too minor to warrant complaint; however, their cumulative effect may hinder women’s productivity and career advancement. Future researchers should examine whether latent sexism in the workplace increases women’s work-related stress and work–family conflict and whether it disproportionately affects academic mothers.

Finally, ongoing research is needed to further examine the disparity between faculty women’s and faculty men’s research output. Although this study provided evidence that a gap exists, little is known about women’s perceptions of their comparatively lower research output. Importantly, Damiano-Teixeira (2006) provides preliminary evidence that women consciously prioritise either their careers or their families. Although women may be cognisant of the effect of prioritising work or family on their productivity, a comprehensive analysis of relevant variables that may affect women’s research output is needed. Additional information could facilitate the development of interventions to eliminate the productivity gap between women and men, regardless of their family formation decisions. In particular, a theoretical model of research productivity that considers the influence of institutional, structural, societal, and psychological factors should be developed. For instance, levels of work–family conflict or the “double shift” performed at home may contribute to women’s reduced productivity.

Limitations

One limitation of the present study was that data on field of research (e.g., clinical, experimental) were not collected. Future researchers should consider how publication rates differ by field. A few limitations related to the measurement of variables in the present study should also be noted. First, lifetime publication data (excluding publications generated prior to becoming a faculty member) were collected as opposed to number of publications generated during a specific time period. Nakhaie (2002) collected data on lifetime publication rates as well as number of publications during the three years before the survey. It was found that gender differences disappear when considering only the 3-year interval. Ward and Wolf-Wendel (2004) note that gaps in women’s productivity may relate to the time they took off to have children. By examining publications generated during a shorter time frame, the effect of maternity leaves or shifts in productivity due to increased
caregiving responsibilities may be reduced. Stack (2004), who examined publications produced during a 5-year period, found that gender differences persisted despite the shorter time frame. It may be useful to collect publication data on multiple time intervals to examine if, in the case of Canadian psychology faculty, differences in research output change depending on the time frame. Further, a more detailed understanding of productivity could be garnered if information such as impact factor and h-index were collected.

Another issue concerns the measurement of work–family conflict. Researchers have begun to recognize the bidirectional nature of work–family conflict and have divided it into two components: family interference with work (FIW) and work interference with family (WIF). FIW involves a conflict originating from the family, such as the illness of an elderly parent, which can potentially affect an individual’s work (Gutek, Searle, & Klepa, 1991). Alternatively, WIF relates to aspects of an individual’s work, such as amount of overtime hours, which can affect home life (Fu & Shaffer, 2001). Different variables have been found to pertain to each component. Fu and Shaffer (2001) found that parental demands and hours spent on household tasks were determinants of FIW, while role conflict (i.e., conflict that occurs when an individual encounters competing demands stemming from multiple roles), role overload (i.e., the demands of a role are so great that an individual cannot perform the role adequately), and hours spent on work activities were related to WIF.

An examination of the questions used to assess work–family conflict in the present study revealed that WIF was likely the dimension that was measured in three of the four items. The questions related to how an individual’s work role interfered with his or her family role. The focus on WIF may have generated different results than an investigation of factors related to FIW. Additionally, with just four items assessing work–family conflict, only a simplistic understanding can be garnered. Future research should include more items and should assess both components of work–family conflict to determine if men and women differ on FIW.

Lastly, although the population of Canadian psychology faculty in its entirety (except faculty at one university in which the Chair dissented) were provided the opportunity to participate in the present study, it is implausible to argue that the sample is representative. It should be noted that the sample is diverse, with faculty working in all provinces, at all ranks, and with a range of ages, sexual orientations, and ethnicities; yet, the sample is fairly small relative to the population of psychology faculty. Future researchers should aim to secure a representative sample and extend this research beyond the field of psychology to determine what similarities and differences exist for academic mothers.

**Conclusion**

The results from this study indicate that disparities exist between women and men within psychology departments across Canada in regard to their research output and work–family conflict. Also, academic mothers were found to spend, on average, 10 more hr per week on childcare tasks, despite having fewer children than their male counterparts. Future research is needed to identify the barriers encountered by academic mothers that may contribute to the gender differences that were found in the present study, for it is these disparities that could potentially discourage women graduate students from pursuing a career in academia and may impede the advancement of academic mothers.

**Résumé**

Les recherches contemporaines sur les femmes universitaires indiquent que celles qui ont des enfants se retrouvent souvent désavantagées par rapport aux universitaires qui sont père ainsi qu’à leurs homologues masculins et féminins sans enfants. Une très faible attention empirique a été accordée à la compréhension des barrières signalées par les femmes universitaires, particulièrement celles œuvrant dans le milieu universitaire canadien. Pour remédier à cette omission, nous avons analysé des données provenant de 275 universitaires (190 femmes et 85 hommes) répartis dans 69 départements de psychologie des collèges et universités du Canada. Nous avons étudié les différences au niveau du vécu des mères et pères universitaires par rapport à leurs résultats de recherche, au temps passé sur le lieu de travail et sur les tâches ménagères ainsi que par rapport aux conflits travail-famille. Les résultats indiquent que les mères universitaires passent beaucoup plus de temps à prendre soin des enfants que les pères universitaires, même si elles ont considérablement moins d’enfants. Elles rapportent aussi un nombre significativement plus élevé de situations de conflit travail-famille. De plus, les femmes, sans égard à leur situation parentale, produisent significativement moins de résultats de recherche que les hommes. Cette étude comparative des femmes et des hommes de la faculté de psychologie donne un aperçu des disparités qui existent entre les hommes et les femmes universitaires. À partir des différents constats, des recommandations visant l’amélioration du soutien institutionnel sont formulées et discutées.

**Mots-clés** : Mères, pères, formation universitaire, soin des enfants, conciliation travail-famille

**References**


(Appendix follows)
Appendix

Scales Created by the Researchers

**Work–Family Conflict Scale**

1. My work takes up time that I’d like to spend with my family.

2. My job makes it difficult to be the kind of parent I’d like to be.

3. I have missed my child’s (or children’s) important events, because I did not want to appear uncommitted to my job.

4. I find it difficult to attend meetings that are scheduled in the evening or on weekends because of my family responsibilities

**Work-Related Stress Scale**

1. The demands of my job make it difficult to be relaxed at home.

2. I feel overwhelmed by my workload.

3. I feel guilty when I’m not working

4. I have unrealistic time pressures in my job.

*Note. Participants responded using a 7-point frequency scale (0 = Never; 1 = Rarely; 2 = Occasionally; 3 = Sometimes; 4 = Often; 5 = Nearly always; 6 = Always).*