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Journal of Research in Gender Studies

Volume 9(1) • 2019

Institute of Interdisciplinary Studies in Humanities and Social Sciences • New York

Journal of Research in Gender Studies

VOLUME 9(1) • 2019

ADDLETON ACADEMIC PUBLISHERS • NEW YORK

Journal of Research in Gender Studies
An international peer-reviewed academic journal
Volume 9 / Number 1 / 2019
© 2019 by the Institute of Interdisciplinary Studies
in Humanities and Social Sciences, New York

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Acceptance Rate (2018): 11%

Journal of Research in Gender Studies is published twice a year (July and December) by Addleton Academic Publishers, 30-18 50th Street, Woodside, New York, 11377. All papers in this journal have undergone editorial screening and anonymous double-blind peer-review. ISSN 2164-0262, eISSN 2378-3524, OCLC Number: 780797930.

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Journal of Research in Gender Studies 9(1), 2019
pp. 9–37, ISSN 2164-0262, eISSN 2378-3524

Androcentrism and the Great Man Narrative in Psychology Textbooks: The Case of Ivan Pavlov

Darryl B. Hill
darryl.hill@csi.cuny.edu
College of Staten Island and
The Graduate Center,
City University of New York, NY, USA

ABSTRACT. Androcentrism is common and well-documented in undergraduate psychology textbooks. Many pioneering women are missing from the history of psychology, especially women from non-Western countries like Russia. The Russian physiologist Ivan P. Pavlov is a canonical figure in American psychology, yet historical accounts of his work have followed an androcentric great man narrative. This paper presents characterizations of Pavlov in introductory and history of psychology undergraduate textbooks, alongside general scholarship on Pavlov, and remedies omissions by documenting and describing the lives and work of women who worked in Pavlov's labs. The primary reasons for these omissions are ideological and barriers to a global history of psychology.

Keywords: history; psychology; women; science; Ivan P. Pavlov; Russia; androcentrism; individualism

How to cite: Hill, Darryl B. (2019). "Androcentrism and the Great Man Narrative in Psychology Textbooks: The Case of Ivan Pavlov," *Journal of Research in Gender Studies* 9(1): 9–37. doi:10.22381/JRGS9120191

Received 28 May 2018 • Received in revised form 6 August 2018
Accepted 7 August 2018 • Available online 27 August 2018

Introduction

Androcentrism is pervasive in psychology's textbooks. Gray (1977) first reported on the extensive male-centered bias and invisibility of women in undergraduate textbooks. Seeking more evidence of bias, Denmark (1983) reviewed introductory psychology textbooks from 1979–1982 and found that women were not equally represented in content. Denmark urged us to consider the role of women in psychology, name those women who were important,

and discuss their accomplishments. These conclusions were echoed by Percival (1984) in her assessment of introductory psychology textbooks. Into the 1990s, gender-biases decreased in introductory and abnormal psychology textbooks as more women were portrayed, but women were still characterized in stereotypical and negative ways (Bender Peterson & Kroner, 1992; Marecek, 1993). So for over 40 years, it's been acknowledged psychology's textbooks are gender-biased, and given sensitivity to current values about gender equality the standard should be very high for contemporary works, but this paper will show that authors, editors, and publishers still create content that excludes women or represents women negatively.

An easy way to address this bias is to include contemporary women psychologists in our textbooks, but we also need to attend to female pioneers in early psychology's history. Historicizing women in psychology might encounter several problems. For one thing, some of the early history of psychology happened in other countries and languages. If we are to achieve a truly global perspective on the history of psychology (Brock, 2006), it is necessary to fully document the psychology histories of other nations, to reach beyond our borders to write a history of our global world, not just the West (Berg, 2013). Yet, developing an accurate global history of psychology is filled with obstacles, both practical and ideological. Practical obstacles include uncovering and gaining access to archives and histories, obtaining translations, and interpreting these histories in local cultural and historical context. Ideological barriers also influence the documentation and interpretation of historical events, and American individualism and androcentrism are especially potent in American psychology.

Given the above, placing women into the history of psychology means countering ideological and hermeneutic concerns related to the great man narrative in history. Histories of psychology are commonly infused with stories about great men, an idea developed by the 19th century writer Thomas Carlyle (1888), who asserted that heroes shape history (Ball, 2012). These histories typically focus on one famous psychologist and describe their discoveries, ideas, and life. This emphasis on one person, common in histories of psychology, is an expression of individualism, a focus on the individual as the agentic center of action (Cushman, 1990), and the accomplishments of a person rather than a collective (Sampson, 1997). Of course, great man stories can be countered by historians looking at the social, cultural, and historical context of those famous psychologists (Ball, 2012), including the scientific collective in which they worked. The counternarrative would be: heroes don't make history; heroes have a place in history among peers, collaborators, community, and society.

Histories of women from other countries promise to be particularly difficult. Suchland (2011) cautioned that women of the former "second world," (as opposed to first or third worlds), like those in Russia, have been ignored

by recent transnational feminist scholarship from the global North. Extending this analysis to psychology makes sense: women psychologists from the first world are much better known than second or third world women. Suchland contends that the erasure of non-Western women is likely because they are problematic subjects of transnational or intersectional feminism. Russian women, for example, have been erroneously constructed as white, ethnically homogenous, and not post-colonial. Moreover, in contrast to women of other nations who were openly exploited and oppressed by their governments or culture, the Soviet government legislated gender parity (at least officially). Admittedly, Soviet women were oppressed by their gender in many ways (e.g., domestic violence), but the state supported gender equality in work and education.

This all makes Russian women complex and a difficult topic for contemporary feminism. The goals of this paper are twofold. First, this paper will present a feminist critique of androcentric great man narrative of Ivan Pavlov in American and Russian psychology undergraduate textbooks. The second goal is to present a counter-narrative describing the major role women and others played in Pavlov's research labs.

"We, the Factory"

The life and work of Ivan Petrovich Pavlov, the famous Russian physiologist and one of the founders of modern psychology, illustrates the above issues. Contemporary psychology tells an androcentric great man story about Pavlov: it ignores the role of women in the production of psychological knowledge and overemphasizes the role of Pavlov himself, resulting in an inaccurate and biased history. The popular story is that Pavlov was researching the physiology of digestion in dogs and discovered phenomena related to learning, eventually founding the science of classical conditioning. His contributions to science and the psychology of behaviorism – pairing buzzers with food and making dogs salivate to the buzzers alone – and his 1904 *Nobel Prize in Physiology or Medicine* are oft-repeated.

From histories of Pavlov (e.g., Todes, 2014), we know a few more details about his research operations. Pavlov's laboratories were famous and highly attractive placements for students in medicine and physiology, and with state-offered incentives, he had many mentees and collaborators eager to work with him. The Ministry of Internal Affairs provided grants to physicians to improve themselves at the Military-Medical Academy, a university medical school, university clinic, or hospital in proximity to a university for a period of 6 months to 2 years, and paid them their regular salary, along with a doctorate and a salary bonus if they finished (Todes, 2002a). Students were drawn almost entirely from the diverse middle social stratum known in

Russia as the *raznochintsy*. At the time, there were quotas limiting Jewish enrollment in high school and higher education, but Jewish doctors with service to the state were entitled to the same rank as non-Jews and were not prohibited from practicing in Saint Petersburg or Moscow. This made an appointment in Pavlov's lab even more attractive for Jews, and a disproportionate number of Pavlov's students were Jewish (Todes, 2002a). Previous scholars have characterized his students as mostly male military doctors affiliated with the Military-Medical Academy, and civilian physicians from Saint Petersburg or the surrounding provinces, between 25 and 35 years old (Babkin, 1949; Todes, 2002a).

Noted Pavlov historian Todes (2002) suggested that from the years 1891 to 1904 about 100 *praktikanty* (temporary assistants), had been employed in his lab including about 10 assistants (*pomoshchniky*) and attendants (*sluzhashchie*). Another estimate is that before 1905 there were only a few researchers working in Pavlov's lab; by 1930, there were 40 (Windholz, 1990). Or counting another way, from 1897 to 1936, there were at least 146 graduate students and staff who worked under Pavlov (Windholz, 1990). Historians may disagree on the specifics, but one thing is clear: Pavlov was not the only one doing research in his name.

Countering the great man narrative, Todes (2002a) used the notion of a "factory" to reinforce the idea that the work in Pavlov's laboratories was a collective effort. Todes described how the *praktikanty* conducted thousands of experiments in Pavlov's laboratory, painstakingly collecting, recording, measuring, and analyzing the dogs' secretory reactions to various exciters during experimental trials that often continued for eight to ten hours at a time. Pavlov did not conduct the majority of the experiments, yet he always discussed the results of each experiment with the student who performed it (Babkin, 1949). Perhaps this was an indication of what Todes (2002a) called Pavlov's laboratory *glasnost*, openly discussing experiments, and proudly acknowledging that his research was conducted almost entirely by *praktikanty*. Pavlov even credited "We, the laboratory" for discoveries, making his lab sound like a collective (Todes, 2002a: 103). Indeed, it was so much a collective effort that students were forbidden from writing their own interpretations of their experiments (Todes, 2003). Babkin (1949) quoted Pavlov as saying "…I speak collectively, mentioning no authors, when I discuss ideas and opinions…it is a joint work and the result of the general laboratory atmosphere, to which each one gives something and which is imbibed by all" (Pavlov, 1897, as cited by Babkin, 1949: 116–7). As further evidence of this, in the English translation of his collected works, Pavlov, the figurehead of the factory, gave credit to so few researchers by name that the American translators added footnotes identifying the specific contributions of others (Pavlov et al., 1928). As factory head, Pavlov was an original "big science" pioneer who promoted the idea that he spoke for all.

Women Scientists in Pavlov's Lab

One antidote to the great man narrative is to tell stories about the women involved in Pavlov's research collective. Unfortunately, and as is often the case, women's work has been ignored or downplayed and their careers oversimplified. While historians agree women were involved, they do not agree on how many women were involved, in what manner, and what impact they had. It started with Pavlov (et al., 1928) who mentioned only five of his female colleagues by name for their contributions to the factory (Maria Yerofeyeva, Maria Petrova, Anna Pavlova, Maria Bezbokaya, and Natalia Shenger-Krestovnikova); the translators for the English edition added two footnotes to mark Nadezhda Kasherininova and Yevgenia Voskoboinikova-Gangstrem's additional contributions that were mentioned and not credited. So, by Pavlov's account, seven women contributed to his science. Kvasov and Fedorova-Grot's (1967) excellent, but uncontroversial,[1] compendium outlines the careers of Pavlov's doctoral students, 23 of whom were women (or 16% of the 146 dissertations supervised by Pavlov). Later, Windholz (1989) reported that 20 women had completed their dissertation research with Pavlov, but named only three of the first cohort: Kasherininova, Shenger-Krestovnikova, and Petrova. Windholz concluded that these women illustrated the three career paths Russia women took: doctors, scientists, or a combination of both. For instance, Kasherininova returned to medical practice and 10 years later was killed by typhus. Shrenger-Krestovnikova practiced ophthalmetry and intermittent research. Petrova, the researcher, published over 200 papers. Todes' (2014) biography of Pavlov sought to explore women's impact on Pavlov by telling stories centered on the women Pavlov was romantically attached to (his wife Seraphina and his mistress Maria Petrova), and in a chapter "Women Co-Workers and the Physiology of Emotion," reviewing the science of four women: Voskoboinikova-Grangstrem, Kasherininova, Yerofeyeva, and Bezbokaya. Thus, in English scholarship, of the 23 women who did doctoral research with Pavlov, we know the names of seven. Unfortunately, there were many more women involved in Pavlov's lab research, they had widely diverse careers, and their lives were influenced by social and historical changes in ways not articulated by current scholarship.

Characterizations of Pavlov's Work in Undergraduate Textbooks

Those who teach introductory psychology or history of psychology know there is very little on the women who worked with Pavlov in textbooks. In a convenience sample of 24 American introductory psychology textbooks published between 2005 and 2015, every single source mentioned Pavlov, and most had two entries, one in the first chapter, along with other psychology

founders, and then in the chapter on learning (Baron & Kalsher, 2005; Bernstein et al., 2006; Carlson et al., 2010; Ciccarelli & White, 2009; Coon & Mitterer, 2014; Davis & Palladino, 2010; Feist & Rosenberg, 2010; Feldman, 2009, 2010; Gazzaniga, Heatherton, & Halpern, 2011; Gerrig & Zimbardo, 2008; Hockenbury & Hockenbury, 2010; Kalat, 2014; Kowalski & Westen, 2009; Lahey, 2009; Lilienfeld et al., 2015; Meyers, 2012; Morris & Maisto, 2009; Nevid, 2015; Passer & Smith, 2009; Plotnik & Kououmdjian, 2014; Schacter, Gilbert, & Wegner, 2011; Wade & Tavris, 2008; Weiten, 2010).

Reviewing these textbooks, problems with psychology's historical treatment of Pavlov were evident. Many textbooks mistakenly stated that Pavlov used a "bell" and not a buzzer,[2] some even used the image of a hand bell in illustrations (e.g., Hockenbury & Hockenbury, 2010), while others relied on the catchy-but-incorrect headline "Does the name Pavlov ring a bell?" (Coon & Mitterer, 2014: 235). More importantly, these textbooks typically characterized Pavlov as a solo hands-on researcher. For instance, Lilienfeld et al. (2015: 238) wrote: "Pavlov placed dogs in a harness and inserted a collection tube into their salivary glands to study their digestive responses to meat powder," implying that Pavlov did this himself. In fact, the surgery to implant the fistula was pioneered by Yekaterina Shumova-Simonovskaya, and she – along with hundreds of assistants – would have completed the surgical preparations and tested the dogs thousands of times, and then discussed the results with Pavlov. Yet, only a few textbooks mentioned that he had "associates," "technicians," or "collaborators"; none mentioned the curious fact that some of those colleagues were women.

American history of psychology textbooks were typically more complete in their treatment of Pavlov. A review of a convenience sample of 14 textbooks (Benjamin, 2009; Brennan, 2003; Fancher & Rutherford, 2012; Goodwin, 2015; Greenwood, 2009, 2015; Hergenhahn & Henley, 2014; Hothersall, 2004; King, Viney, & Woody, 2013; Lawson, Graham, & Baker, 2016; Leahey, 2001; Pickren & Rutherford, 2010; Robinson, 1995; Schultz & Schultz, 2016), published from 1995 to 2016, revealed that most mentioned the experiments that made Pavlov famous were not conducted with his own hands. Some tell the story of how Pavlov's wife Serafina encouraged him to accept women in his lab. Three textbooks very briefly mentioned only one of his collaborators. For example, Greenwood (2009) briefly reviewed Natalia Shrenger-Krestovnikova's work on experimental neurosis, but this was removed from the 2nd edition (Greenwood, 2015). Hergenhahn and Henley (2014) referred to Stefan Wolfsohn, a German who worked in Pavlov's lab in 1897. One other text, Goodwin (2015), included Pavlov's student Anton Snarksky's work.

Two textbooks provided better coverage. Hothersall (2004) reviewed Georgy S. Ovsianitsky's dissertation, the student work of P.K. Denisov and L.A. Orbely, and Pavlov's female collaborators Kasherininova, Shenger-

Krestovnikova, and Petrova. The other text was Lawson and colleagues (2016). They emphasized globalization in the history of psychology, and their chapter on psychology in Russia is the most complete source available in an undergraduate history of psychology text. It placed Pavlov's work in historical and cultural context, spoke about Pavlov's contemporaries – Ivan Sechenov and Konstantin Kornilov – and described other labs in Russia such as Vladimir Bekhterev's lab in Kazan, Georgy Chelpanov's lab in Kiev, and Nikolai Lange's lab in Odessa. Lawson and colleagues even reviewed Lev Vygotsky and his student Blyuma Zeigarnik. But no mention of Pavlov's collaborators, female or male. Overall, the coverage given to Pavlov's collaborators, especially women, was inconsistent and incomplete. Only three of Pavlov's female collaborators were named in the above sources.

Omitting women collaborators from Pavlov's story in our textbooks is curious because primary historical accounts of Pavlov's lab do not usually make these mistakes (e.g., Boakes, 1984). Moreover, many introductory and history textbooks feature a picture of Pavlov (Figure 1), a dog in a harness, and several colleagues including two women – Maria Petrova and Maria Yerofeyeva – who had been in the lab 18 and 19 years by the time of the photo in 1912 (Todes, 2002b). One "Psychology of Women" textbook observes that the women were actually cropped out of the picture in many textbooks (Crawford, 2018). If the picture is not cropped, it is rarely captioned, and none of the textbooks mention any of the collaborators by name. Astute students ask professors: who are those women, and why are they there, right beside Pavlov, in the early 1900s? Or as Herzenberg (2001: 843) asked the editors of *Nature* magazine featuring this photo: why they hadn't identified the women in the picture?: "The existence of these women left on the cutting-room floor has been, like so many others, excised from history. Women scientists deserve better treatment today."

A convenience sample of 16 Russian introductory psychology and history of psychology textbooks suggest a few differences, but also some key similarities with the American treatment of Pavlov. In terms of the Russian introductory textbooks, all of them not only mentioned Pavlov, but several could not overstate his impact on Russian psychology or more generally Russian science, some comparing him to Aristotle and Descartes. They connected Pavlov to his predecessors such as Sechenov, but also to his American followers like Watson and Skinner. In general, much of the history centered on individual men and their discoveries, such as Sechenov who was characterized as working things out for himself. Yet Pavlov was characterized as creating a "scientific collective," an "international school" (e.g., Martinkovskaya, 2004: 483, or Maklakov, 2018: 82), in which Pavlov was a "commander of an army of researchers" (e.g., Yaroshevskiy, 1996: 195–198). Early Soviet psychologists referred to "Pavlov's School," or "Pavlov and his colleagues" (e.g., Asratayan, 1953). For example, a picture from Kreps (1967)

depicts Pavlov in 1893 with his *praktikanty* class, 15 male military doctors with the Military Medicine Academy, and the pioneering surgeon Yekaterina Shumova-Simanovskaya, the first woman to work in Pavlov's lab. Modern textbooks also referred to Pavlov's "many students," and that "He, together with a squad of dear colleagues" conducted research (Yaroshevskiy, 1996: 195). An English-language history of Russian psychology referred to "Pavlov's School," Pavlov's "student assistants," and characterized Pavlov as a pioneer of "big science" (Joravsky, 1989: 390). Indeed, Joravsky's is the only textbook, English or Russian, that accurately credits Pavlov's assistants (and not Pavlov) with coining the term "conditioned reflex" and the innovative fistula surgery. Joravsky (1989) estimated the size of the student class to be a "few hundred"; two other sources repeated the idea that he had 300 students (Martinkovskaya, 2004; Petrovsky, 1996).

Even acknowledging his assistants and colleagues, a few Russian textbooks repeated the error of the Americans characterizing Pavlov as the active researcher. For instance, Malashkina (2002: 389) wrote: "Pavlov himself conducted experiments…" (see also Zhdan, 1990). A number referred to his male colleagues and followers, but there was not a single mention of any of his female collaborators or students by name (e.g., Cheldishova, 2008; Joravsky, 1989; Yaroshevskiy, 1996). Even an old classic textbook, Rubinstein (1946) described a few of the recent studies by Pavlov's lab conducted by his doctoral students, but does not name them. Many of the textbooks were basic black text and white background with few or little pictures. One text, Maklakov (2018) was an American-style undergraduate textbook with pictures and vignettes. It reprinted the classic photo of Pavlov and his collaborators mentioned earlier, the one with the women cropped out of the photo. Although Sosnovsky (2011) lists famous Russian psychologists, and some are women, none were Pavlov's colleagues or students. It makes sense that later women researchers who worked predominately in physiology might not be cited in psychology textbooks. Yet Shenger-Krestovnikova's experimental neurosis study was reviewed in a recent book published in Russia on behaviorism (Zhukov, 2018), something most psychology textbooks, English and Russian, ignore. In contrast, none of the 16 Russian psychology textbooks reviewed recognized any of Pavlov's female doctoral students or research.

One difference between the American and Russian textbooks was that Russians elaborated on Pavlov's research more so than any American text, including long entries on his theory of temperaments studied into the 1950s (e.g., Rogov, 2000), his work on the "what's that?" reflex, as well as other dimensions of his work not widely known outside of Russia such as the phases of sleep, the freedom instinct, and reflexive will (e.g. Druzhinin, 2001; Pervushina, 1996; Stupnitsky, Scherbakova, & Stepanov, 2013; Usnadze, 2004). Overall, contemporary Russian psychology glorifies Pavlov, but de-

emphasizes his overly materialist and rigorously experimental psychology, favoring a more theoretical and psychological science.

Russian and American Women in Science

There is a broader question underlying the discovery of women working in Pavlov's lab: how could they have made such advances in science when American women had not? In 19th century America, on most university campuses like at Columbia and Harvard, women were prohibited from taking university classes, especially lab sciences like medicine and physiology. There were a few exceptions. Edward B. Titchener supervised women Ph.D.'s at Cornell University, a private school that admitted women students eligible for fellowships (Furumoto & Scarborough, 1986). Indeed, Titchener supervised the first Ph.D. in psychology given to a woman – Margaret Floy Washburn in 1894 – and half of the first dozen of his students were women, with 19 women out of 56 in total (Evans, 1991). Yet, women elsewhere in America encountered obstacles. For example, in 1906, American women psychologists recognized by the book *American Men of Science* were getting into some graduate schools, but there were often delays up to 18 years between their bachelor and doctorate degrees, where all but a few women taught at women's colleges and public schools (Furumoto & Scarborough, 1986). These early women psychologists were often older than their male peers, experienced career delays and interruptions, suffered slow academic advancement as the "woman's place" in academia became teaching at undergraduate institutions, and were unlikely to achieve high status in the profession. This was all true, especially if she was married (in fact, one woman even left her job before marriage). Furumoto and Scarborough described three career paths for early women psychologists in America: no career beyond doctorate, continuous careers restricted to teaching at small women's colleges, and interrupted careers.

By comparison, Russian psychology, which was mostly medical and physiological in the late 19th century, the situation was very different. As far back as the late 1850s, Russian universities were closed to women, but by the early 1860s, women could audit courses at Saint Petersburg University and at the Medical-Surgical Academy. Eventually backlash against this openness spawned a decree banning women from higher education. So Russian women interested in an education went abroad, to the Universities of Zurich, Bern, Geneva, Lausanne, and Naples (Creese & Creese, 2015). The Women's Medical Institute, the sole provider of medical training to Russian women, was also closed in 1881, only to re-open in 1897 after educational reforms. At first, graduates were only allowed to practice medicine in the women's and children's clinics, and had to go abroad for doctorates. By 1904, women

were given full freedom to pursue medical degrees and practices, and complete doctoral dissertations (Selivanov & Sorokina, 1978). Three members of the first graduating class of the Women's Medical Institute applied to Pavlov's lab for doctoral training.

Western readers may find it unusual that so many Russian women came to work with Pavlov, or had an interest in a medical career before suffrage in 1917. Yet, a combination of events in the 19th century led Russian women to become the majority of physicians in post-revolutionary Russia, a situation that continues today. Tuve (1979) argued this was due to a Russian feminist reform movement in the late 1800s that celebrated the right of women to attend school and work, along with a populist and nihilist interest in serving poor rural peasants. Many young women felt obligated to practice medicine at rural *zemstva* (local district council) outposts, and they fit into the stereotype of the *babka*, a local village Russian woman healer, so villagers accepted them (Tuve, 1979). McDermid and Hillyar (1998) assert that women doctors made sense in pre-revolutionary Russia: their personal experience with reproduction led them naturally to careers like midwife, doctor, and wet-nurse; medicine was not a high-status career in 19th century Russia, open to both Jews and women; and since their practice was restricted to children and women only, they would work for less pay.

Geopolitical events played a role as well. In the second half of the 19th century, as pro-education reforms gave rise to socialized medicine and with epidemics and war, Russia went through a revolution in the treatment of disease (Barr & Schmid, 1996; Friedan, 1981). As the Crimean and Russo-Japanese Wars led to heavy casualties among men, women came to play a major role as battlefield nurses (Tuve, 1979). In 1913, just before World War I, 10% of Russia's physicians were women, compared with 5.6% in the U.S. in 1900 (Field, 1967). Then, the 1917 Bolshevik revolution gave women the vote and decreed gender parity in work and education, and with the goal of gender equality, opened admissions to higher education for women (Clements, 2012). After World War II, the demographic problem in Russia was severe: in 1946, there were only 59.1 males for every 100 females in the ages 35 to 59; accordingly, by the 1950s the majority of Russian physicians were women and Russian women accounted for 36% of all scientists (Lapidus, 1978). In comparison, female doctors in the United States in the 1950s were rare (Boulis & Jacobs, 2008). Even though a short supply of Russian men necessitated the wide-spread training of women in medicine, the top positions – administration, chief researchers, specialists, health ministers – were held by men, and only 5% of the Academy of Medical Sciences were women (Field, 1967; Lapidus, 1978).

Todes (2014) described Pavlov as initially not wanting women in his laboratory because of a disagreement with his first female laboratory assistant Yekaterina Shumova-Simanovskaya. However, he needed more workers, and

he tried three graduates from the Women's Medical Institute, and found them to be better than many men (Todes, 2014). Pavlov eventually implemented a yearly quota of female admissions, likely starting the earliest affirmative action for women scientists in the history of psychology. In this sense, Pavlov's support of Russian women in science is consistent with early Russian feminism, seeking the goal of eliminating barriers to women's education. This is remarkable considering women were largely banned from other scientific labs across Russia, as well as the United States, and most had to go to Europe to be trained in lab research.

The Workers of Pavlov's Institute of Physiology

The number and scope of female workers at Pavlov's factory have been under-reported. The archive of the Russian Academy of Sciences (http://db.ranar.spb.ru/ru/list/id/33/) has employment records for Pavlov's Institute of Physiology from 1893 to 1954, documenting that 866 people worked there. In addition to scientific research staff and assistants, the Institute housed a daycare and school, presumably for the staff's children, as many institutions set up daycare to facilitate women's employment after the revolution (Lapidus, 1979). There were mechanics, locksmiths, caretakers, watchmen, electricians, engineers, accountants, and so on. Remarkably, Pavlov's lab was the only experimental lab in the history of psychology to have had its own air defense squadron, defending the Institute from air raids during World War II. Even more astonishing, out of a crew of 866 staff and research scientists, 394 (or 46%) were women. Of these, 310 held jobs throughout the Institute, with most assisting researchers, but a few were heads and chiefs of several departments (Table 1). There were over 41 women graduate students, 61 laboratory assistants, 20 preparers, and of course more general work titles such as 27 workers and 21 senior laboratory workers. Women were even employed in the kennels to support the dogs used in research. Despite gender parity in scientific positions (noted below), there were gender disparities in these supplementary roles. None of the 15 "air defense soldiers" (e.g., the *zenitchik*) at the Institute were women, yet women were involved in these efforts elsewhere. And 34 men were employed as "driver" or "chauffeur," but not a single woman held these positions in over 60 years of operation.

Women were not a small minority in Pavlov's Institute: in fact, they held a majority of all the scientific and research positions. According to the archives of the Russian Academy of Science for Pavlov's Institute of Physiology, 84 women held research positions, compared with 81 men in equivalent positions. The women researchers who contributed to research at the Institute are named in Table 2. Some of these women had completed their *praktika* with Pavlov, and this early strong cohort grew after Pavlov's death, well into the late

1930s, as support for equality at work became entrenched in post-revolutionary Russia, and war took men out of the workforce. Some women worked for decades (e.g., Savelyeva, Dushechkina, Levitskaya, Verzhbinskaya, Hudorozheva, Tetyaeva, Itina, Makarova, and Bekenblit). This list includes Zlata Nezhdanova, one of Pavlov's doctoral students, and Vera Pavlova, Pavlov's daughter, who was only on the payroll for two years, but volunteered in the Institute's labs for much of her career.

A few biographical details and scientific accomplishments of the 23 women that completed doctoral research with Pavlov are available in Kvasov and Fedorova-Grot (1967). Additional details about this cohort were collected through the online archives of the Institute, historical primary sources, blogs, and published memoirs.[3] Table 3 summarizes the lives and careers of the women who completed their doctoral research in Pavlov's lab in chronological order.[4] The first dissertation was completed by Shumova-Simanovskaya in 1896. Most stayed in the lab for their two *praktika* years, but several – Shumova-Simonovskaya, Golovina, Speranskaya, Grigorovich, Yakovleva, Strogaya, Yaroslavtseva, Nezhdanova, and Vera Pavlova – stayed longer, some for decades. Yakovleva, for instance, started her research in 1923 and completed it in 1956, 33 years later, well after Pavlov had died. Petrova started as a *praktikantka* in 1912, but as Pavlov's favorite and eventual mistress, she worked at various departments in Pavlov's Institute, until 1948, when she left to be Director of the Institute of Physiology.

Among the scientists, women were almost a majority in the lab, but who were these women and what impact did they have on science? Pavlov's reputation drew women from all over Europe and the Russian Empire, predominately from Saint Petersburg (8) but also from Kiev (Ukraine), Vilno, Latvia, Saratov, and Tiflis (modern day Tiblisi, Georgia). Others were from the Russian provinces of Prodol, Kursk, Kerson, Poltava, Yenisey, Olonets, and Tver. The archives of the Institute do not give birthplaces for 22 of the 84 women scientists who worked there, but for those that were listed, the birth places are as follows: Saint Petersburg (19), Belarus (5), Moscow (3), Ukraine (3), and Poland (2). The others were from Bern (Switzerland), various provinces of Smolensk, Bryansk, Tiblisi (2), Dagestan, Estonia, Georgia (2), Kazan (2), and the remainder from other provinces and cities across Russia. Six of the 84 women scientists (Table 1) had names that were not ethnically Russian, so they were probably Jewish women, perhaps with German ancestry, from Belarus, Odessa, and elsewhere in Ukraine (e.g., Ferhman, Kaplan, Leibson, Greenberg, Shapiro, Spielberg).

The doctoral students were born mostly into families of some privilege: some were the daughters of various military executives like admirals and generals (3) and a doctor, but also those with less social status like priests (2), clerks (2), teachers (4), and an engineer. Vera Pavlova's father was Ivan

Pavlov, so that must have conferred some advantage. Bezbokaya was the only one known to be from a working-class background.

Of the 23 doctoral candidates, only four travelled abroad for their studies and practice. Since women were not allowed in medical school until 1897, Shumova-Simanovskaya studied at the University of Zurich, and the medical faculty of Bern University in Switzerland where she graduated in 1876 with a Doctor of Medicine degree. Bezbokaya, from Kiev, enrolled in medical school at Lausanne University and graduated in 1905. She practiced medicine in Paris for a while before returning to Russia. Grigorovich, also from Kiev, studied first in P. F. Lesgaft Higher Courses in Saint Petersburg until 1907, and then she left for a year abroad, 1908–9, to study physiology in Paris. Yakovleva graduated with honors from the Women's Medical Institute in 1912 and then spent a year in Paris studying skin diseases. After the 1917 revolution, none of Pavlov's female doctoral students left the USSR for work or study.

Although marriage was an important issue for American women psychologists of the day (Furumoto & Scarborough, 1986), it was less so for Russian physiologists, although we cannot be sure. Using a compound name, or a "maiden" name (*devich'ya familiya*) as evidence of marriage, only eight women were married. Those marriages we do know about seemed to be with men of high status. Shumova-Simanovskaya married Nikolai P. Simanovsky, an otolaryngologist and good friend of Ivan Pavlov. Voskoboinikova-Gangstrem married Professor E. A. Gangstrem. After an early failed marriage, Rait-Kovalyova married Captain Nikolai P. Kovalev, an officer serving in the Crimea region. Only three of the women in the personnel records of the Institute (Table 1) had compound names, and one of them was Shenger-Krestovnikova, and her husband is unknown. Nothing is known about the other two women or their husbands. Lastly, two women changed their name after marriage without adding their maiden name. The personnel records indicated that Zlata Nezhdanova's maiden name was Skovoroda-Zachynyaeva so she may have been married, but nothing else is known. Zinaida Pigareva's maiden name was Chegodaeva; this is known because employment records indicate that she married and changed her name.

It cannot be argued that these women had a minimal impact on science. The women who completed their dissertations in Pavlov's lab contributed to fundamental research on basic physiology (e.g., Shumova-Simanovskaya and Speranskaya), the psychology of conditioning (e.g., Belits, Bezbokaya, Chebotaryova, Degtiaryova, Feokritova, Grigorovich, Kasherininova, Nezhdanova, A. Pavlova, V. Pavlova, Voskoboinikova-Gangstrem, and Yerofeyeva), and higher-order nervous functioning (e.g., Golovina, Petrova, Shenger-Krestovnikova, Yakovleva, and Yaroslavtseva). Shumova-Simanovskaya worked on a variety of topics unrelated to psychology: chemical distributions in, and effects on, the body, Grave's disease, the synthesis of salicylic

acid and a "grainy pepsin." It was her surgical expertise that devised the esophagotomy surgery to measure saliva which led to Pavlov's Nobel Prize. For those working in higher-order studies, Shenger-Krestovnikova is best known for discovering the phenomenon of experimental neurosis in dogs.

Many had long award-winning careers in medicine or research. Those who went into clinical work found positions in the clinic of the Women's Medical Institute, or children's, women's, and gynecological clinics like at Peter and Paul Hospital, largely because they were initially restricted to those places of employment, but eventually all worked elsewhere. For example, as noted earlier, Shrenger-Krestovnikova worked mostly in ophthalmetry. Several were award-winning scientists respected by the Soviet scientific establishment. Petrova received the Stalin Award for Research in 1945. Chebotaryova, Speranskaya, and Vera Pavlova all received the Order of Lenin. Strogaya was a research fellow at the USSR Academy of Sciences Institute of Physiology. Yet, only six of the doctoral student cohort were research scientists exclusively. Nine moved between research and clinical practice, while four became academics for part of their careers. A few had unique career paths. Kasherininova was a teacher, a clinician, and a military doctor. Chebotaryova held both clinical and research positions, partly as a doctor for the Red Cross (Strogaya also), but most of her career was as a doctor for the Russian Railways. Four held medical positions in the military. One of Pavlov's promising researchers, Rita Rait-Kovalyova, left medicine to become a famous translator of Western literature. After years of working in Pavlov's labs, Vera Pavlova curated a museum dedicated to her father in her later years.

Previous scholarship on women who worked in Pavlov's labs failed to anticipate such a wide range of career paths. It also fell short in its accounting of historical context on their lives as women and their careers. Political repression of the 1930s and World War II were significant factors in many of Pavlov's students' lives, as they either provided war-time medicine, became involved in political resistance, or simply perished because of the war. For instance, Bezbokaya, a Jew, perished during the Nazi occupation of Kiev, and Belits died during the siege of Leningrad during WWII. Two stories are even more dramatic. Degtiaryova, a practicing medical doctor who studied the conditioned reflex early in her career, was arrested for participation in an "illegal organization," a religious group, and was later proclaimed to be a martyr by the Russian Orthodox Church. Grigorovich was a victim of the Stalin terror purges, convicted of counter-revolutionary activity and espionage, and executed. Others moved their lives and work because of war: Shenger-Krestovnikova evacuated to Kazan in 1941 for safety, and returned to Saint Petersburg in 1944, only to die in 1947. Another way in which outside forces shaped the lives of women who worked and studied with Pavlov was disease. Since many were practicing doctors, several of these women also worked on

the various epidemics in the Soviet Union. Two even succumbed to the diseases they were helping to counter: Kasherininova died of typhus while working on contagious diseases, and Stukova perished from tuberculosis.

Discussion and Conclusion

A review of American and Russian undergraduate psychology textbooks suggested an androcentric bias illustrated by a lack of consideration for women scientists from Pavlov's Institute. Even though secondary historical sources almost always mentioned his female collaborators, most American and Russian undergraduate textbooks reviewed did not. Moreover, textbooks often mistakenly followed a great man narrative suggesting Pavlov was often doing his famous research himself; this paper demonstrates Pavlov was a "big science" pioneer, relying of the work of hundreds of scientists and technicians, most of whom were women.

Few scholars know much about the women who worked in Pavlov's labs. Until this report, only seven of the 394 women who worked in Pavlov's Institute were named in English scholarship, and Russian scholarship revealed little more. Additionally, the few English sources that mentioned women who worked in Pavlov's labs got the story wrong and ignored the gender politics involved. Even Russian textbooks largely ignored the women who contributed to Pavlov's science. In contrast to American women psychologists who had more interrupted career paths, sometimes because of marriage, were kept out of lab research, and often did not secure teaching positions (Furumoto & Scarborough, 1986), Russian women were far more successful in Pavlov's labs, becoming the majority of scientific staff, representing almost half of the workforce overall. They even experienced more success outside the labs becoming noted doctors, with careers that oscillated between science in good times and medical practice in response to wars and epidemics. War and political repression played a significant role in many of these women's lives, as some were even persecuted, evacuated out of Leningrad (Saint Petersburg), and even arrested, executed, or martyred. Due to war, there were simply more women in Russia, thus more women scientists than men. Unlike their American peers, Russian women did not have to delay their careers nor were their careers hindered by marriage.

Perhaps even more interesting than the fact that Pavlov has been incorrectly portrayed in undergraduate and history psychology textbooks are the reasons *why*. Why do so few textbooks on Pavlov mention his female collaborators, show pictures of them without their names, or totally omit them from historical accounts? There are several possibilities. In this case, the barriers to a more accurate global history of psychology are both practical and ideological. The fact that there were discrepancies between historical

accounts of Pavlov and textbooks specifically designed for undergraduate education suggest the two different genres have different goals. Textbooks are designed to inform and socialize students into a discipline, whereas historical studies aim to be completely accurate and sophisticated. The authors, editors, and publishers involved may also have varying styles of approaching material. Those managing historical accounts may be more sensitive to issues around gender and representation; those working on mass-market textbooks might be looking for readability and appeal.

Some may claim that introductory textbooks might ignore many interesting and important issues like androcentrism in the interests of brevity and clarity. It is not the case, though, that brevity and clarity, especially in introductory textbooks, should be valued over sensitivity to issues of gender, even more so when pedagogically important. Textbooks have been shown to be gender-biased for over four decades, yet they continue to present gender-biased content. Both introductory and history students of psychology are capable of understanding androcentrism, and editors drop and add content with every new edition so less gender-biased content could be easily replaced. Yet, as reviewers of the high-school textbook market have observed, androcentrism appears to be a widespread – and almost universal – aspect of the educational textbook publishing world (Blumberg, 2008), a world where bias against women is often part of the corporate culture.

It may be that American psychologists have not been that interested in Russian women in science. It has been observed elsewhere, that Americans have been more likely to appropriate, than reference, Soviet psychology insights like activity theory, and not until recently (Rey, 2014). Yet, even a modern report like Rey's (2014) review of Soviet psychology from 1930 to 1960 fails to mention any female psychologists, or even the words "women," "female," or "gender." Some historians have maintained that English-language psychology textbooks often ignore significant historical contributions from non-American psychology, perhaps due to a general ethnocentrism in the history of psychology, or even the result of American psychology's colonization of the psychology of other countries (Aleksandrova-Howell, Abramson, & Craig, 2012). This seems reasonable given the mounting criticism levelled against the history of psychology for being overly American and Western, and insensitive to developments in other countries. In the context of Russia specifically, Aleksandrova-Howell and colleagues' analysis points to additional factors such as lacking good translations of Russian work, problems with non-standard translations of Russian names, and a lack of available Russian sources in the English-speaking world because most Russian journals are not indexed in international databases. This may be true, but it was a little surprising to see that most of these women have not even been recognized as pioneering scientists of worth in contemporary Russian textbooks, likely reflecting contemporary Russian androcentrism towards women's

contributions to science. Future research should better document the life and work of women documented here, perhaps through the Russian Academy of Sciences archive in Saint Petersburg.

The collective nature of Pavlov's factory points to a further explanation for why American undergraduate psychology textbooks often don't acknowledge the *praktikantka*. Telling the story of the collectivist spirit of Pavlov's lab is something that American audiences might not appreciate or even understand, as it works against the common notion of the "great man," and the individualistic thrust of many historical accounts in the West, the dominant history narrative of individualism in Western psychology. Collectivistic stories, like that of Pavlov's factory, do not fit into American histories of psychology.

Part of the ideological barrier in this case is embedded in Russian cultural attitudes which have changed greatly over the years (e.g., Clement, 2012) and certainly across Pavlov's lifetime. Russian society in the late 1800s and early 1900s was progressive, ideals such as equality were highly valued among progressive intelligencia, so Pavlov could have Jews and women working in his lab. After the Bolshevik revolution, laws made life more equal for women, yet under Lenin and Stalin, and for the next 60 years, the gender climate swung hard to the traditional and conservative, as gender-based freedoms were restricted, a return to patriarchal norms (Clement, 2012). Similarly, during the post-Bolshevik revolution period a collectivist spirit was valorized, but after the fall of the USSR, collectivism was demonized and a new Russian individualism was born, where the state provided little but its citizens still needed much and longed for a hero's help, perhaps making it receptive to the great man narrative. In terms of gender, the 1930s celebrated the "new Soviet woman," and expectations for women merged into a double shift: they were to be both domestic goddess and emancipated worker. There was to be no return to Bolshevik feminism, in fact, women entering male-dominated professions were met with hostility, and negative stereotypes about women persisted (Clement, 2012). In these later decades under Lenin, Stalin, and beyond, a backlash against gender equality occurred, and traditional gender beliefs were glorified, and sexist discriminatory beliefs about women pervaded home and work. Even with state-sponsored work and education equality, as this paper has shown, Russian women of science have been ignored. Russia had been through a revolution, and laws were passed regulating gender equality, but resistance to Bolshevik ideals was strong; patriarchy, sexism, gender stereotypes, part of the structural background of Russia, lived on (Clement, 2012).

It is possible that part of the lack of Russian history in Western psychology has to do with shifting national interests of Russia and the West. The early 1900s were a time of global cross-fertilization of science (e.g., Krementsov & Solomon, 2001), with Pavlov entertaining visitors from the West and

visiting America several times himself. This openness quickly closed during Soviet times, especially after two world wars, such that interchanges between American and Russian scientists were greatly reduced (e.g., Dunn, 1945; Richmond, 2014), if not viewed as treasonous. By the Cold War, there was open resistance to collaboration with the enemy. Western scholarship was hidden in inaccessible archives for Russian scholars, and Russian science was rarely published in journals available in the West. Things changed once again, in the last two decades of the 20th century, as scientists from Russia and the USA collaborated on many high-profile projects like the International Space Station, as well as throughout academic science (e.g., Wilson & Markusova, 2004). This openness may have already ended with what news outlets have recently called a "new Cold War" (Klare, 2018).

Furumoto and Scarborough (1986: 42), speaking about women in early American psychology, concluded: "Acknowledging the early women's presence and their experience is a first step toward placing women in the history of psychology. Integrating women into that history is necessary if we are to achieve a more complete understanding of psychology's past." Yet, it appears that the situation Denmark observed in 1983, that textbooks in psychology simply do not represent women's role in science accurately, continues. More so even for second or third world women. Perhaps it is not surprising, as Suchland (2011) asserted, that Russian women are often unsympathetic subjects of contemporary intersectional analyses if they are constructed as all-White ethnically-homogenous women, and in the case of Soviet women distinctively not postcolonial, somewhat equal in class and gender (for the state supported gender and class equality), with long successful careers. Moreover, since many were involved as doctors for the Soviet's military, they were complicit in the horrors perpetrated in early Russian wars, making them even more difficult heroes.

Ultimately, Pavlov's collectivistic approach to science is a challenge to Western individualism, as was his hiring quota for women in his lab antithetical to androcentrism. Textbooks have mischaracterized Pavlov not necessarily because of a lack of sources or "bad translations." Rather, despite having sources on Pavlov for years, undergraduate histories are often expedient and deploy the great man approach to history, ignoring the extensive collaborations that produced the work he is known for. The case of Ivan Pavlov illustrates that the challenges of a global history of psychology are real, but not insurmountable. If the history of psychology needs to be global, then we should expand our scholarship of psychology outside of America, replace simple stories with more sophisticated narratives. Historians need to especially overcome androcentrism, individualism, and the cultural values that impair the creation of a less-biased history of psychology and the women who contributed to it, the world over.

Author Contributions
The author confirms being the sole contributor of this work and approved it for publication.

Conflict of Interest Statement
The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Acknowledgements
Mariya Bobrova and Alexandra Novitskaya provided valuable guidance and translations for this project.

NOTES

1. For instance, Kvasov and Fedorova-Grot (1967) stated that Lidia S. Grigorovich, a noted scientist and Pavlov collaborator, simply stopped working in 1937. However, a contemporary memorial webpage dedicated to victims of the Stalin terror purges says she was charged with counter-revolutionary activity and espionage (i.e., accused of being an enemy of the people) and executed by firing squad in November 1937. Kvasov and Fedorova-Grot would have omitted these facts to avoid controversy with the Soviet censors.

2. Although it is commonly reported that Pavlov conditioned his dogs to a bell, Pavlov never used a bell in conditioning experiments – he used a buzzer. Confusion originated with the English translation of Pavlov's lectures which clearly used the word "bell" (Pavlov et al., 1928: 312) to describe one of the stimuli used, a point repeated in Tully's (2003a) study of Pavlov's dogs. In the Russian version, Pavlov used "zvonok," which is a doorbell device common in Russia at the time, best described as a buzzer, and not a bell with a clapper (which would be a "kolokolchek") (Black, 2003; Thomas, 1997; Tully, 2003a, 2003b).

3. The physical archives of Pavlov's Institute of Physiology are in the library of the Russian Academy of Sciences in Saint Petersburg. After several meetings and emails with local officials an in-person visit could not be arranged, and on-line requests for information were never acknowledged.

4. Biographies of these researchers are available from the author.

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Figure 1 Pavlov with Maria K. Petrova (left) and Maria N. Yerofeyeva

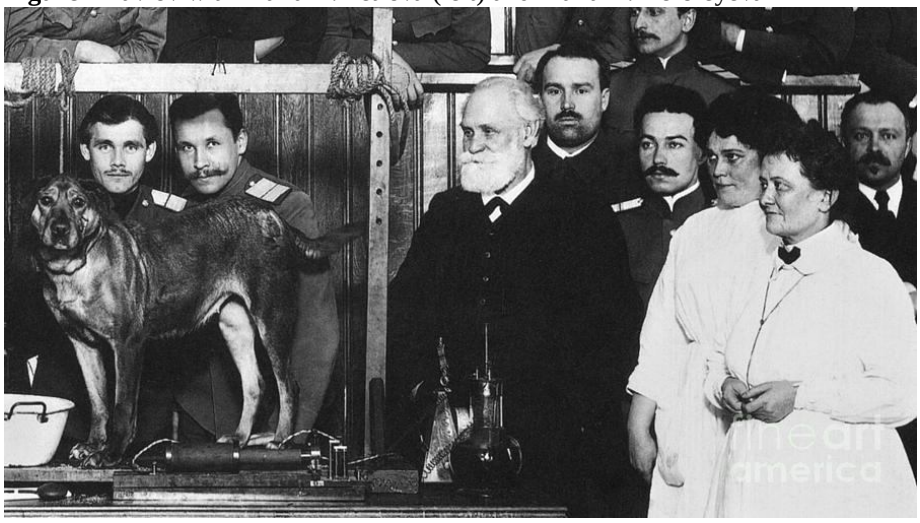


Table 1 Scientist positions held by women of the Institute of Physiology (1893–1954)

Years	Name	Position
1950	Elena Sergeyevna Akimova	Junior Researcher
1943–50	Nina Alexandrovna Aladjalova	Junior Researcher
1941–5	Zinovya Alexandrovna Andreeva	Senior Researcher
1944–52	Anna Alexeevna Arapovoa	Senior Researcher
1941–50	Tatiana Vyacheslavovna Aristovskaya	Senior Researcher
1934	Zoya Ivanovna Barbashova	Senior Researcher
UNK	Nina Vladimirovna Bekauri	Researcher
1929–48	Zosia Mikhailovna Bekenblit	Senior Researcher
1933	Vera Nikolaevna Borsuk	Researcher
1945–50	Evgenia Abramovna Bychenkova	Junior Researcher
UNK	Evdokia Alexandrovna Cheharina	Junior Researcher
1948–51	Rima Alexandrovna Cherkashina	Junior Researcher
1946–7	Knarik Tadzhatovna Chmshkyan	Junior Researcher
1946–50	Giffet Muhomedovna Daudova	Senior Research Fellow
1943–48	Natalia Sergyeevna Demanovskaya	Junior Researcher
1944–51	Viktoria Sergyeevna Deryabina	Senior Researcher
1936–50	Olga Yakovlevna Dushechkina	Junior Researcher
1942	Kanel Semenovna Ester	Senior Researcher
UNK	Alisa Adolfovna Ferhman	Junior Researcher
1941–50	Elena Yakovlevna Gaiman	Senior Research Fellow
1937–51	Lyudmila Borisovna Gakkel	Senior Researcher
1942–4	Tatiana Ginetsinskaya	Junior Researcher
1940–1	Natalya Filippovna Stozhkova-Goldfarb	Senior Researcher
1939–48	Mirra Iosifovna Golydanskaya	Laboratory Assistant & Junior Researcher
1942	Galina Petrovna Gorbunova	Junior Researcher
1942	Fanny Veniaminovna Greenberg	Senior Researcher
1953	Lyudmila Mikhailovna Grigoryeva	Graduate Student & Senior Laboratory Assistant
1942–5	Nina Georgievna Lutovinova	Junior Researcher
1943–50	Rosa Grigoryevna Lyudkovskaya	Junior Researcher
1938–50	Regina Mikhailovna Maiman	Senior Researcher
UNK	Evdokia Veniaminovna Malyesheva	Junior Research Fellow
1921–46	Anna Pavlovna Makarova	Senior Researcher
UNK	Kira Valentinovna Maslovskaya	Junior Researcher
1937–50	Olga Andreyeevna Mikhaleva	Senior Researcher
UNK	Alexandra Alexandrovna Mikhelson	Senior Researcher
1937	Nadezhda Isaevna Mikhelson	Researcher
1935–53	Evgenia Andreevna Moiseeva	Senior Researcher
1939–41	Ekaterina Nikolayevna Senicheva-Molchanova	Junior Researcher & Researcher
1946–50	Alexandra Fedorovna Murchakova	Junior Researcher
1931–52	Zlata Alexandrovna Nezhdanova	Researcher
1949–50	Vera Ivanovna Pavlova	Junior Research Fellow
1945–50	Dora Isidorovna Pesquera	Senior Researcher
1939–48	Maria Kapitonovna Petrova	Senior Researcher
1936–54	Zinaida Dmitrievna Pigareva	Senior Researcher
UNK	Nina Alexandrovna Raspopova	Senior Researcher
1930–6	Antonina Ivanovna Ryakhovskaya	Graduate Student & Scientific Technical Officer
1942	Natalia Vladamirovna Sadikova	Senior Researcher
1918–36	Zoya Nikolaevna Savelyeva	Junior Researcher
UNK	Berta Ilinichna Shapiro	Junior Researcher
1944	Natalia Rudolfovna Shenger-Krestovnikova	Medical Doctor
UNK	Nina Sergeevna Shulgina	Junior Researcher
UNK	Galina Fedorovna Sinenko	Junior Researcher
UNK	Pauline Iosifovna Spielberg	Senior Researcher
1940–54	Evgenia Mikailovna Sosuntsova	Junior Researcher

1938–50	Shogogat Avedikovna Hidrogluyan	Medical Doctor	1941–53	Elena Vladimirovna Stoganova	Junior Researcher
1918–35	Antonina Tikhonovna Hudorozheva	Researcher	1945–50	Elena Vladimirovna Terentyeva	Junior Researcher
1943–4	Irina Dmitrievna Hotyanitseva	Junior Researcher	1916–36	Maria Borisovna Tetyaeva	Researcher & Senior Researcher
1919–38	Nina Azarevna Itina	Senior Researcher	1946–54	Natalia Nikoleayevna Traugott	Senior Researcher
1946–50	Agnes Karlovna Ivanyan	Junior Researcher & Research Associate	1949–52	Anastasia Dmitrieevna Troynikova	Research Associate
1942–50	Anna Efimovna Kaplan	Junior Researcher	1946–50	Elena Naumovna Tsatskis	Junior Researcher
1936–7	Alexandra Ivanovna Khankevich	Graduate Student & Junior Research Fellow	1943–50	Irina Nikolaevna Verkhovskaya	Senior Researcher
1939	Lidia Filippovna Kolomytseva	Junior Researcher	1930–48	Valentina Mikhailovna Vesyolkina	Senior Researcher
UNK	Tatyana Vadimovna Kovsharova	Researcher	1947–50	Nadezhda Petrovna Vasilyeva	Junior Researcher
UNK	Nadezhda Efimovna Kovaleva	Junior Researcher	1929–37	Nina Abramovna Verzhbinskaya	Researcher
1949–50	Vera Yuriovna Krivskaya	Junior Researcher	1942	Vera Alexandrovna Volzhskaya	Junior Researcher
1948–50	Valerya Alexandrovna Lebedeva	Research Associate	1919–37	Celia Lubovna Yankovskaya	Researcher
1937–50	Rebekah Solomonovna Leibson	Junior Researcher	1942–52	Anna Mikhailovna Zimkina	Senior Researcher
1936–52	Ekaterina Sergyreevna Levitskaya	Junior Researcher	1932–50	Bronya Abramovna Zuber	Senior Researcher
1943–50	Natalia Naumovna Lifshitz	Senior Researcher	UNK	Ekaterina Alexandrovna Yakovleva	Senior Researcher

Table 2 Non-scientist positions held by women, in alphabetical order, in the Institute of Physiology, 1893–1954

10 Accountants	6 Firefighters	2 Plasterers
2 Assistants	41 Graduate Students	20 Preparers
1 Building Manager	1 Head of the Kennel	1 Quality Control
1 Camera Technician	1 Head of the Kindergarten	2 Science and Technology Officers
5 Cashiers	1 Head of Warehouse	5 Secretaries
1 Chief Inspector of Personnel	1 Heating Attendant	21 Senior Laboratory Assistant
1 Chief Librarian	7 Internship Candidates	1 Senior Staff Inspector
23 Cleaners	14 Kennel Workers	3 Senior Workers
6 Clerks	1 Kindergarten Nurse	1 Storekeeper
1 Comptroller/Accounting Supervisor	4 Kindergarten Teacher	1 Telephone Operator
1 Courier	3 Kindergarten Workers	1 Timekeeper
1 Daycare Cook	2 Head Laboratory Office	5 Typists
1 Daycare Nurse	61 Laboratory Assistants	1 Warehouse Manager
1 Doctoral Student	2 Librarians	2 Watchmen
1 Draftsman-Constructor	1 Maintenance Worker	27 Workers
1 Executive Manager in Charge	2 Supply Managers	8 Unknown

Table 3 Women who completed dissertations with Pavlov (1896–1953)

Name	In Lab	Dissertation	Topic of Research	Family Location	Travel Abroad	Marriage	Father's Occupation	Career Path	Arrest	Death
Yekaterina Olimpievna Shumova-Simanovskaya (1852–1905) [Екатерина Олимпиевна Шумова-Симановская]	1884–96	1896	Esophagus operation; Grave's Disease, gastric acid, intestinal bacteria.	St. Petersburg	Yes	Yes	UNK	Doctor, Scientist	No	Stroke
Yevgenia Yestafievna Voskoboinikova-Gangstrem (1880–1957) [Евгения Естафьевна Воскобойникова-Гангстрем]	1905–06	1906	Temperature as a Conditioning Variable	St. Petersburg	No	Yes	Upper Class	Doctor	No	Cancer
Nadezhda Aleksandrovna Kasherininova (1870–1920) [Надежда Александровна Кашерининова]	1906–08	1908	Conditioned salivary reflex to mechanical stimulation of skin	St. Petersburg	No	UNK	Military Executive	Teacher, Clinician, Military Doctor	No	Typhus
Maria Nikolayevna Yerofeyeva (1867–1925) [Мария Николаевна Ерофеева]	1910–12	1912	Electrical stimulation of skin as conditioned stimulus on salivary gland	Prodol Province	No	UNK	Military Executive	Scientist	No	Typhus and Stroke
Yulia Pavlovna Feokritova (1879–1942) [Юлия Павловна Феокритова]	1910–12	1912	Time as a conditional stimulus on saliva production	Saratov	No	UNK	Upper Class	Scientist, Doctor		Blood Disorder
Olga Mikhailovna Chebotaryova (1876–1963) [Ольга Михайловна Чеботарева]	1910–14	1914	Extinction of Conditioned Reflex, Thyroxine in salivary reflex	Kursk Province	No	UNK	Teacher	Scientist, Doctor, Red Cross Doctor, Railways Doctor	No	UNK
Maria Yakovlevna Bezbokaya (1877–1942?) [Мария Яковлевна Безбокая]	1911–13	1913	Physiology of conditional reflexes	Kiev Provincial Village, Ukraine	Lausanne University	UNK	Commoner	Military and Civilian Doctor	No	Nazi Occupation of Kiev
Maria Mikhailovna Stukova (1868–1922) [Мария Михайловна Стукова]	1911–13	1913	Role of Time in recovery of conditional stimulus	Kherson Province	No	UNK	Military Executive	Doctor, Military Doctor, Teacher	No	Tubercolosis

Natalia Rudolfovna Shenger-Krestovnikova (1875–1947) [Наталья Рудольфовна Шенгер-Крестовникова]	1911–14	1914	Conditioning to visual stimuli, experimental neurosis, ophthalmology	Tiflis	No	UNK	Teacher	Scientist, Ophthalmologist, Teacher, Scientist	No	UNK
Vera Alexandrovna Degtiaryova (1867–after 1931) [Вера Александровна Дегтярева]	1911–14	1914	Inhibition of conditioned reflex	Poltava Province	No	UNK	UNK	Doctor	Member-ship in an illegal monarchist organization	UNK
Anna Makarovna Pavlova (1880–1946) [Анна Макаровна Павлова]	1911–14	1915	Conditioned inhibition and irradiation of cortical inhibition, extinction, hypnosis	Yenisey Province	No	UNK	UNK	Clinical, Teacher, Scientist	No	UNK
Maria Kapitonovna Petrova (1874–1948) [Мария Капитоновна Петрова]	1912–14	1914	Cortical stimulation and irradiation of the brain, bromine, sex hormones	Tiflis	No	No	Priest	Scientist	No	UNK
Lidia Vasilyevna Rozova (1871–after 1934) [Лидия Васильевна Розова]	1912–14	1914	Extinction of Conditioned reflexes	Olonets Province	No	UNK	Military Priest	Scientist, Doctor, Military Doctor	No	UNK
Maria Fyodorovna Belits (1882–1942) [Мария Федоровна Белиц]	1915–17	1917	Trace of conditional reflex	Kiev	No	UNK	UNK	Doctor	No	The Siege of Leningrad
Vera Petrovna Golovina (1864–1950) Вера Петровна Головина]	1918–24	1924	Physiology of conditioning and extinction	Tver Province	No	UNK	Clerk	Psychiatric Medicine	No	Natural Causes
Yekaterina Nikolayevna Speranskaya (1899–1979) [Екатерина Николаевна Сперанская]	1920–24	1924	Regulation of blood circulation	St. Petersburg	No	UNK	Engineer	Pathologist, Scientist, Professor	No	UNK
Lidia Semenovna Grigorovich (1877/9–1937) [Лидия Семеновна Григорович]	1923–37	1937	Inhibition in conditioned reflexes, cortical stimulation.	Vilno	Paris	UNK	Teacher	Scientist	Counter Revolu-tionary Activity and Espionage	Execution by Firing Squad
Vera Viatcheslavovna Yakovleva (1889–	1923–53	1956	Skin diseases, blood parasites,	Latvia	Yes	UNK	Clerk	Scientist, Medical	No	Brain Illness

1959) [Вера Вячеславовна Яковлева]			higher nervous activity, experimental neurosis, condition with complex stimuli					Practitioner, Doctor, Scientist		
Raisa Yakovlevna Rait Kovalyova (Chernomordik) (1898–1988) [Раиса Яковлевна Райт Ковалева]	1925–26	1926	Influence of unconditioned reflexes on conditioned reflexes	Kherson Province	No	Yes	Doctor	Scientist, Writer, Translator	No	UNK
Yekaterina Zakharievna Strogaya (1874–1962) [Екатерина Захарьевна Строгая]	1926–36	1936	Nervous system of dogs	St. Petersburg	No	UNK	UNK	Red Cross Doctor, Pathologist, Teacher, Scientist	No	UNK
Olga Pavlovna Yaroslavtseva (1899–???) [Ольга Павловна Ярославцева]	1927–32	1932	Stimulation of cortex, unconditioned reflex.	St. Petersburg	No	UNK	UNK	Scientist	No	UNK
Zlata Aleksandrovna Nezhdanova (1908–1952) [Злата Александровна Неждановa]	1931–52	1945	Effect of intervals on extinguishing conditioned reflexes	St. Petersburg	No	UNK	Teacher	Scientist	No	Cancer
Vera Ivanovna Pavlova (1890–1964) [Вера Ивановна Павлова]	1932–53	1953	Trace of conditional reflex	St. Petersburg	No	No	I.P. Pavlov	Scientist	No	UNK

Addleton Academic Publishers

Journal of Research in Gender Studies 9(1), 2019
pp. 38–70, ISSN 2164-0262, eISSN 2378-3524

The Gendered Nature of Employment and Insecure Employment in Northern Ireland: A Story of Continuity and Change

Lisa Wilson
lisa.wilson@nerinstitute.net
The Nevin Economic Research Institute,
Belfast, Northern Ireland

ABSTRACT. Evidence of the decline of the "traditional" standard employment arrangement and the rise of poor quality "bad" jobs has been escalating internationally and nationally. Nonetheless, despite much attention being given in recent decades to the changing nature of employment and job quality much of this discussion overlooks the interaction with gender. Using data from the Northern Ireland element of the United Kingdom Quarterly Labour Force Survey, as well as data from the Northern Ireland element of the Annual Survey of Hours and Earnings this paper aims to examine, over a twenty-year period from 1996 to 2016 (a) changes and continuities in terms of gendered patterns in the nature of employment and job quality; and (b) trends toward the "feminisation of employment norms," marked by an overall downward pressure on security of employment and job quality. The results presented in this paper show that in many ways gendered patterns in the nature of employment and job quality is a story of continuity. Women remain more likely to be in insecure employment, work varying hours, work short hours, and dominate in particular sectors and occupations which are more likely to have low pay. That said, the findings from this study also provide evidence of an overall convergence or "harmonising down" of employment security and quality over time, for both men and women. Indeed, as will be shown some of the sharpest declines in terms of job security and job quality have occurred amongst men, so that increasingly the nature of men's employment reflects the security and quality of employment that has been typically/traditionally associated with women. Taken together, it is argued that these findings reflect what is referred to as a "feminisation of employment norms" characterised by both continuation and change in the gendered nature of employment and employment quality. This trend toward a "feminisation of employment norms" marks a low-road approach taken by Government in recent decades, with a continual prioritisation given to job quantity over job quality and the slow erosion of employment rights, protections and institutions over time.

Keywords: gender; precarious employment; insecurity; job quality; Northern Ireland

How to cite: Wilson, Lisa (2019). "The Gendered Nature of Employment and Insecure Employment in Northern Ireland: A Story of Continuity and Change," *Journal of Research in Gender Studies* 9(1): 38–70. doi:10.22381/JRGS9120192

Received 8 January 2018 • Received in revised form 13 August 2018
Accepted 16 August 2018 • Available online 7 September 2018

1. Introduction and Overview of the Study

The past few decades we have seen the nature of employment undergo considerable change, with evidence showing one of the most notable changes to have been the decline of the traditional "standard" employment arrangement (regular, full-time, permanent, with a single employer), and the increase in alternative "non-standard" employment arrangements – such as part-time, temporary/fixed-term contract work; self-employment, agency work, zero-hours employment, on-demand/ "gig" work (European Commission, 2016; ILO, 2016; Mandl et al., 2015; Wilson, 2016). Whilst this shift has prompted intense interest and scrutiny for some time, renewed concern has been given to this issue since the global financial crisis in 2008. International organisations, politicians, academics, policy makers, businesses and the trade union movement have all become increasingly focused on the changing nature of employment and the reshaping of the labour market. Particular attention is being given to what these changes mean for job security and the quality of jobs.

Given that the "standard" employment arrangement has been the normative model around which labour laws and legislation and other nodes of employment regulation such as job related social benefits, social security and taxes were based, the growth of "non-standard" forms of employment have been giving cause for concern (Deakin and Wilkinson, 1986; Fudge, 2017). This is because of the long-term correlation which these forms of employment have in terms of being insecure, and more generally, poorer quality, when compared with the traditional "standard" employment arrangement (European Commission, 2016; ILO, 2016; Mandl et al., 2015; Wilson, 2016). Nevertheless, it consistently tends to be the case that all "non-standard" forms of employment are on-the-whole poorer in quality when compared with "standard" employment. This is despite considerable extension of labour regulations to cover non-standard forms of employment e.g. Part-time Workers & Fixed Term Workers (Prevention of Less Favourable Treatment) Regulations (Legislation.gov.uk, 2002a; 2002b). Specifically, whilst differences are found between different forms of "non-standard" employment, when compared with the traditional "standard" all forms of "non-standard" employment have been found to bring less security, lower earnings, fewer or longer hours of work

on average, higher occupational safety and health risks, less satisfaction, and less training (see ILO, 2016).

Nevertheless, despite much debate about the changing nature of employment and the rise of poor quality jobs, relatively little attention has been given to-date to the gendered nature of these changes. As a result, the gendered nature of changes in employment and the gendered nature of job quality (and in particular the gendered nature of poor quality jobs) have been overlooked. Also, overlooked has been the extent to which the erosion of the "standard" employment relationship and the spread of "non-standard" forms of employment denote the "feminisation of employment norms." The "feminisation of employment norms" is a concept coined by Vosko (2002) and later developed by Cranford et al. (2003) to refer to a shift in the labour market towards employment which is of poorer quality, and which exhibits qualities traditionally associated with women. In this sense, female employment has been traditionally more likely to be insecure in terms of duration of employment and working hours, lower paid, have poorer terms and conditions of employment, and be dominated in particular sectors and occupations, such as caring, catering and cleaning jobs, conventionally associated as "women's work."

In recognition of the lack of attention that has been given to these issues this paper examines the links between gender and the changing nature of employment. Specifically, this paper seeks to assess: (a) changes and continuities in terms of gendered patterns in the nature of employment; and (b) the extent to which the nature of employment is undergoing a general trend toward the "feminisation of employment norms" and an ensuing overall downward pressure on security of employment and job quality. In addition, this paper looks at the gendered impact of education and children on the likelihood of being in insecure employment.

Furthermore, changes in the gendered nature of employment and job quality and the extent to which we are undergoing a "feminisation of employment norms" overtime is of particular interest in the context of growing debates about the impact which technological innovation and change, demographic trends in terms of an increasingly ageing population, and the expected continued growth of the services sector are having on the labour market, and the nature of employment. These issues are going to have a significant role in shaping the future of work in terms of the structure of the labour market, the nature of employment, and the quality of jobs.

Using data from the Northern Ireland element of the United Kingdom Quarterly Labour Force Survey, as well as data from the Northern Ireland element of the Annual Survey of Hours and Earnings this paper shows that employment for both men and women is undergoing a general trend towards that which is increasingly insecure in terms of the employment arrangements and hours in which people work. Specifically, throughout the twenty years

from 1996 to 2016 we have seen declining proportions of men employed in traditional "standard" full-time, permanent employment and an increase in the proportions of men part-time permanent, temporary and own-account self-employed. What is more, whilst we have seen a general increase in the proportions of females in full-time permanent employment between 1996 and 2014, we have since 2014 seen a substantial decline in the proportion of females in full-time permanent employment, declining by 4.3% between 2014 and 2016. Furthermore, we have seen a substantive increase in the proportion of females in part-time temporary and own-account self-employment – some of the most insecure forms of employment. Importantly, however, some of the sharpest declines in terms of job security and job quality have occurred amongst men, marking an overall harmonising down in terms of job security and job quality, so that the experience of males in the labour force increasingly looks like what the experience for females long has. Nonetheless, it is important to be mindful that for everyone i.e. both males and females, the security and quality of employment is on the decline.

Moreover, the results in this paper also show that despite the convergence in terms of employment arrangements and the turn to more insecure forms of employment, enduring gendered differences remain. Females remain more likely to be employed in more insecure forms of employment than males. In addition to this, despite substantial restructuring of the labour market in terms of industrial sectors and occupations throughout the past twenty years there remains a persistent segregation of men and women into different sectors and occupations.

Additionally, whilst it is commonly thought that higher or lower levels of education will increase or decrease one's likelihood of being in secure or insecure employment the evidence presented in this paper shows that whilst higher levels of education increase the likelihood of full-time, permanent employment for both males and females, education has a stronger influence for females than it does for males. We can interpret these results as showing the particular benefits of educational attainment to improving females' labour market outcomes. However, we can also interpret these results as showing that the "penalty" of having no qualifications is much lower for males than females, with 60% of males with no qualifications in a full-time permanent job, compared with 34.7% females.

In terms of the influence of children in determining one's likelihood of being in secure or insecure employment, the evidence presented in Section 4 shows that whilst males with no children (68.2%) have a higher likelihood of being in a permanent, full-time job than females with no children (63%), having children further amplifies the differentiation between males and females. Having one or more children reduces the likelihood of females of

being in permanent, full-time employment by almost one-third, with only 44% of females with one or more children working in a permanent, full-time job.

2. Changing Employment Arrangements

2.1 The rise of the traditional "standard" employment arrangement, the gender contract and the institutionalisation of a segmented labour market

Whilst there is no legal definition of the "standard" employment arrangement, broadly speaking it refers to employment which is full-time, regular, direct with a single employer, with a contract of permanent, indefinite duration, has reasonably stable hours, and access to social benefits and entitlements. "Non-standard" employment arrangements then cover all employment relationships that do not conform to one or more of these "standard" characteristics. These can be very diverse, and include for instance the following partly overlapping employment types: part-time work; temporary/fixed-term contract work; self-employment, agency work, zero-hours employment, on-demand work amongst others.

The traditional "standard" employment arrangement came to the fore as the normative benchmark model of (male) employment in the period following the Second World War. Its emergence was the product of a long, complex and contested process involving employees, employers, trade unions, political parties and the State. Together they were involved in negotiating a new entente social contract which promised *workers* security, a "family wage" and improved living standards, *employers* a committed workforce and robust demands for their products, and *the State* a greater degree of social cohesion and political stability to underpin economic growth (Lewchuk et al., 2011; Rodgers and Rodgers, 1989). Labour law, legislation and policy and the emergence of other areas of regulation such as job related social benefits, social security and taxes including pensions, paid holidays, sick pay, shorter work weeks, and disability insurance were all hinged to the notion that employment would be "standard" in nature. This solidified its dominance and contributed to its ascendancy as the normative model of employment throughout the latter half of the twentieth century.

However, even in this post-war period, the "standard" employment arrangement never fully replaced all other forms of employment. Thus, whilst the "standard" employment arrangement was typical for male workers within the industrial goods-producing sectors many "non-standard" forms of employment continued to persist. The majority of these jobs were filled by women in what is often known as "pink collar" jobs such as clerical, caring, and cleaning jobs (Presser et al., 2008; Standing, 1999). However, because labour laws and policies, job related social benefits, taxation and social insurance

system were designed and built around the "standard" employment arrangement, workers in forms of employment that fell outside of this were less likely to be able to benefit from these protections. In this sense, the fact that labour law, legislation and policy were focused on the "standard" employment arrangement meant that workers in "non-standard" employment arrangements were not covered by the regulations or social protections. Unsurprisingly, this resulted in differential and inferior conditions of work for workers in "non-standard" employment arrangements (Fudge and Vosko, 2001). This in turn prompted a correlation between "non-standard" employment arrangements and poor(er) quality employment (Fudge and Vosko, 2001).

At the time however, the selective nature of the "standard" employment arrangement and the inferiority of "non-standard" employment was on-the-whole considered unproblematic. This was largely a result of gendered assumptions about the role of men and women in the labour market, and in society as a whole. From the outset, the "standard" employment arrangement was linked to a particular "gender contract." This is a term used to denote the roles of males and females in both the public and private sphere – male as breadwinner, female as caregiver. That is, the "standard" employment arrangement was designed to provide principally male workers with a "breadwinner's wage." This would provide a stable and adequate income sufficient to take care of a growing family, provide security against unforeseen events that could impede the ability to work, and offer security in retirement. Thus, as the key role of women was thought to be as caregiver, if a woman did participate in the paid labour market her wage was assumed to be a "secondary wage" and not central to a family's subsistence. Thus, as women constituted the largest share of "non-standard," unprotected workers for these reasons the inferiority of "non-standard" forms of employment was largely considered uncontentious (Vosko, 2006).

As such, in spite of the sizeable proportion of workers and families who benefited from the emergence of the "standard" employment arrangement and all of the protections and regulations that came to be associated with it, it was selective in nature. It served to institutionalise a segmented gendered dual labour market where men dominated in a labour market where the regulated and protected "standard" employment arrangement was the norm. Meanwhile the employment standards and the quality of employment in the "non-standard" labour market were the resort of the majoritively female workers. Yet, owing to gendered assumptions about the role of men and women in society and a social contract which gave precedence to the "standard" employment arrangement the selective nature of labour law and employment regulation and the poorer quality of "non-standard" employment became "*invisible at worst and unproblematic at best*" (Fudge and Vosko, 2001: 277).

2.2 The feminisation of employment, the spread of "non-standard" employment arrangements, and the growth of poor quality jobs

Whilst there had been a gradual rise in labour force participation among women since the Second World War this began to accelerate in the 1960s. Stimulating this growth was the success of the women's movement and the introduction of equality legislation. This included the rights for married women to access work, the right to equal pay, the right to not be discriminated against in work, education or training on the basis of gender and the right to statutory maternity provision (ONS, 2013). Further to this, changes in patterns of pregnancy and demographic structures of family, as a result of increased access to the contraceptive pill, led to a decline in normative expectations in terms of the role of men as breadwinners and women as caregivers (Burgess and Connell, 2004). Moreover, the rise in mass production led to the possibility of domestic tasks being undertaken on the basis of purchased commodities, in a less labour-intensive way. This reduced the time and effort women spent doing domestic labour, and in turn increased the time women had available to sell their labour for income in the market economy (Glucksmann, 1995). In addition, the rise in certain types of employment that had come to be associated as "women's work" such as clerical work, health work, and care work stimulated the growth in women's labour force participation (Akbulut, 2007).

Together these changes had a major impact on women, and in particular younger women, who increasingly began to take up paid employment in the labour market. Indeed, by the 1960s and 1970s paid employment became the norm even for married women, while married women with children increasingly returned to work once their youngest child reached school age (Crompton et al., 2007). By the 1980s and 1990s even mothers of young children were staying in the labour market, albeit predominately within particular sectors and occupations associated with women, and in "non-standard" forms of employment (Hakim, 1992; Institute for Employment Studies, 2006).

Perhaps unsurprisingly then at the same time as the numbers of women participating in the labour force began to pick up pace there was also an increase in the proportions participating in "non-standard" employment. Thus, whilst "non-standard" employment has always supplemented the "standard" employment model, in the mid- to late-1970s we began to see hastened growth in "non-standard" employment and a decline in the traditional "standard" employment arrangement (European Commission, 2016; Gutierrez-Barbarrusa, 2016; ILO, 2016). However, whilst some attribute the growth in "non-standard" employment to factors of labour supply in terms of the increase in female labour force participation and the choice of women to work in this way (Standing, 1989), several other factors have also been key. These include, among others, pressure from globalisation and technological change (Dolphin,

2015; Ware-Barrientos, 2013), as well as deindustrialisation and the shift from manufacturing to services (ILO, 2015; Kalleberg et al., 2003). Both of these trends prompted changing organisational strategies and the increasing pursuit of numerical, functional and pay flexibility (ILO, 2016; Kalleberg, 2011; Uzzi and Barsness, 1998), as well as partial deregulation of the labour market and an overall weakening of collective bargaining rights (Heery et al., 2002; Nowak, 2012).

Moreover, irrespective of the specific factors this accelerated growth in "non-standard" forms of employment has prompted much discussion about the quality of such work. Many scholars have argued that the growth in non-standard employment signalled the erosion of the rights, benefits and entitlements that had come to be associated with "standard" employment. Early theorists commented that the growth in "non-standard" employment served only in the interests of the employer, whom increasingly sought to use employees to their own advantage in an "as needed" basis, and in turn reduce labour costs, notably through reductions in wages, social insurance, fringe benefits, and redundancy payments (Atkinson, 1984; Beck, 1992; Gorz, 1999; and Hutton, 1996). Later others argued that this shift represented a break-down of the post-war social settlement in a way that give primacy to employers demands for flexibility, at the expense of employees' security, pay, and working conditions (Ashiagbor, 2006).

More recently the heterogeneous nature of "non-standard" forms of employment has been recognised. The crude synonymising of "non-standard" employment as poor quality has been rejected in favour of an approach that recognises that all employment arrangements are at some risk of poor quality (Rodgers and Rodgers, 1989). As such recent work has focused on assessing job quality across multiple dimensions, such as job security, earnings, quality of the working environment, working hours, career development and training opportunities among others (European Commission, 2016; ILO, 2016; OECD, 2015). Nevertheless, in analysing the quality of "non-standard" employment an extensive body of evidence demonstrates that "non-standard" forms of employment tend to be of poorer quality when compared with the traditional "standard" employment arrangement (European Commission, 2016; ILO, 2016; OECD, 2015; Wilson, 2017). "Non-standard" forms of employment tend to bring less security, have lower earnings, lower social security coverage, offer fewer hours of work on average, possess higher occupational safety and health risks, lower likelihood of promotion, less satisfaction, less training, and lower likelihood of worker representation when compared to standard employment arrangements (ILO, 2016).

2.3 The feminisation of employment norms

Nonetheless, despite much attention being given in recent decades to the changing nature of employment, job quality and the growth of insecure and poor-quality jobs much of this discussion overlooks the interaction with gender. Moreover, much of the discussion in terms of the feminisation of employment has taken it for granted as entailing only women's mass entry into the paid labour force (Standing, 1989; 1999). However, Vosko (2002) and Fudge (2006) argue that we have to *rethink* feminisation and move beyond a focus on the movement of women into the labour force. This restrictive emphasis on female labour force participation Vosko (2002) argues welds the notion of feminisation to a narrow set of trends, and conceals important labour market changes such as the convergence towards "non-standard," insecure and poorer quality employment.

Fudge and Vosko (2003: 458) however maintain that these changing labour market trends are "both shaped by, and in turn shapes, enduring gender inequalities both inside and outside of the labour market." They argue that the growth in insecure employment and poor-quality jobs amounts to the "feminisation of employment norms," rather than a genderless erosion of the "standard" employment arrangement. As such, Vosko (2002) argues that by assessing the changing nature of employment via a gender lens we will be better placed to understand what effect gender is having on the increase in non-standard, insecure, poor quality employment. It could be that employment is of poorer quality because more women are in employment and so the change in the overall structure of the labour market to be of poorer quality is accounted for by the expansion of women's work which is traditionally of poorer quality and more insecure in nature. Or we are witnessing an overall convergence or "harmonising down" (Armstrong, 1996) of employment security and quality in a way that reflects the security and quality of employment that has typically been associated with women. Thus, a more general "feminisation of employment norms" affecting the labour market experience of both men and women. Moreover, Vosko (2002) argues that by looking at the changing nature of employment via a gender lens we can capture the extent of enduring differences and continuity in terms of gender inequalities in the workplace.

In order to assess the (a) changes and continuities in terms of gendered patterns in the nature of employment and; (b) the extent to which the "feminisation of employment norms" is applying an overall downward pressure on security of employment and job quality for both men and women the analysis in this paper will examine: (1) change and continuity in the gendered nature of labour force participation; (2) change and continuity in the gendered nature of insecure employment; (3) change and continuity in the gendered nature of working hours; (4) change and continuity in the gendered nature of

the industrial structure of the labour market; (5) change and continuity in the gendered nature of occupations; and the gendered nature of occupations and incomes. Also considered is the differential impact for males and females which educational qualifications and having children have on the likelihood of being in insecure employment.

3. Data and Methods

The analysis in this paper draws on data from the Northern Ireland Quarterly Labour Force Survey (NI-QLFS), as well as from analysis of published statistics from the Northern Ireland element of the Annual Survey of Hours and Earnings Survey (ASHE) (NISRA, 2017). Utilising these data allows us to examine trends over a twenty-year period from 1996 to 2016 toward (a) the "feminisation of employment norms" and an ensuing overall downward pressure on security of employment and job quality; and (b) changes and continuities in terms of gendered patterns in the nature of employment and job quality.

The sampling frame used in the NI-QLFS is POINTER, which is the Governments central register of domestic properties. It is obtained from the Land and Property Services who own and maintain the list of domestic properties in Northern Ireland. The theoretical sample for the NI-QLFS comprises 3,250 addresses, made up of five "waves," each containing approximately 650 private households. However, due to the cumulative effect of refusals and ineligible addresses, the number of "active" addresses is approximately 2,700 each quarter (NISRA, 2013).

The NI-QLFS uses calibration weighting. Calibration weighting typically involves calculating a design weight, making adjustments for non-response, and finally calibration to population totals. Specifically, the weights are formed using a population weighting procedure which involves weighting data to population estimates and then adjusting for the estimated age and sex composition. The NI-QLFS survey has been designed to give reliable estimates for each quarter.

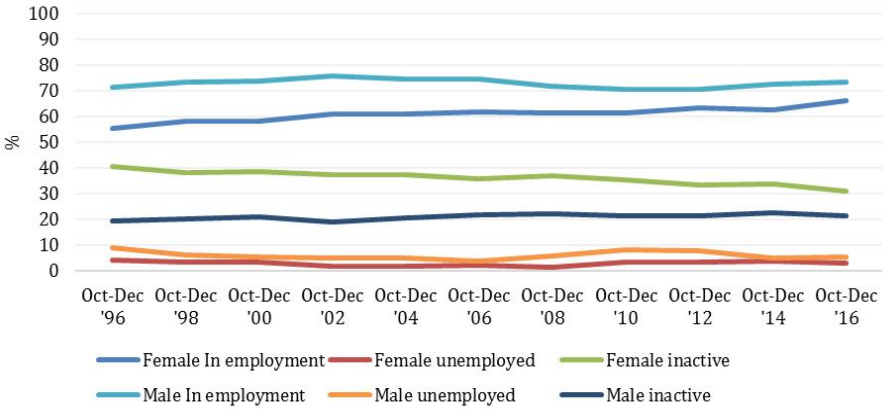
Analyses of NI-QLFS data in this paper are restricted to those in employment (i.e. paid employees and self-employed workers) aged between 16 and 64. The following specifics should also be noted. Family workers are excluded from the analysis owing to sample size issues. Those jobs identified in the analysis as "temporary" captures dependent employment of limited duration or that which is not permanent in some way. The available data does not allow us to distinguish between different types of temporary work – such as seasonal/casual jobs versus jobs done under a contract for a fixed period of time.

4. Analysis and Findings

4.1 Change and continuity in the gendered nature of labour force participation

As discussed in Section 2 the term "feminization" is typically used to refer to women's mass and rapid entry into the labour market with much early work on this issue tending to put forward the idea that the rise in female labour market participation was leading to the substitution of women for men, and an ensuing rise in male unemployment (Standing, 1989). However, as presented in Figure 1 below, an examination of male and female employment, unemployment and inactivity trends throughout the past twenty years shows that this view misses important aspects of the story in terms of the changes and continuities in the gendered nature of labour market participation.

Figure 1 Participation in the labour market by gender, percentage



Consistent with trends in other industrialised countries the dramatic rise since the early 1970s in female employment and the slow drop in male employment in Northern Ireland is well-documented (Heaton, 1992; Murphy, 2011). However, whilst much of the increase in female employment and drop in male employment took place in the 1970s, 1980s, and early 1990s throughout this period men continued to consistently have a markedly higher employment rate than females (McDowell, 2010). Moreover, as shown in Figure 1 above whilst we have continued to see a steady increase in female employment over the past twenty years, male employment has remained substantially higher than female employment, although the gap has been narrowing with an 8.5% decrease in the gender gap in employment between men and women over the past twenty years. By end of 2016 the employment rate for men was 73.4%, up from 71.5% in 1996. The employment rate for women was just over 66%, up from 55.6% in 1996. A 7% gap remains in the employment rates of men and women.

In looking at Figure 1 we can see that much of the gap in the employment rate between males and females is driven by the increased likelihood of females to not participate in the paid labour market, albeit this has been decreasing consistently throughout the past twenty years whereby we are increasingly seeing a convergence in the economic inactivity rates of males and females.

On the other hand, on-the-whole we are seeing no evidence that male unemployment is increasingly diverging from female unemployment as the employment rate of females increases. Thus, whilst male unemployment is persistently above that of women the data suggests that the perception of early feminisation scholars that women's rising labour force participation is resulting in more unemployment for men is overstated (Standing, 1989).

All in all, however, whilst the narrowing of gender gaps in terms of labour market participation in terms of the convergence in employment rates and economic inactivity rates of males and females gives cause for optimism, as is clear from the data presented below, this does not signify the disappearance of gender from discussions about labour market participation. Indeed, substantial disparities remain with males continuing to be more likely to be in employment than females. If the gap in employment between males and females continues to decline at the same rate as it has done throughout the past twenty years, it will take another twenty years to close the gender gap in employment between men and women.

The lower participation rate of females in the labour market continues to be strongly related to the higher likelihood of women to remain out of the paid labour force in order to undertake care activities in the home. Females account for nine-tenths of the total number of people who are looking after family/home. This further reflects the fact that for families with children childcare provision is not always available or affordable (McQuaid et al., 2013). Furthermore, it reflects a lack of flexible employment which allows employees to vary their paid working hours to accommodate their non-paid working activities.

4.2 Change and continuity in the gendered nature of insecure employment

Examining changes in mutually exclusive forms of employment for men and women over time brings insight to the relationship between insecurity in employment and gender, and continuities and changes over time. In this way, as discussed in Section 2.1 men have traditionally been dominated in "standard," full-time, secure employment, whilst females have been majoritively in more insecure "non-standard" forms of employment.

The analysis distinguishes between employees and the self-employed, and further between the self-employed with employees and own-account self-employed who have no employees. While all self-employment by its very

nature can be considered insecure, the increasing tendency for the self-employed to be without employees/own account workers and to work part-time suggests that the growth of self-employment may owe more to the spread of precarious employment than to a surge in entrepreneurial spirit (D'Arcy and Gardiner, 2014). A further important reason for distinguishing between employees and the self-employed relates to the degree of regulatory protection and that the self-employed do not benefit from employment regulations on working time, breaks, paid leave, minimum wage, social protection, and pension rights (ETUC, 2016). Evidence of the rise of dependent self-employment is particularly worrying in this regard.

The analysis also distinguishes between employees based on permanent and temporary employment status with those employed on permanent contracts are considered as being in secure employment. Those in temporary employment are easily defined as being in insecure employment because apart from the fact that such workers have no guarantee of the work continuing, their contracts are generally easier to terminate than those employed on permanent contracts. Furthermore, the analysis breaks each of these forms of employment by full-time part-time status since this distinction is central to any gender analysis.

In terms of the results, focusing first on changes for men and women in the share of employment that is permanent and full-time in nature we see a decline over the period 1996 to 2016 in the share of men employed in this form of work (-1.3%), and an increase in the share of women (1.5%). Nonetheless, by the end of 2016 men continued to have a much higher likelihood of being in full-time permanent employment, with 68.5% of total male employment compared to 53.9% of total female employment being full-time and permanent in nature. What is more, whilst we have seen a general decline in more recent years in the overall share of employment which is full-time and permanent in nature (Wilson, 2017) an examination of Table 1 below shows that women have been driving this decline. Specifically, female full-time permanent employment has declined by 4.2% in the years from 2014 to 2016.

Furthermore, over the period 1996 to 2016 we have seen a decline in the proportion of women's employment that is part-time and permanent, and an almost doubling from 3.1% to 6% in the total share of male employment that was part-time and permanent. Nevertheless, by the end of 2016 women remained over five times as likely to be part-time permanent employed compared to men.

In terms of the share of men and women in temporary employment, when we look over time, whilst we have seen a slight increase in the proportion of men who are temporary employed, women continue to have a higher likelihood of being in temporary employment. What is more, in looking to Table

1 below we see that whilst part-time temporary employment had been on the decline for some time for women, in more recent years this appears to be on the rise again.

Turning now to the share of employment which is self-employment – both own-account and with employees we see from Table 1 below that the percentage of men's and women's employment that was self-employed own-account work increased over the period 1996 to 2016. At the same time self-employment with employees has declined suggesting that both men and women have increasingly been engaging in more precarious types of self-employment. These trends have become increasingly pronounced in the two years from 2014 to 2016 with a 1.5% increase in the proportion of males and a 1.7% increase in the proportion of females in own-account self-employment.

Taken these results together we might argue that the enduring higher likelihood of women to be in all forms of part-time work provides evidence to show that profound continuities in gender inequality remain. Nevertheless, the data also bring to the fore changes and trends toward the "feminisation of employment norms" clear from evidence of the movement of more men into more insecure, forms of employment traditionally associated with women. What is more, the move away from employment being full-time and permanent in nature and the particular increasing likelihood of both genders to be own-account self-employed points to an increase in more insecure, less protected, lower quality employment.

Continuity and change in the gendered nature of different types of employment arrangement is further revealed when we examine the shares of women in different forms of employment arrangement over the past twenty years. In doing so we see continuity in the dominance of both women and men in different forms of employment arrangement. Specifically, as shown in Figure 2 below across all periods women have comprised the majority of those in all forms of part-time employment. For example, in 2016 women accounted for over 80% of those in permanent part-time employment, close to 70% of those in temporary part-time employment, and just over 55% of the part-time self-employed without employees. In contrast, men generally account for the majority of those engaged in full-time employment comprising 58% of the full-time permanently employed (58%), 78% of full-time own-account self-employment, and 83% of full-time self-employment with employees. Full-time temporary employment is an exception to this however whereby in 1996 women held the majority share of workers in temporary full-time arrangements. By the end of 2016 closely approximate shares of males and females were full-time temporary employed.

Table 1 Share of labour market comprised of mutually exclusive employment forms for women and men, 1996–2016

		Self-employed				**Employees**			
		Own account		With employees		Permanent		Temporary	
		Full-time	Part-time	Full-time	Part-time	Full-time	Part-time	Full-time	Part-time
Women	1996	2.5	2.5	1.7	0.5	52.4	32.3	3.7	4.3
	1998	1.8	1.7	0.9	0.3	57.8	30.2	3.3	3.9
	2000	1.6	1.8	1.4	0.5	53.5	34.2	3.3	3.8
	2002	1.9	1.0	1.9	0.4	53.3	34.7	1.8	5.0
	2004	1.9	1.8	1.8	0.4	54.4	32.5	3.1	4.0
	2006	2.6	1.6	1.6	0.7	54.3	32.6	2.0	4.6
	2008	2.6	1.2	1.2	0.3	56.0	33.0	2.6	3.2
	2010	3.1	2.3	1.3	0.9	56.2	30.2	2.5	3.5
	2012	2.0	2.0	1.1	0.2	56.5	32.2	2.7	3.3
	2014	2.5	1.9	0.7	0.4	58.2	29.1	2.9	4.3
	2016	3.2	2.9	1.4	0.7	53.9	30.6	2.6	4.7
Men	1996	14.1	0.9	7.9	0.1	69.8	3.1	2.4	1.8
	1998	12.6	0.4	6.8	-	71.8	3.4	3.4	1.7
	2000	12.8	0.5	6.7	0.1	74.0	3.1	2.5	0.1
	2002	13.0	0.5	6.8	0.1	71.9	3.8	2.4	1.6
	2004	13.2	1.0	8.7	-	69.0	3.9	2.5	1.8
	2006	14.4	1.2	7.4	-	71.0	2.6	2.0	1.4
	2008	13.9	1.3	6.8	-	69.5	4.5	2.3	1.2
	2010	14.0	2.8	6.7	2.8	67.9	4.2	2.5	1.6
	2012	12.6	1.4	5.9	0.7	70.1	5.5	1.5	2.8
	2014	13.6	1.4	4.2	0.2	69.9	5.7	3.3	1.6
	2016	14.3	2.2	4.7	-	68.5	6.0	2.3	2.0

Note: "-" indicates that the sample size was too small to yield reliable estimates.

Figure 1 Percentage female in each employment arrangement



Note: Sample size too small to yield reliable estimates for those self-employed part-time with employees.

4.3 The gendered impact of education and children on insecure employment

Whilst previous research has shown evidence of the influence of education on one's likelihood of being in different employment arrangements, with those with higher levels of education having a higher likelihood of being in a permanent, full-time job than those with lower or no educational qualifications (Wilson, 2017) little is known about how gender mediates the relationship between education and likelihood of being in particular employment arrangements. Furthermore, whilst previous research has documented evidence of a "motherhood" penalty for women with children in terms of pay and working arrangements little to no such research has looked at this issue in Northern Ireland. This section examines the gendered impact of level of educational attainment and having children on likelihood of being in secure or insecure employment.

Focusing first on the influence which gender has on the relationship between education and employment arrangements we see that whilst higher levels of education increases the likelihood of both males and females of being in a full-time, permanent job it has a much stronger influence on women than men, and greatly increases the likelihood of females being in a permanent job. Specifically, only 34.7% of females with no qualifications are in a permanent, full-time job. Having below degree qualifications increases the proportion to 50%, with a degree or above level qualifications increasing the proportion to 64.6%.

Whilst these results can be read as showing evidence of a strong positive influence of human capital for female likelihood of being in a full-time, permanent job it also shows that the "penalty" of having no qualifications in terms of the likelihood of being in full-time permanent employment is much

lower for males compared to females, with 60% of males with no qualifications in a permanent, full-time job compared with 34.7% of females. Having degree or above level qualifications strongly reduces the likelihood of females being part-time permanent employed, with 58.2% of females with no qualifications in part-time permanent employment, compared to 18.2% of females with degree or above level qualifications. Furthermore, higher levels of education have a negative influence on the likelihood of both females and (particularly) males being in self-employment. Specifically, close to one in three males with no qualifications are in self-employment, this reduces to almost one in four males with below degree level qualifications, and to slightly over one in ten males with degree level or above qualifications.

Turning now to the gendered influence of having children on the likelihood of being in particular employment arrangements the data shows that whilst males with no children are more likely than females to be in a full-time permanent job, having children greatly amplifies the differentiation between male and female likelihood of being in a permanent, full-time job.

Specifically, having one or more children reduces the female likelihood of being in a permanent, full-time job by almost one-third, with only 44% of females with one or more children working in a permanent, full-time job. On the other hand, interestingly, having children increases the likelihood of males being in a permanent, full-time job, but decreases the likelihood of males being in self-employment.

The decrease in the proportion of females with children to not be employed in permanent, full-time employment appears to be driven almost entirely by the much higher likelihood of females with children to work part-time, comparable to evidence found in many previous studies. Indeed, having one or more children almost doubles the proportion of females employed in permanent part-time employment (40.8% compared to 21.5%).

Table 1 The gendered impact of education and children on likelihood of being in particular employment arrangements, 2016

		Self-employed Full-time	Self-employed Part-time	Permanent Full-time	Permanent Part-time	Temp Full-time	Temp Part-time
		%	%	%	%	%	%
Educational qualifications ***							
Degree or above	Male	10.5	1.5	79.6	3.5	3.6	1.3
	Female	4.0	2.9	64.6	18.2	4.8	5.6
Below degree	Male	21.1	2.1	65.3	7.4	1.9	2.2
	Female	5.2	3.6	50.2	34.8	1.7	4.5
No qualifications	Male	26.6	3.7	60.0	5.2	1.6	2.7
	Female	1.1	6.0	34.7	58.2	-	-
Number of children ***							
0 children	Male	19.2	2.4	68.2	5.1	3.5	1.6
	Female	4.5	3.1	63.0	21.5	2.8	5.2
1 + children	Male	18.7	1.8	69.0	7.1	0.8	2.6
	Female	4.7	4.2	44.0	40.8	2.3	4.1

Note: Temp = temporary. *** = Statistically significant at the 0.001 level.

4.4 Change and continuity in the gendered nature of working hours

Working hours have been identified as an important aspect of job quality with evidence showing that too few hours, too many hours, or a lack of control over ones working hours poses problems for workers (ILO, 2016). Hours that are excessive create risks for workers' in terms of conflicts over work-life balance, as well as health and safety concerns. Hours that are too short, create risks in terms of the worker not being able to obtain adequate earnings. Historically, working hours have been influenced heavily be gender with those who work the longest paid hours being traditionally much more likely to be men. On the other hand, women have been more likely to work short hours.

In seeking to assess the gendered nature of working hours, as well as continuities or changes over time Table 2 below shows the percentage of males and females working in different hour bands ranging from 0–8 hours, 9–16 hours, 17–40 hours, 41–47 hours, and 48 + hours per week. One of the most notable findings is the substantive increase over time in the percentage of males working few hours per week (0–8 hours). Specifically, in 1996 4.4% of males worked between 0–8 hours per week. By 2016 this had increased to almost 10%. We see a similar doubling in the proportion of males working 9–16 hours per week increasing from 2.1% of all male workers in 1996 to 4% by the end of 2016. On the other hand, the percentage of women working 0–16 hours per week has remained constant since 1996 and women continue to have a much higher likelihood of working short hours compared to males.

In contrast, as shown in Table 2 we have seen a reduction in the proportions of both males and females working 41 hours and over. In particular, we have seen sharp declines in the proportion of males working between 41–48 hours and 48+ hours between 1996 and 2016. The proportion of males working 41–47 hours has declined from 17.9% in 1996 to 13.3% in 2016. The proportion of males working 48 hours or more has declined from 29.4% in 1996 to 21.1% in 2016. Nevertheless, males continue to have a much higher likelihood of working long hours, compared to females.

Table 2 The gendered nature of working hours, 1996–2016

% workers working different hours ***	Male			Female		
	1996	2006	2016	1996	2006	2016
0–8 hours	4.4	3.7	9.7	14.1	11.6	14.7
9–16 hours	2.1	2.1	4	11	10.8	10
17–40 hours	46.2	55.4	50	60.5	64	63.4
41–47 hours	17.9	14.7	13.3	8.1	7.8	6.9
48+	29.4	24.1	21.1	6.3	5.7	5.1

Unpredictable or having working hours that vary from week-to-week have also been used in previous research as an indicator of poor job quality. Evidence shows that having working hours that vary from week-to-week leads to an increase in work-life conflict, as well as having negative repercussions

on safety and health, and leading to insecurity over earnings as the worker does not know how many hours of work and thus earnings that they are going to have.

Respondents to the NI-QLFS are asked if the number of hours worked in the reference week differed from the person's usual hours. This allows us to determine gender differences in the instability of working hours and the extent to which working schedules vary on a week-to-week basis, and indeed changes in this overtime.

As shown in Table 3 below the most notable change has been the substantive increase between 2006 and 2016 in the proportion of both males and females who said that their hours varied. Between 2006 and 2016 we see a 9% increase in the proportion of males whose working hours varied, and a 16% increase in the proportion of females. Thus, whilst instability in working hours grew for both genders, an implication of the stronger increase for females is that by the end of 2016 females were more likely than males to have varying working hours. By the end of 2016 29% of females said their working hours varied, compared to 25.7% of males.

Table 3 Percentage of workers whose hours vary, by gender, 2006–2016

	Male		Female	
	2006	**2016**	**2006**	**2016**
Hours vary: Yes	16.6	25.7	13.4	29

4.5 Change and continuity in the gendered nature of the industrial structure of the labour market

Scholars frequently claim that due to industrial restructuring and a substantial rise in services that gender segregation in the industrial structure of employment is declining (Standing, 1999). This section thus seeks to ascertain if we are seeing a decline in the gendered nature of the industrial structure of the labour market, and if so, how this is occurring. To do this, this section looks at overall changes in the industrial structure of the Northern Irish labour market between 1996 and 2016, as well as to changes in the share of total male and female employment which is occupied in different industrial sectors. In doing so we will be able to ascertain the extent to which the industrial structure of the labour market is moving away from those sectors where the "standard" employment arrangement traditionally took hold (i.e. goods-producing sectors). Moreover, we will be able to assess the extent to which these changes are being driven by changes in the industrial structure of employment.

One of the most notable changes has been the relative decline in several male-dominated sectors where the "standard" employment arrangement once took hold. Specifically, between 1996 and 2016 manufacturing declined by just over 6% as a share of total employment. We have also seen a decline in

the share of total employment over the period in the agriculture and fishing sectors and the construction sector. By the end of 2016 less than one in four workers (22.6%) were employed in one of these three sectors, down from just under one in three in 1996 (31.3%).

In contrast, over the same period, we have seen considerable growth in the proportion of workers in service industries. In particular the banking, finance and insurance sector has undergone considerable growth as a share of total employment since 1996. By the end of 2016 the banking, finance and insurance sector comprised close to one in six of all employment. The distribution, hotels and restaurants sector comprised close to one in five of all employment. We have also seen notable growth in the share of total employment in transport and communication and other services sectors.

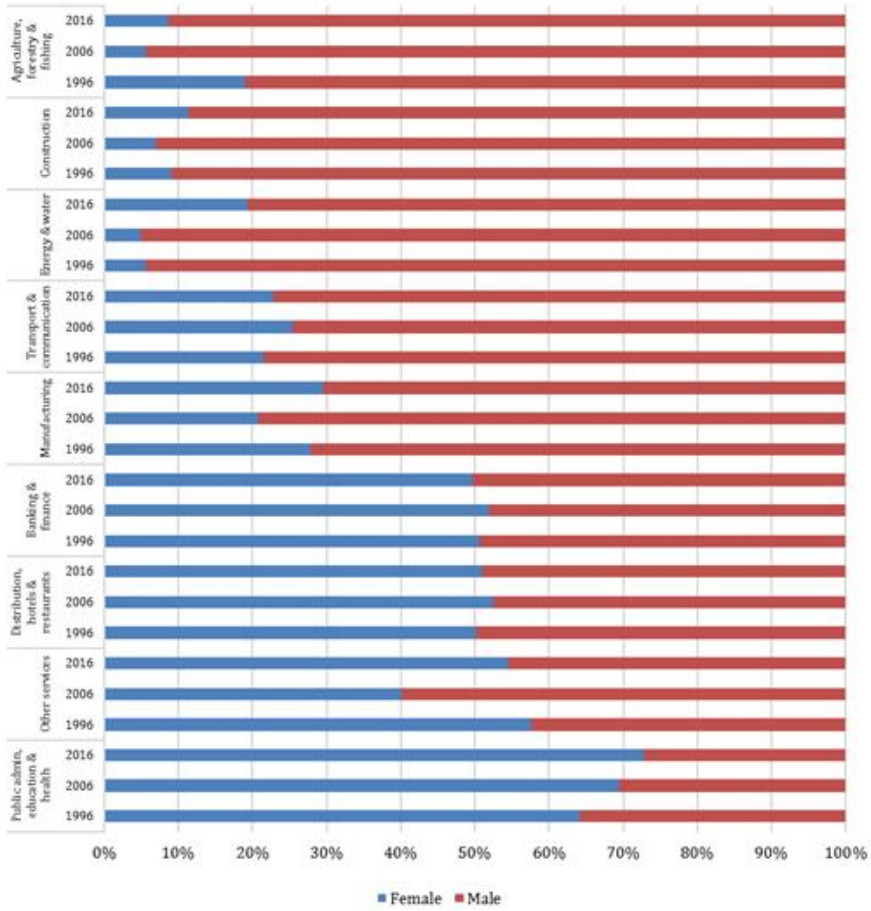
Whilst this shift away from manufacturing and goods-producing industries towards service industries signifies the well-researched phenomena of de-industrialisation (Skuflic and Druzio, 2016), it also signifies the intensification of the sectors of employment traditionally associated with women and in particular to the movement of men into these jobs. Indeed, in looking to percentage changes in the share of total employment in each industrial sector by gender we see that whilst there has been an increase into the service industry for both males and females, these changes have been more substantive for males. That is, employment in the service industry as a share of total employment has grown more strongly for males (+14%) than females (+7.3%).

Table 4 Percentage in each industrial sector by share of total employment, 1996–2016

	All			Male			Female		
	1996	2006	2016	1996	2006	2016	1996	2006	2016
Agriculture & fishing	4.3	3.2	3.1	6.3	5.7	5.6	1.8	0.4	0.6
Energy & water	0.9	1	1.2	1.5	1.8	1.9	0.1	0.1	0.5
Manufacturing	17.3	13.2	11	22.5	19.3	15.1	10.9	6	6.6
Construction	9.7	9.9	8.5	15.9	17.1	14.7	2	1.5	2
Distribution, hotels & restaurants	20.1	20.8	18.8	18	18.4	18.1	22.7	23.8	19.6
Transport & communication	4.2	4.3	5.8	5.9	5.9	8.7	2	2.4	2.7
Banking, finance & insurance	5.9	10.1	14.6	5.3	9	14.3	6.7	11.5	14.8
Public admin., education & health	34.4	33.7	31.8	22.2	19.1	16.9	49.7	51	47.4
Other services	3.3	3.6	5.2	2.5	3.8	4.7	4.2	3.5	5.8

Despite these trends however, men continue to dominate in traditionally male-dominated “productive” sectors where the “standard” employment arrangement took hold. Indeed, withstanding the substantive declines in the share of total male employment which is in the manufacturing, construction and agriculture and fishery sectors, Figure 3 shows that men continue to dominate in each of these sectors. Men make up 70.5% of those in manufacturing, 88.7% of those in construction and 91.4% of those in the agriculture and fishery sector. In contrast, women (73%) comprise a much larger proportion of those in the public administration, education and health sector.

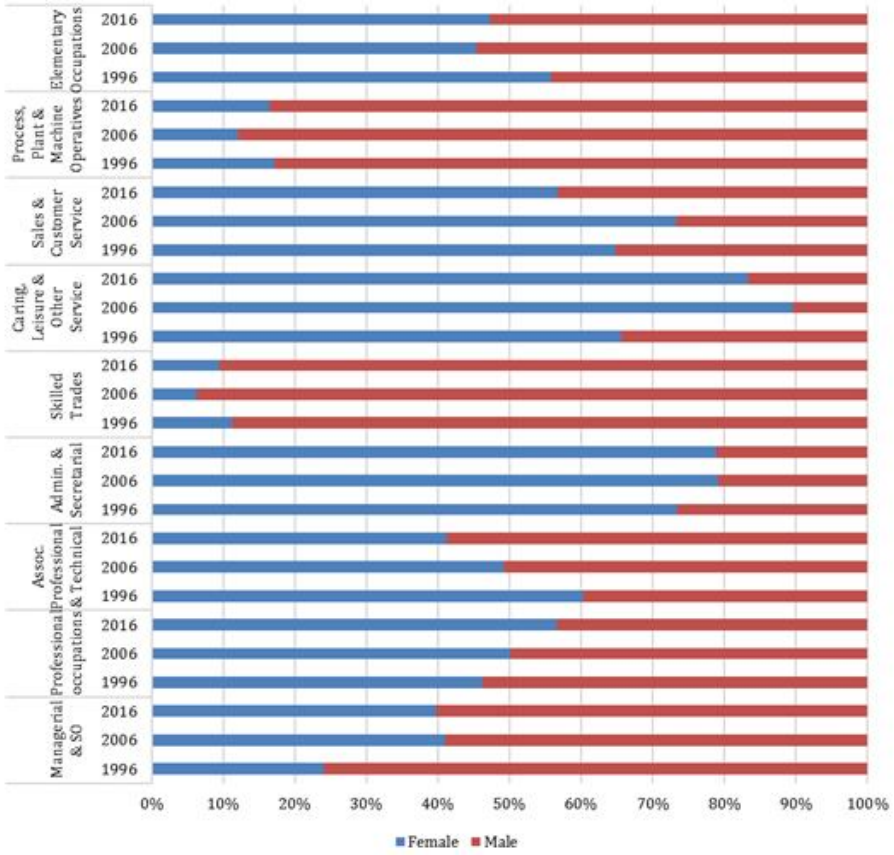
Figure 2 Percentage male and female in each industrial sector, 2016



At the same time, in growing sectors such in banking, finance and insurance and other services, male and female shares of employment are similar (banking, finance and insurance 49.6% female, 50.1% male and other services 54.4% female, 45.6% male). Similarly, the distribution, hotels and restaurant sector is comprised of similar shares of males (49.1%) and females (50.9%). Taken together both changes in the (gendered) proportions comprising each industrial sector over time, alongside the distributional share of females and males in each sector points to both changes and continuities in gendered nature of industrial sectoral segregation. In this way, the above data shows that whilst gender differences in industrial sector distributions have narrowed and are less pronounced in certain sectors than they were twenty years ago, substantive gendered sectoral segregation persists.

4.6 Change and continuity in the gendered nature of occupations

Figure 3 Percentage male and female by occupational structure, 1996–2016



Trends over time in male and female shares in each occupation also show substantive change, yet continuity in terms of gender. Specifically, looking to Figure 4 above we see that males and females continue to dominate in occupations to which they have traditionally been associated.

In each period, women dominate in what has been termed “pink collar” jobs – administrative and secretarial occupations, sales and customer service occupations and caring, leisure and other service occupations. Similarly, men have and continue to dominate in managerial and senior official occupations, skilled trades occupations, and as process, plant and machine operatives.

4.7 The gendered nature of occupations and incomes

The gendered nature of different occupations and incomes is also evident when we examine male and female median hourly earnings across occupa-

tions, alongside gender pay gaps across occupations. Table 5 below ranks occupations from the lowest hourly median pay excluding overtime to the highest hourly median pay excluding overtime. We see that females dominate in five of the ten lowest paid occupations, and in only four of the top ten paid occupations.

Furthermore, in seven of the ten lowest paid occupations median female hourly earnings excluding overtime are below that of males. Here the extent of the gender pay gap varies but is most extreme for those in leisure, travel and related personal service occupations where female median hourly pay at £7.50 is 32% below that of the median male hourly pay of £9.88.

Of course, we have to be mindful that this is the median figure and that there is quite a bit of variation within each occupation and within each gender in terms of pay nevertheless the above data demonstrates the gendered nature of occupational income.

Table 1 The gendered nature of occupational and income segregation, 2016

	Male Median hourly pay excluding overtime (£)	000's	Female Median hourly pay excluding overtime (£)	000's	Proportion female in occupation	Proportion male in occupation	Gender pay gap (%)
1. Sales occupations	7.44	24	7.21	37	**0.6**	0.4	**3.2**
2. Elementary administration and service occupations	7.52	37	7.30	40	0.2	**0.8**	**3.0**
3. Elementary trades and related occupations	7.70	10	7.20	-	-	-	**6.9**
4. Customer service occupations	8.03	6	8.83	7	**0.5**	**0.5**	-9.1
5. Leisure, travel and related personal service occupations	9.88	5	7.50	7	**0.8**	0.2	**31.7**
6. Textiles, printing and other skilled trades	8.50	12	8.30	7	0.4	**0.6**	**2.4**
7. Caring personal service occupations	9.09	6	8.45	59	**0.9**	0.1	**7.6**
8. Process, plant and machine operatives	9.01	42	7.52	9	0.2	**0.8**	**19.9**
9. Secretarial and related occupations	8.45	-	9.32	18	**1.0**	-	-9.3
10. Transport and mobile machine drivers and operatives	9.23	10	-	-	-	-	-
11. Administrative occupations	10.24	22	10.76	63	**0.7**	0.3	-5.1
12. Skilled construction and building trades	10.52	14	-	-	-	-	-
13. Health and social care associate professionals	10.43	6	11.70	13	**0.7**	0.3	-10.9
14. Science, engineering and technology associate professionals	17.35	31	16.54	7	0.2	**0.8**	**4.7**
15. Skilled metal, electrical and electronic trades	11.73	39	-	-	-	-	-
16. Other managers and proprietors	13.09	6	11.29	5	**0.4**	**0.6**	**13.8**
17. Culture, media and sports occupations	-	-	-	-	-	-	-
18. Business and public service associate professionals	17.75	20	16.56	17	**0.5**	**0.5**	**6.2**
19. Science, research, engineering and technology professionals	17.35	31	16.54	7	0.2	**0.8**	**4.7**
20. Health professionals	20.62	10	17.23	50	**0.8**	0.2	**16.5**
21. Business, media and public service professionals	17.78	21	16.56	17	0.4	**0.6**	**6.9**
22. Protective service occupations	19.23	15	19.62	4	0.2	**0.8**	-2.0
23. Corporate managers and directors	21.65	35	19.57	15	0.3	**0.7**	**9.6**
24. Teaching and educational professionals	24.39	15	23.29	32	**0.7**	0.3	**4.5**

5. Summary and Concluding Discussion

This paper sought to examine the changing nature of employment and insecure employment in Northern Ireland via a gendered lens with the aim of assessing (a) the extent to which gendered patterns in the nature of employment and job quality mark change or continuity in terms of the traditional gender inequalities that have characterised the labour market; and (b) the extent to which the nature of employment in Northern Ireland is undergoing a general trend toward the "feminisation of employment norms" and an ensuing overall downward pressure on security of employment and job quality for both men and women.

Gendered inequalities in employment – A story of change and continuity
The results of this study show evidence of enduring gender inequalities in the labour market, with women continuing to be more likely to be in insecure and part-time employment with women comprising the majority of workers in permanent part-time, temporary full- and part-time employment, and part-time self-employment without employees. Furthermore, over the twenty-year period from 1996 to 2016 women have continued to be more likely to work short hours. What is more, evidence in this paper shows that gender significantly mediates the relationships between employment arrangements and both levels of education and having children. Higher levels of education narrow the gap between males and females in terms of likelihood of being in insecure employment, whilst having children further amplifies the differentiation.

In addition, whilst in 2016 gender segregation is less pronounced across industrial sectors and occupations than in decades past, substantive gender segregation remains with men continuing to dominate in traditionally male-dominated productive sectors such as manufacturing and construction, and females continuing in dominate in public administration, education and health. The same is true in terms of occupational segregation where we see that over the twenty-year period from 1996 to 2016 substantial continuity in terms of gendered occupational patterns. Furthermore, as is demonstrated by the higher likelihood of women to be in the lowest paid occupations, even if women are in full-time, permanent employment they are more likely than men to be low paid, and doubly, to earn less than men in these low-paid occupations. A double penalty.

The feminisation of employment norms
Nevertheless, despite substantial continuity in terms of numerous enduring gender inequalities the results in this paper also shows evidence of substantive change, and an overall harmonising down of employment security and quality. In this way, throughout the past twenty years we have seen an

overall convergence towards more insecure, poorer quality employment for both males and females. Importantly, we have seen the sharpest declines in the security and quality of employment of males. Males are increasingly being employed in more insecure "non-standard" forms of employment which have traditionally been associated with women. There have been particular increases in the share of male employment which is part-time, and a more than doubling over the twenty years from 1996 to 2016 in the share of low hour employment amongst males.

The drive towards employment which is less secure, and irregular or variable in terms of working hours and the increase in both low hour and high working hours shows evidence that a "harmonising down" or convergence toward a feminisation of employment norms. This trend toward a "feminisation of employment norms" marks a low-road approach taken by Government in recent decades, evidence from the continual prioritisation which has been given to job quantity over job quality and the incessant erosion of employment rights, protections and institutions which has been embarked upon since the 1980s (Wilson and Mac Flynn, 2018).

Evidence of the increase in employment which is insecure, alongside evidence such forms of employment are generally poorer in quality when compared with the traditional "standard" employment arrangement points towards the need for policy to focus on improving the security and quality of non-standard forms of employment. In this sense, policy needs to give careful consideration as to why non-standard forms of employment are poorer in quality than the traditional "standard" form of employment.

Thus, whilst in recent years we may be seeing an increase in the demands for flexible working practices from both workers and employers it does not necessarily follow that these forms of employment should bring inevitable trade-offs in terms of job quality, as suggested in the Taylor Review (Department for Business, Energy and Industrial Strategy, 2017). Thus, whilst the Taylor Review makes this supposition it is not at all clear why these trade-offs to job quality or security are inevitable. Why should flexibility come at the cost of pay? Or training and development? Or any aspect of job quality? Why – if both employers and workers increasingly want flexible employment practices – must it come at the cost of job security? Policy needs to find a way to ensure that in the desire for more flexible work that the rewards, entitlements and benefits long-associated with employment are not sacrificed.

Clearly, the task of improving the quality of these more flexible forms of employment is no simple task. Indeed, as has been shown throughout this paper, non-standard forms of employment take many forms and it is for this reason that the policy response to improve the quality of such forms of employment will need to be multi-faceted. Rubery et al. (2018) outline a new framework for extending the rights and protections of the traditional "stan-

dard" employment relationship to those in more flexible or "non-standard forms of employment" such as part-time, temporary, or self-employment. They identify the key components of the "standard" employment arrangement which need to be realised within flexible forms of employment in order to achieve a more valued and valuable workforce. The key components are summarised as Security, Opportunity, Fair treatment and Life beyond work. Security is fairly self-explanatory in the context of this paper, i.e. certainty of work, predictable hours, duration of contract, wages. Opportunity describes the platform by which workers are able to invest in themselves through upskilling and training. Fair treatment describes the range of rights at work which those in "standard" employment arrangements are entitled, beyond merely minimum wages and other basic protections. Life beyond work describes the benefits that accrue to those in "standard" forms of employment including the ability to plan life in terms of leisure time and holidays, but also the ability to purchase and house and raise a family, things that have become increasingly difficult for those in flexible forms of employment.

Importantly, Rubery et al. (2018) do not simply propose the replacement of flexible, non-standard forms of employment with an imposing of "standard" employment. They recognise that for many workers the traditional "standard" form of employment simply does not fit with lifestyle and other commitments. Such circumstances however should not prevent workers from enjoying the protections and privileges of employment. They propose two strands of reforms whereby the traditional "standard" form of employment is made more flexible in order to encourage those in non-standard employment arrangements who feel excluded by the traditions of the "standard" form of employment. The second strand envisages the key components of the "standard" from of employment being extended to flexible, non-standard forms of employment. Reforming employment rights and standards to both improve the security of those in flexible forms of employment and opening up the "standard" form of employment to greater flexibility would give employers the room for manoeuvre that they require from a modern workforce whilst unleashing the potential of an entire section of the workforce that would come to feel valued and protected in their jobs.

Policy implications

This continuation of gender inequalities in the labour market and the domination of women in insecure, poor quality employment points to the need for policy to carefully examine, and take heed of the relationship between the higher likelihood of women to work in insecure, short and variable working hours arrangements and activities related to social reproduction, and the traditional role of women within the home deemed as responsible for care and family work.

In current policy there continues to be a lack of recognition of unpaid work and its economic and social value. Indeed, there is an implicit hostile narrative running through economic policy that to be economically inactive due to family or caring commitments is an individual failing which can be explained largely in individual terms via a culture of worklessness, with Government strategies focused on increasing the participation of this group into paid work (Bailey, 2016).

This is clear if we look through the current strategy to reduce economic inactivity in Northern Ireland which states that "some forms of economic inactivity are not problematic. Northern Ireland, for example, has a higher proportion of students contributing to our inactive total than any other region of the United Kingdom. This can be viewed as a benign form of inactivity where the investment in education and skills is highly likely to repay dividends to the individuals and wider economy in the future" (Department for Employment and Learning, 2015: 3). It however identifies those with family or caring commitments as one of two problematic target groups, who need to be supported into paid employment. Lack of recognition of the value and importance of the unpaid work carried out by this group in the report is clear when it states that by engaging in paid work those who are currently looking after their family or home will be able to "better provide for [their] families and make a fuller contribution to society" (Department for Employment and Learning, 2015: 3).

In all of this there is an avoidance of the need to address the barriers which women face entering the labour market and the enduring inequalities in which women face when in the labour market. There is a need for policy makers to recognise that gender inequalities are being facilitated through a lack of adequate paid parental leave, good quality, affordable and accessible childcare and other social care services for family members, and also of family-friendly flexible working arrangements for both women and men. Previous research shows that the higher likelihood of females to work in certain sectors and occupations is related to the fact that some women choose to enter certain sectors and occupations, because they are more compatible with care responsibilities (Cassirer and Addati, 2007). On the other hand, many occupations traditionally dominated by men do not offer family-friendly flexible working arrangements which further compounds existing gender inequalities.

Moreover, the evidence presented in this paper in terms of the overall convergence towards insecure, poor quality employment points to the need for policy makers to develop an employment strategy which moves away from the traditional concern of such documents with quantity, and the number of jobs, and necessity to focus on job quality through a focus on at once making more flexible the traditional "standard" form of employment

and improving the quality of non-standard jobs. Furthermore, given evidence of the long-term and enduring continued higher likelihood of women to be in insecure and poor-quality women, the specific barriers which women face points to the need for a women's focused employment strategy to address the many peculiarities which continue to shape women's experience in the Northern Ireland labour market.

Acknowledgments
The author gratefully acknowledges helpful feedback from a number of reviewers. The usual disclaimer applies.

Author Contributions
The author confirms being the sole contributor of this work and approved it for publication.

Conflict of Interest Statement
The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Addleton Academic Publishers

Journal of Research in Gender Studies 9(1), 2019
pp. 71–104, ISSN 2164-0262, eISSN 2378-3524

"Them and Us": The Experience of Social Exclusion among Women without Children in Their Post-Reproductive Years

Melissa Graham
m.graham3@latrobe.edu.au
School of Psychology and Public Health,
Department of Public Health,
La Trobe University, Australia
(corresponding author)
Hayley McKenzie
hayley.m@deakin.edu.au
Centre for Health through Action on Social Exclusion (CHASE),
School of Health and Social Development,
Deakin University, Australia
Beth Turnbull
eturnbul@deakin.edu.au
Centre for Health through Action on Social Exclusion (CHASE),
School of Health and Social Development,
Deakin University, Australia
Ann Taket
ann.taket@deakin.edu.au
Centre for Health through Action on Social Exclusion (CHASE),
School of Health and Social Development,
Deakin University, Australia

ABSTRACT. Gendered life scripts position all women as mothers. Yet recent decades demonstrate an increase in the number of women not having children. Despite this, pronatalist ideologies prevail and failure to conform can result in exclusion for women without children. The aim of the current exploratory concurrent mixed methods study was to describe the social connection and exclusion of Australian women with no children during midlife. A purposive sample of 294 female Australian residents aged 45 to 64 years who did not have children completed a self-administered online questionnaire. This article reports the analysis of the qualitative data provided by 245 women through the open-ended questions contained in the questionnaire using inductive thematic analysis. Analysis revealed two main themes: *them and us;* and *multiple layers of social exclusion*. The theme *them and us* highlighted the divide between conforming women with children (us) and non-

conforming women without children (them) and was apparent through the *multiple layers of social exclusion*: at the societal level, where mothers are constructed as "insiders" and women without children are "outsiders," and this positioning is supported by pronatalist policy agendas; at the community level, where many women without children experience stigma and discrimination within community groups, events, services and workplaces; and at the individual level within families and friendship groups, where non-mothering impacts social interactions.

Keywords: voluntarily childless; involuntarily childless; circumstantially childless; women; social exclusion; Australia

How to cite: Graham, Melissa, Hayley McKenzie, Beth Turnbull, and Ann Taket (2019). "'Them and Us': The Experience of Social Exclusion among Women without Children in Their Post-Reproductive Years," *Journal of Research in Gender Studies* 9(1): 71–104. doi:10.22381/JRGS9120193

Received 8 June 2018 • Received in revised form 21 September 2018
Accepted 23 September 2018 • Available online 15 October 2018

1. Introduction

Women's reproduction is both a private and public performance. Traditional gender roles and life scripts situate all women as mothers, whereby womanhood is synonymous with motherhood (Arendall, 2000; Dever, 2005; Gillespie, 2000; Graham & Rich, 2014; Graham & Rich, 2012; Hird & Abshoff, 2000; McQuillan et al., 2012). These traditional gender roles and life scripts are created and reinforced by dominant pronatalist ideologies. Pronatalism encourages procreation and expects that all women want to, can, and will be mothers (Dever, 2005; Gotlib, 2016; Heard, 2006; Heitlinger, 1991). In pronatalist societies such as Australia, motherhood is constructed as natural (Shapiro, 2014) and a requirement for feminine identity (Gillespie, 2000; Hird & Abshoff, 2000).

Pronatalist ideologies position childbearing as women's inevitable, desirable and appropriate life-outcome, and penalise and stigmatise non-motherhood. In Australia, pronatalist policies and political and media discourses and rhetoric (Ainsworth & Cutcher, 2008; Bown, Sumsion, & Press, 2011; Dever, 2005; Dever, & Curtin, 2007; Heard, 2006; Sawer, 2013) can affect the everyday experiences of women who do not conform to pronatalism, some of whom feel alienated and socially excluded (Turnbull, Graham, & Taket, 2016a). Social exclusion is a dynamic process driven by unequal power relationships, which can result in exclusion from, or poor quality, resources and participation across the domains of life (Taket et al., 2009) including economic, civic, service, and social. Because societally hegemonic ideologies and discourses (such as gender and pronatalism) can result in exclusion of individuals based on "deviant" personal characteristics (Taket et al., 2009:

16), women's reproductive choices and circumstances can be pathways to, and outcomes of, social exclusion. In particular, pervasive pronatalist ideologies render women without children as "other" (Letherby, 1999). Accordingly, such women can be involuntarily (Burchardt, Le Grand, & Piachaud, 1999) excluded. It is also possible some women without children voluntarily accept exclusion by others, or voluntarily exclude themselves. However, some have argued that choices to accept exclusion or self-exclude from a society which stigmatises and penalises "deviance," in essence constitute social exclusion (Taket et al., 2009).

Social exclusion is associated with poor physical and mental health, increased disability, morbidity and premature mortality (Berkman et al., 2000; Cacioppo & Hawkley, 2003; CSDH, 2008; Wilkinson & Marmot, 2003). Previous research has also demonstrated women without children can experience poorer health and wellbeing than women with children (Chou & Chi, 2004; Graham, 2015; Graham et al., 2011; Grundy & Øystein, 2010; Grundy & Tomassini, 2005; Koropeckyj-Cox, 1998; 2002; McMunn, Bartley, & Kuh, 2006; Tamakoshi et al., 2010; Weir, Day, & Ali, 2007; Wu & Hart, 2002), which may be a consequence of being "othered" in society. People (such as women without children) who do not meet socio-cultural norms and are therefore, perceived as deviant, are the most at risk of being stigmatised, marginalised and socially excluded (Major & O'Brien, 2005).

Regardless of Australia's prevailing pronatalist ideologies and the corresponding risk of social exclusion, the number of women without children has grown in recent decades. Australian census data from 2016 indicates 30% of all women aged 15 years and over do not have children (Australian Bureau of Statistics, 2017). Thirty-five per cent of women aged 25 to 44, the peak childbearing years, do not have children, increasing from 31% in 2011 and 28% in 2006. Of women aged 45 to 65 years, 13% do not have any children, increasing from 11.8% in 2011 (Australian Bureau of Statistics, 2012; 2017). Furthermore, couples without children are predicted to outnumber couples with children as early as 2023 (Australian Bureau of Statistics, 2015). It has been argued this increase in the percentage of women without children is a result of: a rise in involuntary (Seccombe, 1991), voluntary (Cannold, 2004; 2005) and circumstantial childlessness (Cannold, 2005; Seccombe, 1991); delayed childbearing (Australian Bureau of Statistics, 2008); and the rise of feminism, which has afforded women better access to education and employment, and more control over their reproductive lives (Gillespie, 2003; Seccombe, 1991).

Despite changing gender norms and increasing percentages of women having no children, mothering remains essential to constructions of womanhood (Gillespie, 2000; 2003; Letherby, 2002a). However, intersections between gender and other structures and discourses (such as neoliberal

citizen-worker discourses requiring women as well as men to work in order to be full citizens of capitalist societies) have made possible additional roles for women, such that mothering is no longer the sole feature of womanhood (Chesterman & Ross-Smith, 2010; Lupton & Schmied, 2002; Parris & Vickers, 2010). Accordingly, there may be domains of life, such as the economic domain, in which the potential of women without children to perform other "valued" roles may promote connection and inclusion, and ameliorate the risk of marginalisation, stigmatisation and social exclusion.

Notwithstanding the risk of social exclusion and its associated poor health and wellbeing outcomes for the increasing numbers of Australian women without children, there is a dearth of research examining the social connection and exclusion of women without children from or within the multiple domains of life (economic, social, civic and service). Accordingly, there is currently an incomplete picture of social connection and exclusion among women without children. This study therefore aims to describe the social connection and exclusion of Australian women with no children during midlife. This research is the first to explore the nature of pronatalism-driven connection and exclusion of women with no children in their post-reproductive midlife years, in multiple domains of life in Australian society.

Before outlining the methods, it is important to acknowledge that what to call women without children has been acknowledged as problematic. The literature includes various terms describing women without children, none of which is without negative connotations. For example, the term "non-mother" implies a lack or deficiency, and emphasises what the woman is not, rather than what she is (Bartlett, 1995; Morell, 1994). Similarly, "childless," the most commonly used term to describe women with no children, explicitly emphasises "lacking" something or being "lesser" (Letherby, 1994; Morell, 1994). While "childfree" was originally coined as a positive expression of women's choice not to have children, the term has since been associated with being carefree, implying immaturity, freedom from caring and responsibilities, and selfishness (Letherby & Williams, 1999). Many involuntarily childless women also object to being called childfree and find it offensive. Despite the problematic terminology, a typology has emerged and been used to explore the phenomenon. The typology categorises women as involuntarily childless (those who wish to have children but are unable to achieve a viable pregnancy), voluntarily childless (those who freely choose not to have children), or circumstantially childless (those who are unable to have children due to life circumstances, for example, financial insecurity, having no partner, or health issues other than those preventing viable pregnancy). Notwithstanding the negative connotations of the terminology, this typology captures the fluidity of the spectrum of choice and circumstance open to women with no children. Throughout this paper the term "women without children" is used

as a collective term to describe women who do not have children, unless specifically referring to a typology of woman with no children, in which case the established terminology is used in order to maintain consistency in the literature.

2. Methods

This exploratory mixed methods study aimed to describe the social connection and exclusion of Australian women with no children during midlife (defined as aged 45 to 64 years). A total of 294 female Australian residents aged 45 to 64 years, who were not pregnant and identified as never having assumed the role or identity of a biological or social mother (for example, of step, adopted or fostered-children) was recruited. The women self-identified as involuntarily childless, voluntarily childless, or circumstantially childless.

The methods for the quantitative component of the mixed-methods study have previously been reported in detail (Turnbull, Graham, & Taket, 2016b). While noting the quantitative and qualitative components used the same sampling, recruitment and data collection methods, this paper describes in detail only the methods relevant to the qualitative component. In the absence of a sampling frame of women without children, probability sampling methods were not possible. Given this, women were purposively sampled to ensure participants were information rich, adding strength to the qualitative component of the mixed methods study (Onwuegbuzie & Collins, 2007). Participants were recruited via multiple online and community-based sites including: Internet sites, online support groups, blogs and social media likely to be accessed by Australian women without children; advertising in Australian women's health services' newsletters; promoting the study throughout professional networks; and snowball sampling. Additionally, an existing dedicated Facebook page was utilised. This recruitment approach is advantageous as it enables researchers to reach a principally invisible and hard-to-reach population (Van Selm & Jankowski, 2006) and is similar to strategies used in previous studies with women without children (Coffey, 2007; Turnbull et al., 2016a; Turnbull, Graham, & Taket, 2017). In total, 40 organisations and six blogs and Facebook pages likely to be accessed by the women without children, promoted the study. The community-based and online sites were selected based on credibility (being a legitimate service or organisation), commitment to women's issues, and providing women with a voice.

The women provided qualitative data by completing open-ended questions in a self-administered online questionnaire. The open-ended questions used the critical incident technique, a flexible approach which can be used to collect data describing events, problems and experiences (Butterfield et al., 2005). These open-ended questions were used to obtain detailed accounts of

participant's positive and negative experiences within the social, civic, service and economic domains. For example, the social domain included questions that asked "thinking about your participation in social and leisure activities, can you think of a time when you had a positive or negative experience related to not having children? If so, please describe the incident in detail in the space provided" and "Thinking about your family and friends, can you think of a time when you had a positive or negative experience related to not having children? If so, please describe the incident in the space provided." Of the 294 women who participated in the mixed methods study, 245 provided qualitative data. The socio-demographic characteristics of the women who provided qualitative data are provided in Table 1.

Table 1 Socio-demographic characteristic of the women (n = 245)

	Number	Percent
Age		
45–49	90	36.7
50–54	82	33.5
55–59	54	22.0
60–64	19	7.8
Partner status		
Single	86	35.1
Partnered	159	64.9
Area of residence (n = 244)		
Major city	152	62.3
Regional/Remote	92	37.7
Employment status		
Unemployed	27	11.0
Not in labour force	17	6.9
Underemployed	26	10.6
Employed/Self-employed	175	71.4
Educational attainment		
Year 11 or below	17	6.9
Year 12 or equivalent	7	2.9
Certificate/Diploma	37	15.1
Bachelor	57	23.3
Postgraduate	127	51.8
Type of childlessness (n = 242)		
Involuntary	22	9.1
Circumstantial	89	36.8
Voluntary	124	51.2
Other	7	2.9

Data was thematically analysed following the process described by Miles and Huberman (1994). Thematic analysis is inductive in its approach, enabling the identification of themes in the data (Denzin & Lincoln, 2011). The

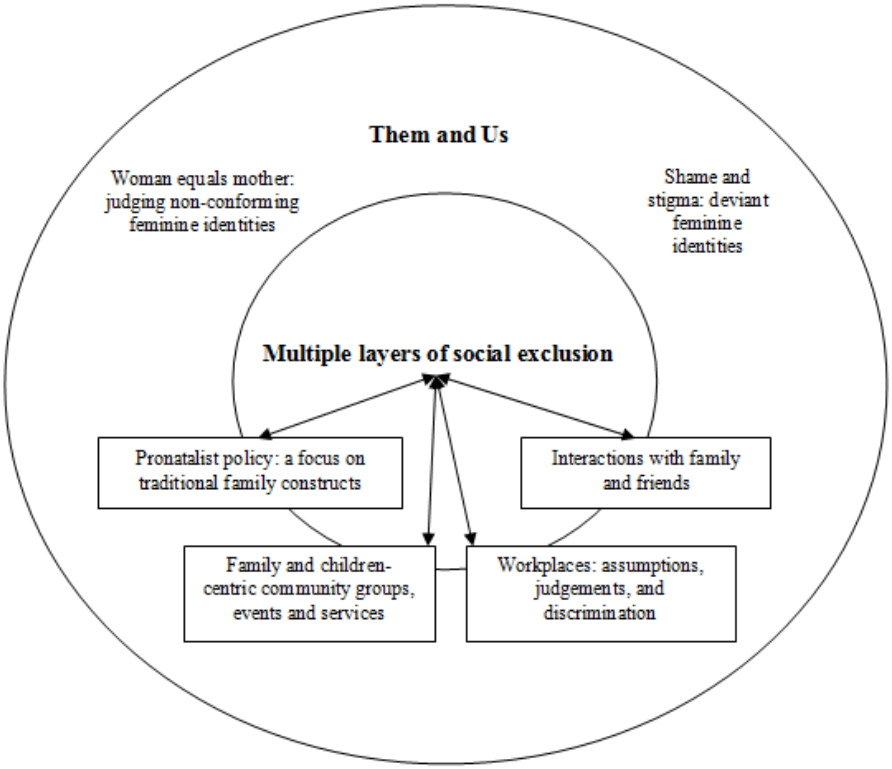
qualitative responses were read and re-read to identify codes. Codes were merged into categories, from which themes were established. While the data was collected under the life domains used to structure the questionnaire, analysis took place across the domains rather than within each domain. For example, experiences of needing to justify reproductive choices emerged across all domains, leading to all instances of this experience being given the same code, including those occurring in different settings such as social interaction and employment. Codes relating to the need to justify choices were then merged with other relevant codes into a "judgement" category, from which the theme "them and us" was established to capture the divide that exists between women with and without children. Themes were then explored across the data set and all domains to ensure that they accurately represented the patterns and responses presented in the data. In the findings and discussion, participant quotations are used to illustrate the women's experiences across all domains of life. The initial analysis was conducted by an experienced qualitative researcher who did not take part in the quantitative component of the study which could potentially have impacted the generation of codes, categories and themes. Quotations are attributed using identification numbers (denoted as ID), typology of woman with no children (voluntarily childless, involuntarily childless, and circumstantially childless), and age. Ethics approval for this study was obtained from Deakin University (HEAG-H 175_2013).

3. Findings and Discussion

The findings reveal that women without children perceive multiple layers of social exclusion: at the societal level, where many women without children are aware of pronatalist policy agendas supporting the positioning of mothers as "insiders" and women without children as "outsiders"; at the community level, where women without children experience stigma and discrimination within community groups, events, services and workplaces; and at the individual level within families and friendship groups, where non-mothering impacts social interactions. The overarching theme, *them and us*, identified in the qualitative responses, represents the binary that exists between women with and without children. These two groups are presented as discrete categories and are set up in opposition to each other. In the experiences and perceptions of women without children in this study, motherhood is inextricably linked to being a woman, and women without children do not conform to the norms and expectations of society. Within this overarching theme, women reported being shamed, stigmatised and socially excluded at the societal level through government policy; the community level through community groups, events and services; and the individual level through interactions with

friends and family. This second theme, *multiple layers of social exclusion*, describes the exclusion experienced by the women, and includes both the public and private spheres, whereby the private issue of reproductive choices and circumstances is shifted into the public sphere for scrutiny and comment (Figure 1).

Figure 1 Diagrammatic representation of the social exclusion of women without children aged 45 to 64 years



3.1. Them and us

The overarching theme, *them and us*, describes the common position many of the women highlighted based on their non-mothering status, which situates women without children as "outsiders" and women with children as "insiders."

> There is a 'them and us' attitude regarding children, and I am excluded because I don't have children. (ID 191, voluntarily childless, 62)

This reflects existing theory and research, which suggest dominant pronatalist ideologies drive social exclusion of women without children by creating social

boundaries due to women's non-conformity with dominant social norms (Carey, Graham, & Shelley, 2009; Letherby, 1999; McCarthy, 2008; Silver, 2007; Taket et al., 2009; Turnbull, Graham, & Taket, 2017). Women without children are stigmatised and excluded as deviant "outsiders," whereas women with children are constructed as idealised "insiders" due to their conformance with prevailing social norms (Graham & Rich, 2014; Graham & Rich, 2012; Sawer, 2013; Turnbull, Graham, & Taket, 2016a). Furthermore, this study found many women without children feel that other people and society as a whole position the women's other life achievements, such as their careers, relationships, and community involvement, as irrelevant and less important than motherhood. Many of the women felt that motherhood is perceived as the defining feature of all women, which leads to the assumption of the (heterosexual) nuclear family being the norm, whereby women with (male) partners and children are the epitome a "family" in the social narratives and norms of society.

In highlighting the *them and us* divide, many of the women described experiences in which others judged and stereotyped them because they had no children, leading to women feeling stigmatised and shamed. Some women commented that there had been changes in judgement and stigmatisation over time. Some women felt this was a result of moving past their reproductive years, and others felt society was becoming more accepting of women who transgressed traditional gender roles. The theme *them and us* comprised of two sub-themes: woman equals mother: judging non-conforming feminine identities; and shame and stigma: deviant feminine identities.

3.1.1. Woman equals mother: Judging non-conforming feminine identities

Many women in this study felt others viewed them as not meeting society's norms and expectations that all women can, want to, and will, be mothers. As women with no children, and therefore non-conforming feminine identities, some of the women felt they were viewed as not "normal," "complete" or "whole" women. For some, this was a general feeling or experience.

> Yes there is definitely a feeling I have that I am not a complete woman because I don't have children. (ID 88, involuntarily childless, 45)

> I feel I am not regarded as complete or happy – how could I be when I have never experienced being whole, according to mothers…. It's more of a feeling that I don't count, as I haven't had children. That I'm not a proper woman. That I couldn't possibly understand. (ID 173, circumstantially childless, 49)

Other women recalled specific and explicit experiences of others assuming that all women are mothers and expressing negative views about women without children.

> When engaging with a client about her children she made a comment that 'you would know this as you have children.' When I said I didn't have children, the client accused me of being 'abnormal' and 'not a woman.' (ID 27, voluntarily childless, 54)

> I was told it wasn't natural for a woman not to want children when I was asked if I had children. (ID 22, voluntarily childless, 46)

Many women described experiences in which the assumption that all women are mothers led to their private reproductive choices and circumstances being laid open to judgement in the public sphere. In contrast to women with children, who are perceived as normal and conforming to society's expectations, women with no children felt judged as "abnormal" and then "felt sorry" for.

> Many people view me as odd or abnormal because I have never wanted children. Many view me negatively because of this and make value judgments about my life. Some appear to feel sorry for me, and some are downright hostile. (ID 72, voluntarily childless, 45)

Previous research has found women without children are viewed as deficient, unnatural, irresponsible, selfish, immature, hedonistic, discrediting, and failing to contribute to society (Dever & Saugeres, 2004; Graham & Rich, 2014; Graham & Rich, 2012; Heard, 2006; Lampman & Dowling-Guyer, 1995; Maher & Saugeres, 2007; Rich et al., 2011; Tietjens-Meyers, 2001; Turnbull et al., 2016a; 2016b). These characterisations are driven by pronatalist ideologies constructing motherhood as natural, innate, patriotic and inevitable, and situating women without children as "outsiders" (Carey et al., 2009; McCarthy, 2008; Miall, 1994).

Many of the women in the study highlighted a double standard: while women without children are judged and questioned about their choices and circumstances, they refrain from questioning and judging women with children.

> Predominantly just really sick of everyone thinking that my choices are their business and somehow they have the right to question why I don't have children. I don't question everyone that does have children about why they did (even though it seems like a crazy choice to me :)). (ID 119, voluntarily childless, 46)

> I have made a choice knowingly. There is nothing wrong with me, I am not strange and I am happy. Do not assume that because you have children that I share your dream of having them. Accept me for who I am, not who you think I should be. I don't criticise you for wanting/having children so why do you do the reverse to me. (ID 33, voluntarily childless, 45)

As evident in the above quotations, the women questioned why they need to justify their position on such a private issue when they did not expect women with children to do the same. This reflects a double standard discussed in previous research, which has found that women without children are often asked to explain and justify their non-mothering status (Graham et al., 2013; Turnbull et al., 2016a; 2016b; Veevers, 1980; Woollett, 1991), yet women with children are not required to justify their parenthood status as it adheres to social norms (Kirkman, 2001; Marshall, 1993). Furthermore, while voluntarily childless women are often asked to justify why they do not want children, involuntarily childless women are often asked to justify why they do want children (Kirkman, 2001; Pfeffer & Woollett, 1983). For example, Kirkman (2001: 531) found involuntarily childless women felt resentful and frustrated that others: expected them to justify wanting become mothers; and, upon such justification, "judged [them] on their worth as potential parents." The requirement for justification and subsequent judgement were deemed unavoidable and necessary, highlighting their felt need to demonstrate conformity to ascribed gender roles in pronatalist societies.

Some of the women in this study reported others' assumptions they were infertile. The assumption women have no children due to medical reasons disregards the multiple reasons why women do not have children, including choice or circumstances. Further, it removes the element of choice and disregards the reproductive decisions women make.

> When introduced to new people at a social gathering, I got the usual questioning sequence of 'what do you do?' then 'do you have children?'. (Of course men are never asked whether or not they have kids, just women). And when I replied 'no', was asked 'why not, couldn't you have children?'. The assumption that infertility is the only reason is appalling enough, but the inference that I'm required to justify a massively personal circumstance with a total stranger is outrageous. (ID 241, circumstantially childless, 46)

However, some of the women experienced the reverse assumption that they chose not to have children. Questioning women's reproductive choices sometimes led to thoughtless comments without understanding the impact on women, who were perhaps childless not due to choice.

> Yes, people assume because I'm unmarried and have no children that I don't want children. I did want children but didn't find the right partner until it was too late. I decided I was too old after I tried unsuccessfully. (ID 218, involuntarily childless, 48)

> I have been told that 'I chose to not have children' when in fact I was unable to not have children. This assumption causes me pain and upset because I am then reminded of the trauma (sexual assault) and why I am infertile. (ID 3, involuntarily childless, 51)

Some women commented that they did not always tell people that they chose not to have children, in order to avoid judgements and assumptions attached to why women do not have children.

> I don't even tell people I chose not to have children (other than my partner) as people react defensively. (ID 212, voluntarily childless, 45)

Consistent with previous research (Doyle, Pooley, & Breen, 2013; Morell, 1994; Park, 2005; Turnbull, Graham, & Taket, 2016a; 2016b), some women in this study concealed, and / or used information control strategies to subvert, their deviant identities and manage the associated stigma (Todorova & Kotzeva, 2003; Whiteford & Gonzalez, 1995).

Many women spoke of other people not taking their decision or situation seriously and telling them that they would change their minds and want or have children. This included being told that they were "missing out" by not having children, reflecting the pervasive assumption and stereotype that all women will have children.

> Up until about age 40 being constantly told I would change my mind. (ID 119, voluntarily childless, 46)

> Waiting outside a school to pick up a teacher friend. Mums waiting for kids, speaking about their kids. They asked me how old my one was. I said I didn't have any. They kept on telling me I was missing out, would feel unfulfilled, that I wasn't doing what I was made to do, was one of those selfish career women. Then they became nasty when I kept replying that I just never wanted kids. (ID 167, circumstantially childless, 50)

> So many times, when I was younger (more in my 30's than now) I've been told by other women how much I'm missing out by not having children. I've almost had to defend my right not to have children and now I simply won't discuss it with most people. (ID 275, voluntarily childless, 51)

Other women felt they had missed out on something, now that they were older and reflecting on their lives.

> My sister has now got grandchildren and I see how much pleasure they give her. As I've got older, not having children has made me feel like I've missed something and have big gaps in my life. (ID 261, circumstantially childless, 54)

> I am thinking of personal fulfilment with this one. I feel like I have missed out on my calling and that often leaves me feeling a bit bereft. However, as time goes on, I can manage those feelings better. (ID 193, circumstantially childless, 48)

An extension of being viewed by others as "missing out" is the accompanying feelings. Some of the women commented that others often pitied and felt sorry for them. As discussed above, some of the women felt viewed as "failures" and not "complete," and judged for not having children. This highlights assumptions that all women are mothers, that women's central purpose is to mother, and that women who do not mother require pity and sympathy.

> People in general seem to be sad for me when I tell them I have no children. (ID 15, circumstantially childless, 48)

> I can't think of a specific time but often feel others' disbelief/ pity/bewilderment when I say that I don't have children. (ID 26, voluntarily childless, 53)

Previous research suggests involuntarily childless women believe they are perceived as pitiable, shameful and desperate (Clarke, Martin-Matthews, & Matthews, 2006; Letherby, 1999). Findings from the current study suggest voluntarily and circumstantially childless women believe they are viewed in the same way.

The women identified numerous stereotypes that others (often people with children) attached to them as women without children, including disliking children, being selfish, and being free of any responsibilities.

> I am not always invited to events in my family and friends lives that involve children such as birthday parties, and was told by one that since I didn't have kids I wouldn't be interested (as though the lack of kids meant no interest in kids). (ID 62, circumstantially childless, 50)

As evident in the quotations below, the rhetoric of being selfish was conveyed by family and potential partners, and in the work environment.

> Sometimes when dating, men who are fathers tend to think something is wrong with me because I don't have children. I really don't feel like explaining complicated health issues to them so they just assume I am selfish! (ID 7, involuntarily childless, 54)

> Manager directly accused me of not contributing to society & being selfish and not normal. (ID 72, voluntarily childless, 45)

> My mother is perhaps the loudest critic I've had. As a woman who was herself unable to conceive (I'm adopted) in an era when women were expected to be mothers (the '60s), she has always seemed convinced that the primary role of a woman is to care for children. Although she hasn't voiced it in some years, I know her core belief is that women without children are inherently selfish. Ergo, I am selfish. (ID 73, voluntarily childless, 48)

> At a family gathering one day my brother in law said outright that childless couples are selfish/only care about themselves, knowing

> that I was the only person in the room at the time who that statement applied to so the insult was intended solely for me. He had assumed my being childless was by choice as we had never discussed what my preference was. (ID 226, circumstantially childless, 47)

Previous studies suggest others stereotype voluntarily childless women as ignorant about and having a dislike for children, non-nurturing, emotionally lacking, and selfish (Doyle et al., 2013; Gillespie, 2000; Maher & Saugeres, 2007; Mollen, 2006; Mueller & Yoder, 1997; 1999; Park, 2002); and involuntarily childless women as sad, suffering, desperate and "victims" of childlessness (Franklin, 1990; Letherby, 2002a; 2002b). Due to such negative stereotypes, women without children may experience considerable social stigmatisation. This is discussed further in the sub-theme *shame and stigma: deviant feminine identities.*

In the present study, women believed they were stereotyped as not having any responsibilities or commitments, corresponding with the assumption only women with children could have responsibilities. Again, this highlights women's role as mothers rather than women as individuals with diverse responsibilities specific to their situation. In addition, many of the women felt others did not understand or recognise that women without children also need emotional and practical support and assistance.

> It is assumed that I have nothing else to do – so I'm available for work or caring for elderly parents. (ID 52, voluntarily childless, 48)

> I sometimes feel as though my family and friends view my life as 'easier' and therefore my problems are less worthy of support or interest because I don't have children. (ID 219, circumstantially childless, 50)

> As single woman no kids, I was expected by family and society to care for elderly parents, as the implication was I had no other responsibilities or 'a life' generally. (ID 247, circumstantially childless, 57)

> My mother always offered some support financially – limited to my siblings with children. When I asked her about this she said that I don't have children so I don't need it. (ID 186, circumstantially childless, 54)

As shown in the quotations above, others' perceptions that women without children lack responsibilities, in turn leads to others' assumptions about what women without children can and should be doing. This includes things such as caring for elderly parents, working around and accommodating those with children, and not needing financial assistance. The assumption that women without children have no responsibilities is based on the notion that women's

only responsibilities are procreation and motherhood (Gillespie, 2003; Letherby, 1994; Turnbull et al., 2016a; 2016b).

3.1.2 Shame and stigma: Deviant feminine identities

Many of the women commented they felt shamed and stigmatised due to the judgement, assumptions, and stereotypes placed on women without children. This highlights the *them and us* categories where one category is viewed as normal and successful ("insider") and the other as "abnormal" and a "failure" ("outsider").

> You're viewed as a failure – being single makes its worse. – It's used to shame me. (ID 122, circumstantially childless, 49)

> Generally, I feel there is a social stigma attached to not having children. Whether it be at bookclub or at the gym or on other occasions – you meet someone and they ask 'do you have children?' It is that response that you get from some 'oh.' (ID 118, involuntarily childless, 50)

The stigmatisation and shaming experienced by the women for not having children can lead to discrimination and exclusion. The literature has also identified stigmatisation as a significant aspect of the lives of many women without children. Goffman (1963: 3) conceptualised stigma as an attribute that discredits individuals, impairing their social acceptability by reducing them "in our minds from a whole and usual person to a tainted, discounted one." Given that, in pronatalist societies, not mothering is a discreditable attribute (Rich et al., 2011) that is not immediately visible but rather becomes apparent (Goffman, 1963), women may be stigmatised when they cannot, or choose not to, become mothers. Women without children lack the social identity and attribute of mother, which marks them as "other," devalues them within pronatalist societies, and forms the basis for exclusion.

> Not having children was devastating and I cried for years but the discrimination and exclusion is extraordinary. Nothing can prepare you for how downright mean people are. Nothing. If you lose a baby people are kind to you but if you have complex grief related to infertility you are not allowed to talk about it ever. The constant message is that you are not an adult like parents are adults and that you don't know what love is. (ID 50, involuntarily childless, 48)

As the quotation above demonstrates, many women without children receive a constant message that all women are mothers, and some feel shamed by others for failing to achieve the ascribed life script of womanhood. Messages such as these disregard the complexities of individual women's unique contexts, choices and circumstances.

Many of the women often felt as though their actions and opinions about motherhood and children were disregarded as they had no personal experi-

ence, even if they worked with children or were close to families' and friends' children. This finding draws attention to the discounting of non-mothers' authority regarding children's issues, with a privileging of personal authority over professional authority.

> As a non-parent, I feel excluded from discourse around parenting and social welfare matters. It's as if, without a genetic investment in the future, my experiences and educated views are invalid. (ID 241, circumstantially childless, 46)

> When I was at a friend's gathering and I offered to look after a baby because the mother was busy and other mothers kept checking on me to make sure I was feeding the baby 'properly' and offering me advice – I am a midwife and neonatal nurse which they had 'forgotten.' (ID 42, undisclosed type of childless, 58)

> In relation to behaviour management, I was expressing my professional thoughts on a matter and was told by a friend that I was talking bullshit, and how would I know as I never had children. My training and my experiences were dismissed instantly due to her stereotype. A sister also said similar things to me when her children were young and I made comment about behaviour management, my professional status and my opinions were devalued due to not actually giving birth to a child. (ID 62, circumstantially childless, 50)

> Just in general conversation regarding children and their care, when people say, oh you don't understand because you don't have children. That is such a limited understanding of humans. (ID 77, voluntarily childless, 59)

> Despite caring for many children over the years, I have experienced both women and men state 'what would you know about children.' (ID 105, involuntarily childless, 50)

This discourse sets up a divide between who is knowledgeable about children and who is not, regardless of other experiences with children. Further, it dictates whose voices are heard and given weight over others'. Evident in this discourse is the idea of mothers as "credible" in relation to all aspects of children, and women without children as "discreditable" despite their professional and personal expertise and experiences (Carey et al., 2009; Gillespie, 2000; Lampman & Dowling-Guyer, 1995; Letherby, 1994; 2000; Letherby & Williams, 1999; Miall, 1986; Park, 2002; Rich et al., 2011; Riessman, 2000). This further highlights the "them and us" divide, positioning mothers as "insiders," and women without children as "outsiders" who are unable to contribute to the care of or knowledge about children.

For some women, the judgements, stigmatisation and stereotypes had changed over time now that they had moved beyond their reproductive years.

> At a younger age most definitely, as I chose to not have children I feel most woman found that rather confronting. Now that I am older I feel the stigma has dropped off but I still get women in particular who feel sorry for me. (ID 56, voluntarily childless, 45)

> Although it doesn't happen as much now, when I was a younger adult there were many times I was told to 'go out and get a man so you can have the kids and be happy like a proper women.' Luckily I grew out of caring what others thought and it has no impact on me now. I have lost friends due to my single status (apparently I am a threat) and had negative opinions about my life choices thrown at me, as though others think it is OK to judge me against their values and standards. I don't feel empty for not having children but hate when others try to make me feel empty. (ID 62, circumstantially childless, 50)

Other women commented that perhaps society's assumptions about women as mothers have changed over time, with greater acceptance now of women without children.

> The last 10 years have been better – not sure whether that's because I feel more confident in who I am, or whether society is more accepting now. Previously I have been stigmatised many times. I have been called 'weird,' 'selfish,' 'strange,' 'unnatural' numerous times. (ID 254, voluntarily childless, 53)

> Whether it is because I am now older and almost past the age of child bearing, or because I mix with a different group of people, or because generally attitudes are changing (or a bit of all three); I find that whether I have children or not has less relevance to those around me. People no longer question my decision or expect me to change my mind. I am no longer called selfish and just occasionally those with children say how lucky I am! I find many of the big events in the [city name] are geared towards families, though I can find those that aren't (I just have to hunt a bit harder). Finally, the language people/organisations/institutions continue to use is judgmental – more often than not a couple without children are not considered to be equal status to a 'family.' (ID 45, voluntarily childless, 47)

As evident in the above quotations, some women perceive that opinions about women without children are improving. In contrast, research with women without children aged 25 to 44 years found many participants felt that judgement, stigma, and stereotyping were pervasive (Turnbull, Graham, & Taket, 2016a; 2016b). It is possible the women in the current study perceived less judgement, stigmatisation, and stereotyping because their post-reproductive age rendered their motherhood status of less significance to themselves and others. Social change is a slow process and the pervading assumption that

women are mothers and the norm of the nuclear family are still persistent in society.

3.2. Multiple layers of social exclusion

The women identified experiencing exclusion at multiple levels, including the societal level in the context of the policy environment, the community level such as services and workplaces, and the individual level of family and friends. Exclusion at these levels included both public and private spheres, whereby the private issue of reproduction was bought into the public sphere through: policy not supporting women; communities and services designed for women with children; and family and friends questioning the women's reproductive choices and circumstances. Many women highlighted that the nuclear family is supported by policy, councils, communities, and workplaces. This public support indicates women with children are deserving of assistance and inclusion, and women without children (who regardless of partner status are not considered a family) are not. Within this theme, four subthemes emerged: pronatalist policy: a focus on traditional family constructs; family and children-centric community groups, events and services; workplaces: assumptions, judgements and discrimination; and interactions with family and friends.

3.2.1. Pronatalist policy: A focus on traditional family constructs

Some women spoke about being overlooked by the government due to not having children. Policy rhetoric and position are focused on families, and in particular traditional nuclear families, disregarding other family types including single or partnered women without children. These women discussed family-focused pronatalist policy in terms of how family is defined ("working families"), income, tax breaks and incentives ("doing it tough"), and how this political rhetoric made them feel "marginalised," "invisible" and "excluded."

> The pronatalist policies from both sides of politics saw that childfree people, no matter how poor, were fiscally conscripted to have their incomes redistributed into the pockets of those adults with children, no matter how rich. That is, childless people's taxes were not spent on social goods and services for children, but were spent on middle class welfare for those adults who were merely fecund. This seems to be justified on some spurious notion that childfree people are all feckless hedonists who are, at best, accessing an unearned/undeserved personal benefit or, at worst, are failing to contribute to society. In a disingenuous conclusion, this confected fantasy permitted some policy makers depicted the childfree as the oppressors of the child-burdened. (ID 223, voluntarily childless, 45)

Similarly, other research has found women without children feel invisible and ignored in political discourse and social policy (Rich et al., 2011; Turnbull et

al., 2016b), which is heightened by the ubiquitous focus on families with children. Australia has a long history of pronatalist policies aiming to improve fertility rates for the "social good" of the country (Heard, 2006), including, in recent times, the introduction of the "Baby Bonus" in 2004, which was abolished in 2014 and replaced with the Paid Parental Scheme, and a range of family tax benefits initiatives. These policy directions have increased birth rates (Rawlings, Robson, & Ding, 2016) and are financially beneficial to mothers (Garrett et al., 2017). However, now entrenched within political rhetoric is a focus on "families" (implicitly including only those with children), which ultimately marginalises the growing number of women (and men) without children, and challenges the idea of representative democracy.

In the present research, the policy focus on the term "families" and the meaning behind it, left women without children feeling excluded from and marginalised by social policy discussion.

> By politicians who constantly refer to the importance of the family – can make me feel totally marginalised. (ID 67, circumstantially childless, 55)

> Politicians are always talking about the importance of supporting families and making Australia/Victoria a great place for families. I feel this excludes the many community members who don't have children, including me. (ID 232, voluntarily childless, 47)

> We are a growing group [women with no children], yet governments are always all about 'working families,' especially when they are 'doing it tough.' Families aren't the only ones who have hard times or need support. Governments have made me feel invisible all my life and like I utterly don't matter. (ID 164, voluntarily childless, 45)

> Politicians hate us! The tax man hates us! The Government bang on and on about 'families doing it tough' and seemingly all of their policies relate to Australians who are parents and their children. Tax breaks are for parents. Childless middle-aged women are not included or ever talked about. (ID 189, circumstantially childless, 45)

An extension of the political discussion is the lack of policy action and avenues for women without children. For example, some women highlighted the lack of tax breaks or financial support they receive, compared to women and families with children.

> I wish there was more tax deductions for women who don't have children. We always miss out in the federal budget with tax incentives etc. (ID 210, involuntarily childless, 50)

> The so-called 'middle-class welfare' is exclusively for people who have children. (ID 126, voluntarily childless, 52)

> Government tax benefits or just benefits in general do not apply to me. Every time a budget is handed down, I miss out on anything! I feel like I am supporting families with children – they get all the benefits – don't have kids if you can't afford them & stop putting a drain on society! There is not equality for all – I feel discriminated against because I don't have a partner or children! Where is the fairness in the system? I don't want to pay for others to have kids! (ID 86, circumstantially childless, 50)

The pronatalist policy rhetoric on supporting families and women with children adds to the divide between *them and us*, highlighting who is deserving of assistance and support, and who is not. This type of policy rhetoric is underpinned by traditional notions of social exclusion (Taket et al., 2009), whereby individuals are either "deserving," those who are unable to support themselves (in this case families and women with children who are seen as contributing to the greater good of society), or "undeserving," those who in theory should be able to support themselves (in this case women without children, who have no responsibilities beyond themselves and are not seen as contributing to society).

3.2.2. Family and children-centric community groups, events, and services

Many of the women identified family and children-focused community groups, events, and services from which they felt "excluded." These included activities organised by local councils, church events, holiday festivals, and community events. The women felt that communities prioritise women with children, with many community functions, events, and services revolving around or being aimed at families with children. The women felt "left out" and not "supported" in these environments.

> Everything is focused on kids. Entertainment at functions through to sporting events. I'd like to see more adult sophisticated entertainment. (ID 10, circumstantially childless, 51)

> At the protestant church I attend, much support is available for pregnant congregationers and those with young children who were all married, but no support was available to myself even when I had no food and I had no family to help. (ID 44, circumstantially childless, 49)

> My Church has an annual picnic and I would like to go but feel left out and silly because I would be by myself (my partner doesn't go to church). Church events are very family orientated. (ID 17, circumstantially childless, 47)

In addition to many women not feeling welcome to attend such events, leading to exclusion, some women felt they would be questioned if they did attend.

> Most holiday festivals are geared to children and sometimes you feel left out or awkward watching other people have fun. (ID 290, circumstantially childless, 56)

> I volunteered at the school fete, overheard someone saying they did not know why I was there as I had no children. (ID 109, involuntarily childless, 45)

> Going to community sport and being asked why you were there. (ID 70, circumstantially childless, 47)

One woman was told she could not attend a gym session as she did not have children, regardless of the session being convenient for her situation.

> I was attending a gym with friends for group 'personal' training. The trainer/owner was promoting a new circuit class that was running at 9.30am 'for mums – to fit in with school drop-off.' As a shift-worker, this time-slot was perfect for me and so I expressed an interest in attending but was told that I couldn't because I didn't have children. I never returned to that gym! (ID 8, circumstantially childless, 49)

It has been posited that low engagement, due to perceived exclusion, of women without children in community-based activities may be a result of the salience of stigmatising interpersonal experiences in these contexts (Turnbull et al., 2016a).

Some women commented they did not necessarily want to share public spaces with children. However, they felt this was viewed as unacceptable by others and they would be excluded for feeling this way. This further highlights the importance society and communities place on children and spaces for families, demonstrating the divide between those with and without children.

> I feel excluded for not wanting to share public and private spaces with children… I feel people with children are prioritised in our community – it is not acceptable to not want to share public and private spaces with children. (ID 52, voluntarily childless, 48)

The family and children-centric nature of community groups, events, and services has consequences for the participation of women without children. Women without children can find it difficult to become involved in the community, which is exacerbated when moving to a new area. For example, some women discussed the challenge of making new friends when they moved.

> Harder to make friends when we shifted town. (ID 70, circumstantially childless, 47)

It has been suggested children function as a bridge that connects mothers to other individuals and society (Albertini & Mencarini, 2012). This occurs through mothers' groups, schools, and other activities such as sports.

3.2.3. Workplaces: Assumptions, judgements, and discrimination

The workplace was a source of exclusion for many women as a result of discrimination, negative judgements, and assumptions, demonstrating the *them and us* divide within the workplace.

> Yes, in my work (in healthcare) I was strongly discriminated against by my co-workers. I was indirectly accused of being selfish, irresponsible, immature and incapable of caring for children because I 'have never had children of my own.' I was treated with contempt and disrespect by other female co-workers and my direct manager. This caused me great distress and upset… I would have very much liked to have had children and think I would have made a very good Mother. (ID 3, involuntarily childless, 51)

> I have worked in places which are female dominated where other women were dismissive and non inclusive of me because of my lack of children. (ID 225, circumstantially childless, 53)

> When I took time off work due to illness, I was made to feel guilty by a female co-worker (who has children), calling time off a 'luxury' working mothers cannot afford. (ID 272, voluntarily childless, 47)

These findings are similar to previous research which suggests women without children experience more workplace mistreatment, including exclusion, derogation, and coercion, than women with children in female and male dominated workplaces (Berdahl & Moon, 2013). Additionally, involuntarily childless women have reported workplaces as being unsafe and distressing (Malik & Coulson, 2013).

Many of the women indicated different expectations were imposed on women with children compared to women without children. For example, the women stated workplaces were more flexible for women with children, including in relation to working hours, flexible working arrangements and job tasks.

> I asked to go to 4 days a week at work. I was told I did not need to because I did not have children. (ID 178, voluntarily childless, 56)

> Less flexibility at work where women with children seem to have more flexibility because they have children. (ID 283, involuntarily childless, 50)

> During shift work. The best shifts seem to go to those who have children. The assumption is that child-free people don't have lives outside of work, so can be given more hours, worse shifts, less flexibility. (ID 131, voluntarily childless, 45)

Some women commented they were expected to work longer hours or take on more work due to not having children. At times this was to compensate for women with children, who were not expected to do the same given their family responsibilities.

> Yes as a single woman in the workforce – it is just assumed it will be you who will stay back late without complaint because you aren't seen to have the legitimate 'excuse' of balancing work and family commitments. Similarly you are often given last consideration for leave requests because 'parents need to take school holidays.' Sometimes I would like to take time off in school holidays too so that I can spend time with the only children I am close to in my life – my two nephews – but such requests are not generally considered to be as meritorious as those of biological parents. (ID 230, circumstantially childless, 53)

> Various times at work where the expectation was that I would stay behind to complete work of mothers because I did not have to leave to pick up children. (ID 231, voluntarily childless, 49)

> I am often asked to pick up the big projects or extra work as other women in the workplace have children, and women & men with children get first choice on when they want holidays, and I am not able to get part time arrangements as so many women with children are working part time. (ID 72, voluntarily childless, 45)

> Whilst working I found I was often expected to be available to travel and work late as I had no children. (ID 238, circumstantially childless, 52)

These findings support prior research (Dixon & Dougherty, 2014; Doyle et al., 2013; Mollen, 2006; Peterson & Engwall, 2016; Turnbull et al., 2016a; 2016b) which suggests women without children can experience discrimination in the workplace. For example, employers can expect women without children to: work extra and longer hours, weekends and holidays; cover for women with children who leave early for caring responsibilities; and take on additional work due to the perception they have more time and no outside responsibilities compared with women with children.

The women commented that leave over Christmas and school holidays would be prioritised for those with children, regardless of whether they also wanted to take leave at this time.

> I have experienced at work far great leniency with giving time-off and providing other benefits to women with children, whereas if I ask for some time off I am scrutinised as to why I want time off and made to feel that I am being 'selfish' for making that request. (ID 3, involuntarily childless, 51)

> I am never able to access leave (except in emergencies) during school holidays, as that leave is generally reserved for people with children. (ID 16, circumstantially childless, 55)
> By not being permitted to take leave over the Christmas period because 'that is reserved for people with children.' (ID 27, voluntarily childless, 54)

Flexible working arrangements were also perceived as being only available to families with children.

> In the workplace women with young families have access to better work benefits in regards to flexible working arrangements. I am a major carer for my mother and similar 'leave' arrangements are not available. (ID 89, voluntarily childless, 60)

These findings are congruent with previous research in a wide variety of workplaces which suggests women without children have lower control over work hours (Swanberg, Pitt-Catsouphes, & Drescher-Burke, 2005), limited access to flexible working arrangements (Skinner & Pocock, 2011) and leave entitlements, and accessed fewer employment benefits than women with children (Graham et al., 2013; Hamilton, Gordon, & Whelan-Berry, 2006; Turnbull et al., 2016a; 2016b).

The *them and us* divide was also evident in terms of who was in need, or "deserving," of a promotion based on having children.

> My employers are heavily biased toward marriage and children. Salary, benefits and respect are heavily inclined toward team members who are married and have kids. I experienced this when going from single to married, then divorced. Difference is palpable. Married + kids definitely favourably compared. (ID 175, circumstantially childless, 51)

> I have been poor. And when I was poor and working in hospitality, I was informed that the reason why I missed out on a promotion to a man was because 'he has a family to support.' (ID 223, voluntarily childless, 45)

Similarly, previous research has found women thought not having children affected their career opportunities, for example, due to employers believing employment and promotion were more important for people with children (in particular men, who continue to be seen as breadwinners) (Dixon & Dougherty, 2014; Kelan, 2014; Turnbull et al., 2016a,b).

However, despite the negative experiences reported by the women, some women also reported positive experiences within the workplace due to not having children.

> I think I've experienced positive discrimination in work settings because I have no children. At least once that I know of I was the preferred candidate for a job because I have no children. (ID 281, voluntarily childless, 56)

This finding accords with existing research suggesting that, in comparison to women with children, women without children tend to have higher individual incomes, and are more likely to be employed, work full-time, and work in high status occupations (Cooke, 2014; Gash, 2009; Miranti et al., 2009; Parr, 2005;

Petersen, Penner, & Hogsnes, 2007; Watson, 2010; Whitehouse, 2002). However, women without children remain less likely to work full-time, and continue to have lower individual incomes, than men with and without children (Cooke, 2014; Gash, 2009; Misra, Budig, & Boeckmann, 2011; Parr, 2005; Petersen et al., 2007; Travaglione & Chang, 2012; Watson, 2010; Whitehouse, 2002). The experiences of women without children in the workplace constitute an example of intersections between pronatalism and other ideologies and discourses, such as neoliberalism. As argued elsewhere, the potential of women without children to conform to the neoliberal stereotype of the ideal worker (a full-time "masculine" worker who is committed and career focused, and has no external responsibilities) may protect women without children from their non-conformance to pronatalism (Turnbull, Graham, & Taket, 2018). Both the positive (employment participation, income, occupational status and career progression) and negative (expectations to work longer hours, and less access to flexible working arrangements) workplace experiences reported by women without children in this and other studies, may relate to managers' and co-workers' perceptions that women without children conform to the ideal worker stereotype, regardless of individual women's unique circumstances and preferences.

3.2.4. Interactions with family and friends

The women highlighted their experiences of not having children within the individual level environment of friends and family. These included family ideas and assumptions around mothering, experiences of the nature of friendships changing, and feeling left out by friends and family due to not having children. The women commented that their family and friends had set ideas, often verbalised, that they should have children. This reinforces the norms and expectations that all women can, will and should become mothers, supporting previous research (Doyle et al., 2013; Turnbull et al., 2016b).

> I never have felt accepted by my husband's family. I believe if we had had children this would have been different. (ID 47, voluntarily childless, 50)

> My parents often say I have no quality of life without children. Friends who have children some say I am lucky some feel sad. (ID 183, voluntarily childless, 46)

However, some women felt supported by family and friends, with those closest to them accepting their reproductive choices and circumstances.

> My family and friends never make me feel weird about not having children. They love me and accept my choices. (ID 166, voluntarily childless, 45)

The women commented that relationships with friends changed, particularly when friends had children. At times this led to friendships ending or the women feeling excluded from friendship groups, given that discussion and activities had moved to centring on children.

> Yes, very much when my friends all had babies. Some women completely excluded me on the basis of my childlessness. (ID 160, circumstantially childless, 57)

> My former best friend (from when we were 12yrs old) recently confessed to me that she had deliberately broken off contact with me because I did not have/want children. (ID 229, voluntarily childless, 45)

The exclusion from friendship groups was extended to not being invited to various events, such as friend's children's birthday parties or other functions.

> Have missed out on invites to parties and functions with friends because they were concerned I wouldn't 'fit in' or that I would feel 'uncomfortable' dining with couples who had children. I have felt hurt and embarrassed on numerous occasions once I found out I had been deliberately excluded. (ID 189, circumstantially childless, 45)

> Last week a lot of my friends were invited to one of their children's parties, but I was not invited or even told about it. I found out by accident after it was over, which made me feel very sad to be left out. Much younger women without children attended, but I was excluded. (ID 44, circumstantially childless, 49)

Congruent with previous research, the current study suggests not having children has implications for many women's social connectedness, networks, and interactions with family and friends (Gillespie, 2000; Park, 2002; Turnbull et al., 2016a; 2016b; Veevers, 1974). However, some women's friendship groups consisted of mainly women without children. They continued to have positive relationships with these women, who were in similar positions.

> Most of my closest friends are single and childless also, so we don't really talk much about children and children's issues etc. I guess that is a positive experience :). (ID 205, circumstantially childless, 56)

> I guess it depends on where you live and who your friends are, but I have never felt excluded because I did not have children. Many of my friends don't have children. I didn't see much of some friends when their children were young, but that changed as they got older. I like children, but I do not regret not having children. I couldn't have had the life I had if I did. (ID 141, voluntarily childless, 63)

The women identified family-focused days or events that could be particularly difficult, such as mother's day. For some this led to feelings of exclusion and

not being able to participate in such activities as a result of not having children of their own.

> I find it difficult to attend the annual family gathering on mothers' day now. When I was younger and still hopeful of falling pregnant one day, it didn't bother me at all being the only female there who wasn't a mother. Now that the chance of becoming a mother is dwindling to practically zero I feel I don't belong at the gathering any more. I'm the odd one out. It's the one day of the year I feel alienated from my mother and sisters who I love extremely dearly. I hate feeling as though they are in a club I'm excluded from, and will likely never gain access to, just because I never happened to fall pregnant. (ID 226, circumstantially childless, 47)

Women also discussed difficulties forming new friendships. Some felt their ability to make new friends was hampered by not having children, whereas women with children were able to make new friends through mothers' groups or child-focused community and school events.

> Most people make friends easily because of contact through their children. I have never had those opportunities. (ID 12, voluntarily childless, 58)

> Having no children means no mother's group friends, no school related friends or family sporting club friends. These friendship groups are often more likely to be local, so I have probably missed out on having some local friends. (ID 276, voluntarily childless, 54)

As previously discussed in relation to community groups, events and services, many women felt excluded from activities centred on children, leading to the women not participating and potentially forming new social connections.

4. Conclusions

This study has a number of limitations and strengths. Data for this study were collected via an online questionnaire which arguably was more appropriate to the quantitative component of the mixed-methods study. However, this approach facilitated the recruitment of a large sample of women without children, who provided extremely rich qualitative data. The volume and richness of the data facilitated data saturation despite the inability for iterative data collection and analysis, and the lack of participant validation. Data immersion, the use of participant quotations, and situating the findings within existing evidence enhanced the study's rigour. Notwithstanding these limitations, this research is the first to explore the nature of pronatalism-driven connection and exclusion of women with no children in their post-reproductive midlife years, in multiple domains of life in Australian society.

The findings from this study suggest a divide exists between women with children ("us") and women without children ("them"). While some stereotypes and assumptions may be slowly changing, women without children experience this divide as a persistent and pervasive view that all women should and will become mothers, and the use of the attribute of not having children to stigmatise, shame and exclude women at all levels (societal, community, and individual) and in all life domains (social, civic, service and economic). This overarching divide, which functions to include women with children and exclude women without children, is revealed in multiple layers of exclusion in the public and private sphere, including pronatalist policies and political rhetoric; assumptions, judgement and discrimination in workplaces; family and children-centric communities; and stigmatisation and exclusion in interactions with family and friends. The experiences of social exclusion resulting from the "us" and "them" divide may have consequences for the health and wellbeing of women without children. Accordingly, it is essential to break down the barriers that include women with children and exclude women without children, by challenging pronatalist discourses at all levels of society, and offering alternative discourses by which motherhood is irrelevant to womanhood and all women are valued and included for their diverse contributions to friendships, families, workplaces, communities and societies.

Acknowledgements
We would like to acknowledge the School of Health and Social Development at Deakin University who provided the funding for this research.

Author Contributions
All authors listed have made a substantial, direct and intellectual contribution to the work, and approved it for publication.

Conflict of Interest Statement
The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Addleton Academic Publishers

Journal of Research in Gender Studies 9(1), 2019
pp. 105–115, ISSN 2164-0262, eISSN 2378-3524

Female Sexuality and Liberation of the Body in Contemporary Moroccan Literature: The Case of *The Almond* by Nedjma

Rabia Redouane
redouaner@montclair.edu
Department of Modern Languages and Literatures,
Montclair State University, Montclair, NJ, USA

ABSTRACT. This paper examines the treatment of female sexuality and liberation of the body in *The Almond*, a novel written by the Moroccan writer Nedjma. More specifically, it demonstrates how the writer defends the right of female sexuality and challenges religious prohibitions and gender inequality. Female sexuality in this context is used metaphorically as a pathway to self-discovery, emancipation, and liberation of the body as well as a powerful weapon to condemn and fight religious beliefs and cultural standards in patriarchal Moroccan society. Through the protagonist Badra, a bold and rebellious woman who refuses to abide by rigid rules and restrictions of the Moroccan patriarchal society, the novel overtly eradicates the stereotypical image of Arab and Muslim women as powerless and submissive, and portrays them as powerful not only in control of their life, but also in control of their bodies and sexuality.

Keywords: Moroccan writer; *The Almond*; female sexuality; taboo; sexual discourse

How to cite: Redouane, Rabia (2019). "Female Sexuality and Liberation of the Body in Contemporary Moroccan Literature: The Case of *The Almond* by Nedjma," *Journal of Research in Gender Studies* 9(1): 105–115. doi:10.22381/JRGS9120194

Received 19 January 2018 • Received in revised form 20 September 2018
Accepted 23 September 2018 • Available online 15 October 2018

Introduction

In Islamic societies, sexuality is one of the most delicate outlawed subjects that neither men nor women dare talking about publicly because it involves religious standards and cultural beliefs. But the Moroccan writer Nedjma[1] had the courage to write an erotic novel, *The Almond*,[2] where she depicts the sexual life of a young Moroccan Muslim girl named Badra as she goes through different stages in her life discovering her sexuality, and gaining

"her sensuality, her physical desire, her body and her words" (Leick, 2005). This paper is an investigation of female sexuality in the Arab-Muslim world in general, and in Morocco in particular. More specifically, it will argue Badra's, the female protagonist of the novel, right and ability to use sexuality as a way to fight subjugation and oppression that Arab Muslim women endure. It will also provide insights on a number of Muslim taboos related to female sexuality, such as virginity, rape, and adultery, and how Badra rebels against these taboos and societal traditions. By avowing the right of Arab Muslim female sexuality, Nedjma not only challenges the sexual hegemonic discourse in the Arab-Islamic world but also its defenders.

Sexuality in Arab Muslim Societies

Even though in Arab Muslim societies sexuality is among the tabooed topics severely controlled and normalized in Shari'ah (Muslim laws), it is perceived positively in Quran and in Hadith (sayings of the Prophet) and early Islamic jurisprudence texts. Islam considers sex as a sacred reward, and "marriage as a desirable state and the fulfillment of a religious duty" (Obermeyer, 2000: 241), where both men and women live in a mutual consent and share pleasure and joy of sex. There are Qur'anic verses and Hadith that justify this, as in the verse 187 in Sourate Al Baqara: "They are your garments and ye are their garments." But, in Islam sexual encounters are only permitted within marriage. Free male–female sexual relations outside marriage are considered *zina* (sin and crime) in Islam, and represent punishable offences. Qur'anic verses describe in details which sexual relations are legitimate in Islam, and the type of punishment for any crime committed outside these boundaries. Both men and women are penalized for adultery as in this verse: "Those who commit adultery, men or women, give each of them a hundred lashes" (24: 2). Some Muslim countries even call for the woman to be killed because it is a disgrace and dishonor to her family (Ilkkaracan, 2002: 757).

Wadud (1996) argued that this so-called "positive" attitude to sexuality in Islam is principally referring to only male asserting his sexual practice and enjoyment without even considering women's sexuality. This claim is based on Qur'anic verses that discuss male sexuality, pleasures, and fantasies, ignoring women and their sexuality. If in Islam female sexuality is acknowledged, it is only limited and confined to the sexual enjoyment of men and for their reproductive roles.

On the other side of the debate, certain scholars, like Ilkkaracan (2002), advanced that Islam is misinterpreted in most male-dominant Arab Muslim societies to justify mistreatment and abuse of women's rights. In these societies and under the fortification of Islam, men's right and control of sexuality is unchallenged, whereas Arab women's right and ability to sexuality

is denied (Stephan, 2006: 163). Also, male control of women's sexuality has been used as a motive for their protection and supervision over women in the family and in the society (Mernissi, 1991; Dunne, 1998; Stephan, 2006). If a woman is not guarded and controlled, she could cause social chaos (or *fitna*, in Arabic). Charrad (2001) asserts that female sexuality is "a potential source of division among the men of the kin group. [It is represented] in the Islamic tradition as overpowering, destructive, and divisive. […] Endowed with an all-triumphant sexuality and relating only to nature, the woman is depicted as blind to social barriers. When left to her own instincts, she lacks all sense of social propriety" (57).

These destructive qualities and powers of female sexuality have been mentioned in many Hadith, and cited in texts of renowned Muslim scholars like Al-Ghazali and Al-Bukhari. Two of Prophet's sayings quoted by Al-Ghazali are: "A woman is the string of the devil," and "A woman is like a private part when she comes out, the devil holds her high." Another example of Prophet's sayings cited by al-Bukhari is: "After I have gone, there will be no greater menace to my nation more liable to create anarchy and trouble than women."

Therefore, in order to limit women's *fitna* and to maintain male domination, patriarchal Muslim societies resort to practices and traditions that relegate women to the private sphere of the home, and confer them with a negative perception of themselves. This takes many forms, e.g. sexual repression, premarital seclusion, early arranged marriage, subordination etc. These established customs and traditions are also practiced to preserve purity of women's bodies, "a shameful entity that needs to be protected" (Hadded, 1998: 12), as well as their virginity, a symbol of family honor and pride. In this regard, Segarra (1997) asserts that: "One of the most important principles for a young girl's body is the preservation of virginity until marriage, question concerning the honor of the whole family. […] The assertion of this rule [...] leads to a manic overprotection of this part of the body, which thus became a 'mythical object'" (59, translation mine).

Despite these negative and controversial opinions about sex and sexuality, there was an interest in writing about this topic throughout Muslim history and back to early centuries. A considerable number of male poets, philosophers, and theologians wrote poetry, tales, theological and erotological studies, and treaties. Among prominent Arabic poets, noteworthy are Umar ibn Abi Rabi'a, Jamil Buthayna, and Abu Nuwas, who are well recognized for their overt expression of love and sexuality during the Classical period. Some of the treaties that discuss ways to improve delight of sex and rules of purification related to intercourse include *Garden of Lovers*, by al-Jawziya, published in the 14th century, *Perfumed Garden*, by Nafzawi, in the 15th century, and *3ilm an-nikah* (*Science of Intercourse*), by Suyuti, in the 16th century.

In recent centuries, and in the domain of literature, a significant number of North-African and Middle-Eastern Muslim female writers, namely Badia El Haj Nasser, Rita El Khayat, Soumaya Naamane Guessous, Bahaa Trabelsi, Colette Khouri, Layla Baalbaki, Ghadah Al-Samman, Nawal Al-Saadawi, and Alia Mamdouch, to name a few, contemplated their sexuality in fiction. Their main purpose is to search for their personal identity, to escape from "Thing-hood" by "universalizing the questions of individual freedom that confront the female characters," and to battle oppression and social discrimination established by religious norms (Accad, 1990: 2). These writers also put women's sexuality on the front scene by speaking publicly and openly about it, challenging thus cultural and religious expectations, and contesting widespread opinions in the society about Arab and Muslim female sexuality (Stephan, 2006: 165). For example, the Algerian writer Assia Djebar, in her novel *Les Nuits de Strasbourg* (The Nights of Strasbourg), narrated about the erotic encounter of nine nights of an unmarried couple, while the Syrian writer Collete Khouri wrote boldly on love and passion in her first heart-stirring novel, *Ayyam maahu* (The Days with Him), "at a time when Arab women only beginning to awaken to a sense of violated rights" (Cooke, 2005: 31). In similar vein, Alia Mamdouch, an Iraqi writer, wrote about the power relationship of lovers in her novel *La Passion* (The Passion). This tendency is carried on in the 21st century by many Arab Muslim female young writers like the Egyptian Mona Eltahaway, the Syrian Salwa-al-Neimi, and the Moroccan Leïla Slimani, who talk explicitly about the pleasure of sex and sexuality while denouncing the archaic society. For example, in her book *Sex et Mensonges: La vie sexuelle au Maroc* (2016), Slimani unveils Muslim Women's sexuality by offering Moroccan women what they have been deprived of, a space to tell their stories, and to exist.

Likewise, new scholars and researchers have been interrogating Muslim tradition and women's rights in Islam through a critical feminist lens. For instance, the Moroccan feminist writer Asmaa Lamrabet, in her book *Islam et femmes: Les questions qui fâchent* (2017), proves that the textual sources of Islam are not fundamentally patriarchal, and that female subordination, submission, and gender inequality, and other issues cannot be defended on religious grounds. It is, however, the interpretation of Qur'an and religious texts within male-dominated societies that is behind most of the misconceptions and prejudice.

Contemporary Moroccan cinema also takes the stand for Muslim women's cause. Moroccan female and male filmmakers and directors are often contesting conventional views of femininity and gender roles in their films (e.g. *Amours Voilées* by Aziz Salmy (2008), *Number One* by Zakia Tahiri (2009), and *Les Oubliés de L'histoire* by Hassan Benjelloun (2010)), and deal with

women's oppression and ways to outrival their conditions and to empower themselves (Saadia & Oumlil, 2016: 51).

Analysis of Sexuality and Other Taboos in *The Almond*

Critics consider *The Almond* as the first erotic narrative written by a Muslim woman to divulge a number of taboos in terms of female sexuality. "Cette évocation de l'éveil sexuel d'une femme musulmane (*The Sexual Awakening of a Muslim Woman*) qui laisse envisager un récit autofictionnel, n'est pas sans rappeler la vie sexuelle de Catherine M., roman avec lequel *L'amande* a d'ailleurs été comparé" (Rao & Monsef-Roa, 2007: 263). In an interview for the New York Times, Nedjma justifies that her major purpose of writing this novel is "to talk about the body, it is the last taboo, one where all the political and religious prohibitions are concentrated. It is the last battle for democracy. [She] didn't want to write politically, but [she] did look for something radical. It is a cry of protest" (*The Almond*, 1). Thus, this is a novel advocating the "rights of her own gender rather than writing a novel centered on the principles of Islam" (Ghounane, 2014: 181), and defending her use of sex and sexuality, which is something natural and normal. "I blushed about what I had written, then found it to be very right. What is to stop me from continuing? The chickens are cackling in the courtyard, the cows are calving and giving lavish milk, the rabbits fornicate and give birth every month. The world is turning. So am I. What should I be ashamed of?" (*The Almond*, 7–8).

In fact, Badra, the female protagonist of the novel, was curious to know about secrets and prettiness of her sex since her adolescence. Every night, she stimulates her own genitals for sexual pleasure.

> Back home I put my head under the blankets, pulled down my panties, and looked at the little smooth and round triangle that had received the homage of an unfamiliar hand but one I knew to be a loving one. I took the same course again with a dreamy index finger. With eyelids closed and quivering nostrils, I swore that one day I would have the most beautiful sex in the world and it would impose its laws on men and stars, pitiless and relentless. The only thing was that I didn't know what such an object might look like once it had gained maturity. (*The Almond*, 83)

Badra even believes that she can control her male peers as she possesses "the most beautiful cunt on the earth, the deepest, warmest, wettest, noisiest, most fragrant and singing, the one most fond of cocks when they rise up like harpoons" (*The Almond*, 4). But she has to watch over her virginity until her wedding night. During her upbringing in the village Imchouk, she lived in a total confinement, and underwent constant supervision and continuous coaching by her mother for marital responsibilities.

> I held it against Imchouk that it had connected my genitals with evil, had forbidden me to run, to climb trees, on to sit with my legs spread. I held it against those mothers who watch the girls, check their gait, palpate their lower abdomen, and eavesdrop on the sound they make when they take a piss to be sure their hymen is intact. I held it against my mother that she had all but armored my genitals and had married me off to Hmed. (*The Almond*, 81)

At the age of seventeen, Badra was pressed to marry a 40-year-old man, Hmed, a notary public, and husband of two other wives who failed to bear him a son. Badra accepted this forced marriage without any resistance, and in justifying her wordless acceptance to her aunt, she states: "Why interfere with the well-oiled codes that change the hammam into a souk where human flesh is sold at a third of the price of regular meat?" (*The Almond*, 31). Before the wedding ceremony, and in a preparation for the arranged marriage, Badra was subjected to a whole procession of barbaric traditions by old women of the village. From the traditional pre-marriage bath house ritual to the night of defloration, she was humiliated and treated like "an animal being prepared and inspected for sacrifice" (Boone, 2007: 7). As for the wedding night, it was a tragic experience for a 16-year-old girl. The sexual act was brutal, and deemed as a legitimate rape.

> [Hmed] spread my legs, and his penis banged against my vagina. […] It hurt me, and with every one of its movements I tightened up a little more. […] I tried to extricate myself, but Hmed had me nailed down beneath his weight and […] attempted to push [his penis] in. No success. Sweating and breathing hard, he lay me down on the sheepskin, raised my legs at the risk of dislocating my joints, and began the attack again. (*The Almond*, 113–114)

Unable to consummate the marriage, and as the wedding guests were banging on the door for a proof of Badra's virginity in the form of blood on a shirt, Hmed turned to his mother and Badra's sister for help. While Hmed's mother tied Badra's arms to the bedposts, her sister held down her legs as Hmed "with one hard blow, broke [her] in two, and for the first time in [her] life, [she] fainted" (*The Almond*, 115). The blood-spotted shirt shown to the guests "proved nothing except the stupidity of men and the cruelty of submissive women" (*The Almond*, 115). After five years of repugnant sex and submissive marital life, Badra finally finds the courage to put an end to the degrading life she has been enduring by fleeing to the city of Tangiers to her aunt Selma.

> After eight hours of travel, which came of no sudden impulse, I got off in Tangiers. Like a drunken hearse, my life was heading straight for disaster, and to save it I had had no choice but to jump on the train that leaves the Imchouk station every morning at four

> o'clock sharp. For five years I had been hearing it arrive, blow its whistle, and leave without having the courage to cross the street and step over the station's low railing to put an end to contempt and corruption once and for all. (*The Almond*, 11)

Badra's escape from the oppressive and humiliating marital life and repulsive sex to Tangiers is an emblematic time of her life because it leads to her self-discovery, her emancipation, and her sexual freedom. She came across the marvel of sex and gained the delight and enjoyment of sex as a woman. As Irigaray (1985: 31) affirms, "in order for woman to reach the place where she takes pleasure as woman, a long detour by way of the analysis of the various systems of oppression brought to bear upon her is assuredly necessary." Also her aunt Selma's words of advice, when a young guy Sadeq whom she met upon her arrival to Tangiers asked her for marriage, open her eyes for the enlivening life she would have without Sadeq.

> If you want something else, […] something better or much worse, […] if you'd like volcanoes and suns, if the earth isn't worth a dime in your eyes and you feel able to cut across it in a single stride, you know how to swallow hot charcoal without groaning or walk on water without drowning, if you want a thousand lives rather than just one, to reign over entire worlds without being satisfied with any, well then Sadeq is not for you. (*The Almond*, 50)

Later, Badra met a rich, educated doctor named Driss, and fell for him. "Driss did not rape or assault [her]. He waited for [her] to come to him, in love. […] He waited until [she] surrendered [herself] to him" (*The Almond*, 95). By contrasting the two sexual acts that Badra experienced, one violent with a much older man, in Imchouk, in the night of her wedding, and the other tender and affectionate, with Driss, in Tangiers, Nedjma exposes two different ways of how sexual contact can be handled.

The romantic and passionate relationship with Driss is very significant in Badra's life, because she becomes a mistress of her body and her sexuality. It mostly contributes to her self-discovery and emancipation. Driss introduced her to a new world of sexuality and taught her "the mysteries of love and sex" with respect and attention (Riding, 2005). He also taught her how to decipher each part of her body, and explore all sexual techniques. Badra deployed the delights of sexual pleasure, and lived them fully with Driss for more than ten years. But this romantic affair is *zina* and banned in Islam, because Badra and Driss were living together as lovers without legalizing their marital relationship. Also, Badra committed *zina* and broke the Muslim's religious norms by making love in Ramadan: "I made love with Driss during Ramadan, breaking my vow. […] All I could find to say to God was: 'Don't look at me now'" (*The Almond*, 186–187). What is evident here is that to

satisfy her sexual desires and pleasure, Badra breaks all traditions, and contests all Islamic norms.

Badra ended this illegitimate love relationship when Driss started treating her without respect and dignity. Devastated and hurt, she left Driss, and started dealing with sexuality in an emotionally disconnected and fruitless way. "When I left Driss, my broken heart did not wait to become multifaceted. By renouncing his face, I became prosaic, my ass within reach of the first comer – or almost – and, once the fooling around was done, not permitting my lovers to share my sleep, my ultimate citadel" (*The Almond*, 217).

Badra continued multiplying her short-lived sexual adventures and relationships in lavish nights and dark alleys of Tangiers, and enjoying various lovers before breaking loose from them. This sexual rampage brings her consolation to her broken soul and vengeance to her wounded heart, but most importantly, it helps her gain control and power over men. In her terms she explains:

> There was a time when I changed lovers with the seasons. A different one every three months. I would have like a man to block the revolving door, to slow down my motor, too powerful for my frame-patient woman that I am, nothing is more impressive than people who know how to wait. But no one ever waited for me to calm down, to settle on his highest branch and begin to chip. Men are in too much of a hurry, always speeding – eat, run, ejaculate, forget. In that, they resemble me, and I don't hold it against them. (*The Almond*, 219)

After fourteen years of sexual adventures, Badra reunited again with Driss in his final days battling cancer. Driss pleaded for her forgiveness, and asked to go with her to Imchouk to spend his last days. In the beginning of the novel, Driss is depicted as an unconventional and immoral individual, living and satisfying his sexual pleasures, but during his final days, he becomes wise and spiritual. Like Nedjma, Driss undergoes a change and transformation, and strives to heal his body during this period of his life. Nedjma states in the beginning of her novel that her main writing goal is "to the health of Arab women, for whom recapturing the confiscated mention of the body is half the battle in the quest to healing their men" (*The Almond*, 1).

After Driss's death, Badra feels the need to extend the bond that unites her to him by relating her history, and her sexual liberation in which he remains the great initiator. The passionate relationship with Driss and her sexual relations behind closed doors of brothels in Tangiers are described in a provocative and shocking way mixing both poetic and vulgar elements. The excessive use of sex and sexuality, and the graphic description of sexual scenes, which are used as a storyline strategy, denote Badra's growth and development. In her description, she also turns to the forgotten ancient Arabic

civilization drawn from "thick and very old Arabic volumes from which Driss used to fish up his clever sayings and his few bits of wisdom" (*The Almond*, 9). This reference to early Arabic culture and civilization, "in which desire came in many forms, where love was liberated from being sinful, and in which both having and giving pleasure was of the duties of the believer" (*The Almond*, 1), and to famous Muslim forefathers of erotic literature like Al-Nafzawi, and to his book *The Perfumed Garden of Sensual Delight*, is a tribute to the original wisdom and inheritance of Muslim ancestors who glorify fun and sex while praying God. With this reference to old Arab tradition and civilization, particularly erotic works, Nedjma tries to demonstrate that the art of sex and sexuality comes from the Arab world, and that Islamic literature was once prominent and renowned for its eroticism. "Praise be to God who created the penis straight as a lance so it may wage war inside the vagina. […] Praise be to Him who bestowed upon us the gift of nibbling and sucking lips, of placing thigh against thigh, and of laying our scrotum down at the threshold of the door of Compassion" (*The Almond*, 3).

Even though *The Almond* defends the use of female sexuality as a pathway to independence and liberation of soul and body, critics viewed it as an erotic work, and a cry against Moroccan traditions, in particular, and Islamic rules, in general (Ghounane, 2006: 181). Lebbady (2009: 94) underlines that *The Almond* "reads like an erotic manifesto for modern [Muslim] women who want to break free from the repressive bonds of cultural tradition to unashamedly demand their right to pleasure," and the obstacles of taboos that the society has inflicted on them. This kind of sexual discourse, according to Sonnet (1999: 167), is a part of the post-feminist movement which takes into account erotica as a "site or 'empowerment' and of 'liberation' for women."

Conclusion

I have attempted in this paper to demonstrate that Nedjma defies the restricted and passive role of Muslim Arab women and makes them the forefront using their sexuality to reap authority and liberty. She tackles determinedly and blatantly female sexuality by depicting a life of an Arab Muslim woman who uses her sexual force not only as a way to achieve freedom and self-realization, but also as a weapon to fight sexual taboos, religious interdictions, injustice, gender inequality, and all forms of control and repression of Muslim archaic patriarchal society and rigid mentalities. With this goal, Nedjma joins all Muslim Arab women writers to end their silences, and voice their right in order to express themselves in any format. More importantly, she has traces the path to other new young writers in Morocco, in other parts of Arab world, and in its diaspora to carry the torch for their liberation and freedom.

Author Contributions
The author confirms being the sole contributor of this work and approved it for publication.

Conflict of Interest Statement
The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

NOTES

1. The Moroccan writer whose real identity remains unknown chose the pseudonym Nedjma (meaning *Star* in Arabic), a title of the first novel of the Algerian writer Kateb Yacine, published in 1956, which designates a legendary woman "often interpreted as a relic of French colonial occupation and a symbol for Algerian independence and recognition" (Villasenor, 2015: 154). In an interview, the writer admits that resorting to this pseudonym is way of protecting her identity from the Islamist devils (Lamberterie and Armanet, 2004: 145).

2. The novel was originally written in French, *L'amande récit intime*. Plon Press, Paris, 2004. The English translation, *The Almond – The Sexual Awakening of a Muslim Woman*, is made possible by Jane Hunter, Grove Press, New York, 2005.

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Addleton Academic Publishers

Journal of Research in Gender Studies 9(1), 2019
pp. 116–138, ISSN 2164-0262, eISSN 2378-3524

Why Do Young People Make Atypical Gender-related Study Choices? An Analysis of French Master's Graduates

Magali Jaoul-Grammare
jaoulgrammare@beta-cnrs.unistra.fr
BETA, The University of Strasbourg;
CNRS, Paris, France

ABSTRACT. Despite laws and educational reforms in favor of gender equality, in France both training courses and professions remain highly gendered. The educational system and the labor market continue to conform to stereotypes, and both girls and boys continue to base their educational choices on what society assigns their genders as areas of competence. However, about 10% of master's graduates make atypical study choices, in the sense that they chose an orientation standardly chosen by the opposite gender. This paper proposes an empirical analysis of these "atypical" students. Our results show that these individuals do not have specific profiles, either in terms of schooling background or social origin. By estimating a logistic regression, we highlight the importance of the expected returns and of the professional project in the atypical study choice. We also underline that although the unconventional choice allows a more rapid integration on the labor market and appears as a cost-effective solution for girls, it does not erase the wage inequalities between men and women.

Keywords: educational return; gender-related study choice; labor market integration

How to cite: Jaoul-Grammare, Magali (2019). "Why Do Young People Make Atypical Gender-Related Study Choices? An Analysis of French Master's Graduates," *Journal of Research in Gender Studies* 9(1): 116–138. doi:10.22381/JRGS9120195

Received 26 June 2017 • Received in revised form 25 September 2018
Accepted 27 September 2018 • Available online 15 October 2018

"Schools, secondary schools, colleges and higher education are responsible for transmitting knowledge and working methods. They help promote co-education and equality between men and women, particularly with regard to orientation […]."[1]
Article L121-1 of the French Educational Code

1. Introduction

Despite important social developments, and in particular the legal obligation regarding co-education which has been in place since the 1970s, training and vocational guidance in France remains gender stereotyped; gender appears as a social construction (Baudelot & Establet, 2007). As early as primary school, girls perform better than boys, and they differ in their first choices of courses: at the end of junior school, girls generally opt for general and technical rather than for professional studies (French Department for Education, 2015). And within the general and technical courses, they choose sciences less often than boys, this difference being even more pronounced in higher education where women make up 75% of students reading humanities. In their study on 36 western countries (including France), Baudelot & Establet (2001) showed that only 3 out of 17 fields present sometimes higher numbers of girls, sometimes higher numbers of boys (14 fields always present the same gender superiority) and come to the conclusion that "countries that would guide boys to humanities and girls towards the training of engineers have yet to be invented" (109).

Yet in March 2000 the European Council set out the Lisbon Strategy, which aimed to make the European Union "the most competitive and the most dynamic knowledge economy worldwide" by 2010. With this in mind, one of the Lisbon objectives was to reduce gender inequality in scientific areas, especially in scientific studies, and to increase enrolment in science courses by around 15%. To this end, many laws were adopted to favor gender equality (Orientation law, 2005;[2] Interministerial decrees from 2006 to 2011;[3] Missions for parity). Simultaneously, in France there was an increasing willingness to support women in scientific research, with many associations created to this end (L'Oréal-Unesco, Women and Maths, Women and Sciences, Women Engineers).

However, despite the volume of rules aimed at supporting gender equality, the girls' conquest of higher education since the 1960s has played out unequally within the various training courses and establishments (Marry, 2004), so much so that although the majority of training schemes and occupations tend to be open to both genders, many courses and professions remain largely gender segregated (Duru-Bellat, 2004a; Baudelot & Establet, 2006). One often-cited example is that of midwives: in 2009 in France, out of 17,000 midwives only 850 were men. However, far from appearing as erroneous career moves, the atypical gendered-related study choice (i.e., choice of a course mainly chosen by the opposite gender), especially in French higher education, appears more and more like a plausible professional project that, under certain conditions, may even be more profitable on the labor market; girls who have opted for a "male" orientation can end up in better positions

than their colleagues who have chosen a traditional orientation (Couppie & Epiphane, 2002). Many factors are cited in the literature as explaining study choice (Hoxby, 2003); in the particular context of gendered study choice, these factors can be grouped into three classes – the micro level, macro level, and institutional level (Yazilitas et al., 2013) – and considered together.

From this point of view, the objective of this empirical analysis is to study atypical training choices among master's graduates. What are the personal features of students who make such training choices? What are the factors explaining this type of choice? Going beyond an analysis in terms of schooling background and personal characteristics, we will also discuss these study choices through an analysis of three particular factors, relying on the three classes proposed by Yazilitas (2013). Among the various factors of study choice, we assume that gendered study choices may be explained by higher educative returns, by a better integration on the labor market, or by a specific professional project that breaks with societal stereotypes.

The paper is organized as follows: in the first part we describe the factors explaining study choice according to gender (2.1) and set out their impact on academic sectors and the labor market (2.2). The second part presents the database used (3.1) and some descriptive statistics (3.2, 3.3). In the last part, we analyze gendered study choice according to three particular factors: educative return (4.1), professional project, and integration on the labor market (4.2); then (4.3) we estimate a logistic model explaining the atypical study choice.

2. Factors of Study Choice and Gender-Related Behavior

Although it is not really a long-term action plan, we often talk about the "strategy" of students when we analyze school choice. This concept has given rise to an extensive economic literature on the factors influencing students' behavior (Hoxby, 2003), as well as a sociological literature linking orientation strategies to social inequalities (Boudon, 1973; Duru-Bellat, 2003).

We first sketch the various factors influencing study choice, with an emphasis on gender differences. Then, by reference to survey work on gendered study choice, we focus on certain specific factors.

2.1. Factors of study choice

Throughout their school careers, individuals and families face orientation choices such that they must consider various alternatives where the risk of failure, the cost of studies, and anticipation of the future are essential elements (Boudon, 1973).

First, the individual must perceive a socio-economic advantage in order to pursue studies. Indeed, according to the theory of human capital (Schultz,

1961; Becker, 1964; Mincer, 1958, 1974), education is an investment which enables an increase in the productivity of those who profit from it and thus implies an increase in their remuneration. Thus, an individual who decides to invest in education expects a certain return on this investment (Wolter, 2000; Botelho & Costa-Pinto, 2004). Faced with a rational choice problem, i.e., comparing the present cost with the anticipated future profits of the investment in education, the student makes a choice based on the available information. However, the literature suggests that in making this choice, men and women do not reason in the same way, and do not adopt the same behavior as regards making a rational choice: specifically, girls' expectations are adaptive, whereas those of boys are static (Demeulemeester, 1994). On this basis, and assuming that students are aware of the returns of higher education, Botelho & Costa-Pinto (2004) showed that men tend to overestimate those returns. Gabay-Egozi et al. (2014) explained that a higher number of girls choose humanities study because girls attribute lower utility and greater risks to science, technology, engineering, and mathematics (henceforth STEM-fields).

Secondly, individuals arbitrate between the various options on a cost/benefit basis. A higher enrolment cost will have a negative impact on individuals from modest backgrounds, but will also be a brake to choices of short training courses because the educational investment then could be seen as not profitable (Kane, 1995; Rouse, 1998). Men and women do not adopt the same behavior faced with risk: generally speaking, men adopt riskier behaviors (Page et al., 2007; Halek & Eisenhauer, 2001), and this may come from a difference in level of aspiration. Indeed, Page et al. (2007) showed that the influence of aspiration level on educational choices is higher for men: indeed, men seem to have a higher level of aspiration. This is consistent with the results of Gneezy, Niederle, & Rustichini (2003), who show that the higher the level of competition in the environment, the fewer women are present and the less powerful they tend to be. According to Buser et al. (2017), this competitiveness partially explains why girls are less likely to choose math studies. Cattaneo et al. (2017) showed that the labor market competitiveness is also a significant factor of university choices.

Lastly, the desire to obtain a diploma can also explain choices of orientation. An individual will pursue studies and obtain a diploma because it represents a positive signal on the labor market at the time of recruitment (Spence, 1973). Another aspect concerns employment (Stallman et al., 1993), both the associated expected wage and also the social status that an individual can attain via a given profession. The choice of certain sectors thus depends on the social prestige conferred by society on the relevant profession (Fershtman & Weiss, 1993), but also on the situation on the labor market (Freeman, 1971; Diebolt, 2001). In his model of "glutting," Diebolt (2001) considered that there are two essential factors in study choice: the expected

wage, and the situation on the labor market in terms of available jobs. Diebolt and Jaoul-Grammare (2016) confirmed these results in an experimental analysis, but also underlined the presence of gendered behavior: they showed that while girls appear more sensitive to gain, boys have a preference for risk.

As mentioned above, according to Yazilitas et al. (2013), in their survey on gendered study choice, all these factors can be grouped into three different frameworks: micro-level, macro-level, and institutional factors. The micro level refers to psychological factors influencing students' choice, such as self-efficacy beliefs, expectations of success, subjective task value and role models (parents, teachers, peers). The macro level essentially refers to societal factors and to the differential socialization of men and women. Lastly, institutional factors focus on the educational system, whereby gendered study choices are linked to the degree of differentiation in education, to the degree of freedom of study choice, and to schooling evaluations. Thus, Yazilitas et al. show that any one framework alone cannot offer a convincing explanation of gendered study choice, but propose that an understanding of the connections between the three frameworks offers a better understanding of the phenomenon.

From this point of view, among the various factors of study choice, we go beyond schooling variables to focus on expected higher educative returns, on better integration on the labor market, and on specific professional projects which break with societal stereotypes. Each of these three factors refers to one of the three levels identified by Yazilitas (2013): an expected higher educative return links with microeconomic behavior; better labor market integration for people who make an unconventional study choice is linked to the macroeconomic level; and a specific professional project breaking with stereotypes is linked to the institutional approach.

2.2. Gender-related study choice and "gender-selecting" of academic courses

French girls' enrolment has been shooting up since the 1960s, and by the 1970s had caught up with male enrolment rates. Yet despite their increasing numbers, their better results throughout the schooling process (fewer repeated years, better results at baccalaureate), and a higher rate of access to higher education, girls find more difficulties integrating on the labor market. Baudelot & Establet (2001) thus raise the question of whether the relative success of girls is conditioned by an orientation towards less prestigious courses and a greater difficulty in "selling" their educational capital on the labor market. Indeed, although social transformations have allowed girls to succeed within the educational system, other social attitudes have changed much more slowly, resulting in an ongoing rigidity of the labor market.

The choice of orientation certainly continues to conform to stereotypes (Duru-Bellat, 2004; MENESR, 2012; Ramaci et al., 2017). Adults and especially parents and teachers adopt gender-differentiated behavior regarding children (Bellotti, 1974; Baudelot & Establet, 2007), so much so that both girls and boys still make their educational choices based on what society assigns them as areas of competence: thus, among those with an excellent level in mathematics, only 5 out of 10 girls vs. 7 out of 10 boys will choose a scientific sector of study (MENESR, 2013). According to Blanchard et al. (2016), girls do not exclude themselves from scientific areas: they are excluded. The authors argue that girls exhibit self-censorship behavior because during their schooling teachers convince them that the sciences are a male affair. They join here Legewie and DiPrete (2014) who underlined the effect of high school context on gender gap. Thus, according to Duru-Bellat (2004: 70), "orientation inequalities shape inequality of achievement between men and women," so "the bulk of the differences in careers is played by differences in orientation." Indeed, even though women are more likely to obtain the baccalaureate (89% versus 85% for males; RERS, 2013), they are less likely to access selective training (42% in CPGE-post-secondary preparatory school, and 27% in engineering schools; RERS, 2015).

Despite a greater openness to co-education in various academic courses (Haby Law, 1975), and the wider evolution of social attitudes, some French academic areas still remain the preserve of a single sex (Table 1). The share of students according to gender in the French academic sector underlines that in effect there are gender-based academic specialties.

Table 1 Distribution of girls in the academic sectors of higher education

Sector	% girls	Speciality
Chemistry	45.7%	Mixed
Law, Economics and Management	59.6%	Mixed
Humanities	72.4%	Female
Mathematics, Physics	26.6%	Male
Mechanics, Electronics, Engineering	15.9%	Male
Health studies	71.5%	Female
Biology	53.9%	Mixed
Sports	32.4%	Male

Source: Génération, 2004.

In France, the so-called "masculine" specialties are those specialties that have less than a third of girls. Conversely, the "feminine" specialties are those with more than two-thirds girls. Between these two thresholds, specialties are considered "mixed" (Couppié & Epiphane, 2002). The most "masculine" specialties are Mathematics & Physics, and Mechanics & Electronics & Engineering; the most feminized sectors are Humanities and Health sectors. From an overview of the French academic sectors, 14 specializations can be

said to be “masculine,” 16 “feminine,” and 20 can be described as “mixed” (Appendix 1).

Using the dominance criterion proposed by Hakim (1993),[4] in addition to academic courses, it is also possible to identify masculine and feminine occupations on the French labor market (Table 2).[5] This segregation is due to the gendered stereotypes associated with some occupations (meticulousness, attention, interpersonal relationships for women; strength and authority for men), which are little changed over the last thirty years (Chappert, 2009: 9).

Table 2 The five most masculine and feminine occupations in France in 2011

		% of women
Feminine occupations	Home-help	97.7
	Secretary	97.6
	Domestic employee	94.3
	Nursing auxiliary	90.4
	Nurse and midwife	87.7
Masculine occupations	Construction worker (structural works)	2.1
	Construction worker (finishing works)	2.1
	Skilled worker in construction industry	7.9
	Maintenance skilled worker	8.9
	Driver	10.5

Source: DARES, 2013.

In the following section we compare study choice with occupation in order to determine if it is only the study choice which is unconventional, or whether the professional project or occupation on the labor market is too.

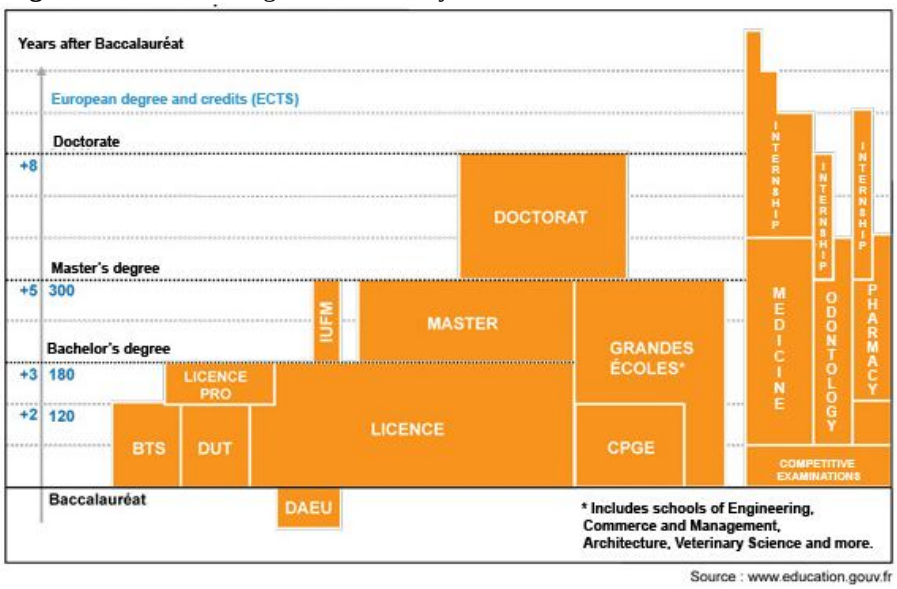
3. Data and Descriptive Analysis

3.1. French higher education system and database

The French higher education system is characterized by a dual system: universities and “elite schools” (Figure 1). Universities are scientific, cultural and professional public institutions and offer a good standard of education in all disciplines at a relatively modest annual cost. The qualifications awarded are harmonized with those of other European countries (LMD system). They also include internal institutions and schools (IUT) which offer technical and short-term training (2 or 3 years), where the selection procedure for admission is rather strict. Major public institutions and elite schools (“les grandes écoles”) offer five-year courses including two years of initial preparation in preparatory classes (“Classes Préparatoires aux Grandes Ecoles,” CPGE). They are famous for their competitive selection entry exams. Indeed, even though these latter institutions only count for 4% of all students, it is common to speak of there being two higher education systems, which are ordered hierarchically. As well as these options, depending on the university there

are also health studies (medicine, pharmacy, odontology) where admittance is based on highly competitive exams, and, depending on the high school there are also technical schools (BTS) awarding 2-year diplomas.

Figure 1 The French Higher education system



For our analysis we used the Génération 2004 database provided by the CEREQ. The CEREQ is a French public establishment which depends on the Ministry of National Education, the Ministry of Economy, Industry and Employment and the Ministry of Labor, Social Relations, Family, Solidarity and Towns. It gives advice on educational policies and is expert in the production of statistical series at the regional and national levels, as well as quantitative research on education, insertion and employment.

Among the statistics produced by the CEREQ there are publications called "Génération." These are longitudinal investigations of the first years of working life; the first in the series, "Génération 92," focused on the first three years on the labor market of a sample of 27,000 young people, representing the cohort who left the education system in 1992. In 2007, 65,000 young people who left the educational system in 2004 answered the survey "Génération 04." These publications contain indicators on schooling and labor market insertion.

Our analysis here focuses on all master's graduates (M1 + M2) within the higher education cohort of 2004. We chose this level of training in order to avoid the schooling redirections often observed in the early years of higher education: we can assume that at the master's level the choice of study is

stabilized. The sample covers 4,714 individuals. We focus especially on people who chose the academic sector, in order to assess their choice according to their gender and the gender-based academic specialities. For present purposes, we will indulge in the following misuse of language: we use the term "atypical" individuals to refer to those who opted for an unconventional study choice according to their gender, in which respect we refer to the classification established previously (Table 1). Among 4,714 individuals in master's programs, 453 can be described as atypical.

To analyze the study choice we select variables describing schooling background (baccalaureate, time to baccalaureate, distinction, and orientation), personal characteristics (gender, parents' occupation), and integration on the labor market (wage, career-path, and contract). We also consider the professional project of the individual at the time of entry into higher education. Indeed, the existence of a life project is an important factor especially in gender-related study choices, and is more important among young girls; unlike boys, girls seek to match their professional and life projects, which often leads to "compromise choices" (Duru-Bellat, 2004: 71) in which they select less valued professions offering work conditions more compatible with family life. Thus, boys are generally directed towards occupations as managers (executives) whereas girls generally opt for middle-ranking jobs (Vouillot, 2012). While this understanding of "male" or "female" occupations is very prominent among young people,[6] there are many who would approve of someone making an atypical choice (Bosse & Guégnard, 2007),[7] but not many who would make such a choice themselves (49% women and 22% men).

3.2. Atypical study choice and schooling background

While enrolment by gender is roughly balanced at master's level, we note that nearly two thirds of atypical individuals are boys (Table 3).

Concerning schooling, distributions by baccalaureates and by distinction are similar whether we consider all master's students or only atypical individuals. If we look at the time to the baccalaureate, atypical individuals have more often repeated a year than the master's group as a whole (33% vs. 28%). The main difference concerns the orientation after the baccalaureate, which appears less diverse for atypical individuals than for master's students as a whole. Fewer choose short studies, post-secondary preparatory schools, or even business schools, tending to favor university (59.6% versus 45.1%). Finally, with regard to the social origins of students, individuals with a non-traditional choice more often come from a low social background. We agree here with the results of Lemarchant and Tudoux (2008), which showed that while the orientation is unconventional, the individual characteristics of these young people are normal, and statistically they look just like any other individuals.

The distribution by gender highlights presents a clear profile. First of all, the particularity of the type of baccalaureate depends on the sample itself: indeed, “atypical” girls chose “male” studies, generally located within the exact sciences, so it is to be expected that they display a high share of scientific baccalaureates (92%). With regard to schooling background, boys who made a conventional choice appear to have better results than those who opted for an atypical choice (61% against 49% have a distinction); we observe the opposite effect for girls: atypical girls have better results than conventional ones (54.6% against 47% have a distinction). They are also more likely (13.7%) to be in advance (i.e. to have skipped a year due to high performance).

If we look at the orientation chosen after the baccalaureate, we see that atypical boys opt more often for university (69.4% against 29.6%) while atypical girls show more diversified study choices (only 40% at university): they are more often to be found in short courses (21% vs. 10% for boys) or in post-secondary preparatory school (29% vs. 12% for boys). This emphasizes the elitist profile of atypical girls who are to be found in more selective courses than boys. While the training domain (exact sciences) can partially explain this schooling profile, it also raises a question: in order to study in a sector that does not match their gender, are girls obliged to display a significantly better curriculum result than boys?

Finally, in terms of social origin, while there is little difference between conventional and atypical individuals (regardless of gender), we note that atypical girls tend to come from more modest social backgrounds than atypical boys (Tables 3 and 4).

Table 3 Distribution of individuals according to schooling background and social origin

		Master	Atypical individuals
Atypical choice	No	91.6	-
	Yes	8.4	-
Gender	Female	50.5	33.5
	Male	49.5	66.5
Baccalaureate	Socio-Economic (ES)	22.9	22.9
	Literary (L)	15.2	14.9
	Scientific (S)	49.8	54.3
	Others	12.1	7.9
Distinction	No	51.5	55.9
	Yes	48.5	44.1
Time at the baccalaureate	Advance	7.2	8.6
	Delay	28.2	33.0
	Normal	64.6	58.4
Orientation after the baccalaureate	BTS or IUT[8]	20.9	13.7
	CPGE (Post-secondary preparatory school)	22.0	17.4

	Business school and engineering school	5.0	1.7
	Health schools	0.4	0.4
	Medical studies	3.0	4.3
	University	45.1	59.6
	Other	3.6	3.0
Father's occupation	Executive	41.4	44.2
	Non-executive	58.6	55.8
Mother's occupation	Executive	25.7	27.9
	Non-executive	74.3	72.1

Table 4 Distribution of individuals according to gender and study choice

		Men		Women	
		Classic choice	Atypical choice	Classic choice	Atypical choice
Baccalaureate	Socio-Economic (ES)	16.2	32.7	29.1	3.4
	Literary (L)	4.0	22.2	25.6	0.5
	Scientific (S)	64.3	35.1	35.7	92.2
	Others	15.5	10.0	9.7	3.9
Distinction	No	49.1	61.1	53.0	45.4
	Yes	50.9	38.9	47.0	54.6
Time at the baccalaureate	Advance	6.5	6.1	7.7	13.7
	Delay	30.9	40.9	24.8	17.4
	Normal	62.6	53.0	67.5	68.9
Orientation after the baccalaureate	BTS or IUT[9]	28.5	9.9	15.2	21.2
	CPGE (Post-secondary preparatory school)	28.8	11.7	16.4	28.7
	Business school and engineering school	7.6	0.9	3.2	3.2
	Health schools	0.1	0.3	0.7	0.5
	Medical studies	1.8	3.7	3.8	5.5
	University	29.6	69.4	56.8	40.2
	Other	3.5	4.1	3.9	0.7
Father's occupation	Executive	43.2	46.7	39.4	38.2
	Non-executive	56.8	53.3	60.6	61.8
Mother's occupation	Executive	26.8	30.1	24.3	22.9
	Non-executive	73.2	69.9	75.7	77.1

So, it appears that the various factors have a differentiated impact according to gender.

Concentrating on atypical individuals, we note that the distribution of girls in the male sectors reveals significant differences (Table 5). While they

amount to more than 52% in the 'Science and industrial technologies' sector, they are just 3% in "Electronics" and 3.8% in "Civil engineering."[10] Concerning schooling background, 56% of these girls have followed a pure academic pathway (Licence/Master), 20% have a mixed curriculum IUT/University, and only 4% have a mixed curriculum BTS/University; this is not very surprising insofar as they are mainly to be found in scientific fields which offer several types of training (IUT, BTS, University)

Table 5 Distribution of the atypical girls within the male sectors

Sectors	%
Mathematics	14.6
Physics	5.4
Mechanics, mechanical engineering	5.6
Civil engineering	3.8
Computer sciences	14.2
Electronics	3.0
Sciences and industrial technologies	52.9
Culture and regional languages	0.5
Total	100%

Among atypical boys, 40% chose the sector of "Legal sciences"; after that comes "Arts" and "Information science" and "Communication" (Table 6). 67% of them have a pure academic pathway, 5% a mixed curriculum BTS/ University. This proportion is the same for mixed curriculum DUT/University. Unlike girls, boys who opted for an unconventional choice are found mainly in the humanities, which offer less alternative training than university.

Table 6 Distribution of atypical boys in "female" sectors

Sector	%
City planning / Land settlement	4.4
Arts	8.6
French as Foreign Language	3.2
Applied Foreign Languages	3.0
Foreign Languages and literatures	6.2
Old Languages and Literatures	0.8
French Language and Literature	1.4
Medicine	3.7
Pharmacy	3.3
Psychology	4.2
Science of information and communication	7.3
Educational Sciences	2.8
Legal Sciences	40.5
Political Sciences	5.2
Language Sciences	0.7
Sociology, demography	4.7
Total	100%

3.3. Atypical choice and professional project

Individuals were asked if they had formulated a precise professional project at the time of their baccalaureate and, if yes, what it was. The share of individuals with a professional project at entry into higher education is slightly higher for atypical individuals than for all master's students (38.8% vs 35.2%). Thus, the atypical choice seems to be a long-run project, especially for atypical boys (Table 7).

Table 7 Professional project and individual choice according to gender

		Master's graduates			Atypical individuals		
		All	Girls	Boys	All	Girls	Boys
Professional Project	Yes	35.2	34.8	35.6	38.8	34.9	40.7
	No	64.8	65.2	64.4	61.2	65.1	59.3

Among atypical individuals who had a specific professional project at the time of entry into higher education (Table 7), for 32.3% the unconventional choice appears to be a specific professional project directed at an atypical occupation, since they chose their study according to their project. This is even clearer for girls: 41.3% of atypical girls make an atypical study choice matching an atypical professional project (Table 7). We also note that for 57.4% of atypical girls, only the study choice is atypical, not the professional project. This share is higher for atypical boys: 66.9% of them make an atypical study choice whereas they do not have an atypical professional project.

Table 8 Professional project and study choice for atypical individuals (%)

	Girls	Boys	All
Atypical professional project matching with atypical study choice	41.3	28.4	32.3
Atypical professional project not matching with atypical study choice	1.3	4.6	3.6
No atypical professional project	57.4	66.9	64.1
Total	100	100	100

So, the atypical choice appears to be a long-run project, especially for girls, but for many people and especially for boys, the atypical study choice does not result from an atypical professional project. So it may be that beyond a real atypical life project, the non-conventional study choice appears as more profitable than the traditional choice. In the next part we try to answer this question, by calculating educative returns and analyzing labor market integration.

4. Atypical Choices, Educative Returns, and Professional Integration

4.1. The atypical study choice: A profitable orientation?

In order to determine if an orientation is profitable, we generally calculate the educative returns. With this in mind, we estimate returns for individuals

who make an unconventional study choice, referring to Mincer's model of schooling (1974).

We estimate the linear equation $Ln\ Y_i = a + bS_i + \varepsilon$, where for an individual i, Y_i is the wage, S_i is the schooling duration since entry into primary schooling and ε a residual term. With this specification, b represents the average educative returns of Si years of schooling. Si is determined according to the number of years of schooling since entry into primary schooling (repeat years excluded). Our estimations show that the atypical choice is more profitable than the classical choice, especially for girls (Table 9). Indeed, for girls the most profitable academic sector is "Mechanics and electronics."

Table 9 Educative returns according to the gender and the academic sector (2004)

Academic sector	Women	Men
Chemistry	0.042	0.054
Law, Economics and Management	0.09	0.092
Humanities	0.07	0.074
Mathematics, Physics	0.06	0.074
Mechanics, Electronics, Engineering	0.096*	0.085
Health studies	0.081	0.069
Biology	0.067	0.062
Sports	0.079	0.052

* Read as: the average rate of returns of schooling for girls in mechanics equals 9.6%, that is to say that one additional schooling year increases the logarithm of the wage by about 9.6%.

This profitability is also observed on the labor market (Table 10): the most profitable sectors for girls are "Energy" and "Manufacture of motor vehicles," which are traditionally masculine sectors (INSEE, 2016). For men, the most profitable sectors are mixed.

Table 10 Educative returns according to gender and economic business sector

Business sector	Women	Men
Financial and insurance activities	0.126	0.144
Real estate activities	0.075	0.167
Administration	0.078	0.069
Agriculture, forestry and fishing	NS	0.089
Wholesale	0.118	0.122
Construction	0.117	0.116
Education, human health and social work activities	0.044	0.076
Energy	0.182	0.118
Manufacture of food products	0.104	0.114
Manufacture of motor vehicles	0.131	0.146
Manufacture of consumer goods	0.131	0.085
Manufacture of capital goods	0.102	0.12
Manufacture of intermediate goods	0.123	0.112
Administrative and support service activities	0.097	0.099
Other service activities	0.086	0.081
Transports	0.089	0.105

The estimation of the educative returns reveals that the atypical study choice is profitable on the labor market.

In the next part, we compare the professional integrations of individuals with classical and atypical study choices, by reference to their first job.

4.2. Atypical choice and professional integration

According to the integration variables, there are some differences between the set of all master's students and those individuals who opted for an unusual orientation (Table 11). Atypical individuals do not experience a better integration on the labor market than the set of all master's students. If we look at the gender distribution, we can see that girls who made an unconventional choice fit into the labor market more quickly than those who opted for a more traditional choice, but the situation is reversed for boys.

Table 11 Distribution of individuals according to integration variables

			Women		Men	
Labor market integration	Master	Atypical individuals	Classic choice	Atypical choice	Classic choice	Atypical choice
Delayed integration / Training	24.6	21.2	26.1	17.4	23.7	23.2
Quick integration	65.7	65.5	63.3	69.3	68.3	63.5
Unstable employment or unemployment	9.7	13.3	10.5	13.3	8.0	13.3

In order to investigate the labor market integration, we use *wages* and variables concerning *professional position* (type of employment, contract type, full-time). Among 453 atypical individuals, 360 were employed at the time of the survey and among them 227 were boys and 133 girls.

The gender distribution (Table 12) shows that the atypical choice more frequently guarantees a permanent contract for girls (57.6% versus 52% for conventional choices), whereas for boys where the classic choice seems to be a better guarantee of stability (66.6% for classical choice versus 54.9% for atypical choice). This is confirmed by reference to worktime: atypical girls are less often part-time workers than classical ones, whereas the reverse phenomenon appears for men.

In terms of wages, atypical girls displayed a higher average and median wage than girls who made a conventional choice. However, we underline that the unconventional choice appears cost-effective in terms of insertion and wages only for girls, who are gaining entry onto the labor market with a better position than girls in the traditional sectors (Table 13).

Table 12 Distribution of individuals according to the gender, the type of choice and the variables characterizing the first job

		Women		Men	
Variables	Modalities	Atypical choice	Classic choice	Atypical choice	Classic choice
Contract	Fixed-term contract	35.1	36.7	33.5	23.4
	Permanent contract and civil servant	57.6	52	54.9	66.6
	Temporary work, temp, stand in	5.1	5.4	2.6	6.6
	Professionalization contract and others	0.6	3.8	4.1	2.1
	Social contracts and subsidized jobs	1.8	2.1	4.8	1.3
Worktime	Part time	6.2	16	13.3	5
	Full time	93.8	84	86.7	95
Wage	Lowest	490	84	182	182
	Highest	4200	5000	7200	4550
	Median	1650	1354.2	1450	1700
	Average	1635.8	1400.9	1619.5	1725.9
	Standard deviation (n-1)	442.6	521	822	537.6

Table 13 Comparison of individuals in terms of wages and insertion according to gender and type of choice

	Girls who have chosen a "male" orientation in comparison to…		Boys who have chosen a "female" orientation in comparison to…	
	Girls who have chosen a "female" orientation	Boys who have chosen a "male" orientation	Boys who have chosen a "male" orientation	Girls who have chosen a "female" orientation
Insertion	+	+	-	+
Wage	+	-	-	+

Read as: Girls having made a choice of "male" studies have better job-market integration than girls who chose "female" sectors. They also have higher wages.

Finally, when we compare the planned project with the effective project, we note that 72.3% of girls carried out their professional projects (Table 14), of whom 58.8% had an atypical project. The shares are lower for boys: 60.7% of them carried out their professional projects, of whom 44.4% had an atypical project.

Table 14 Professional project and final occupation

	Women	Men
Professional project carried out	72.3	60.7
of whom atypical project	*58.8*	*44.4*

4.3. What are the factors explaining the atypical study choice?

As we have previously noted, the different variables have differentiated impacts according to gender. So, finally, we analyze the choice of study by estimating a logistic regression for each gender.

Here we try to explain the atypical study choice according to personal variables (social origin, gender) and schooling background (time to baccalaureate, type of baccalaureate, distinction). Social origin has three modalities: modest (neither parent is an executive), intermediate (only one of the two parents is executive), highest (both parents are executive). We also focus on three factors of study choice in order to try to understand the atypical choice: the existence of a professional project at the entry in higher education, the expected return of the academic sector, and labor market integration. For this last variable, we consider only two modalities: quick integration or not.

The estimation (Table 15) shows that expected returns and the existence of a professional project have a positive and significant impact for both girls and boys. The existence of a professional project at the time of entry into higher education multiplies the propensity to make an atypical study choice by 1.39 (boys) and 1.47 (girls).

The impact of schooling background varies a lot between girls and boys: a girl who possesses a scientific baccalaureate is 9.5 times more likely to make an atypical study choice than a girl who possesses another baccalaureate. Literary and economics baccalaureates have a negative impact on the probability to make an atypical study choice (respectively 14.5 and 4 times less). Meanwhile, these two baccalaureates have a significant positive impact on boys' atypical study choice (8 and 2.8 times more), whereas a boy who possesses a scientific baccalaureate has a lower chance of making an atypical study choice. Gaining a distinction also has a differentiated impact: it is non-significant for boys, whereas a distinction multiplies the girls' propensity to make an atypical study choice by 1.67. The time spent on the baccalaureate is also more profitable for girls than for boys: to be in advance multiplies the propensity to make an atypical study choice by 2.5 (girls) and (1.4). These results emphasize that girls are obliged to display significantly better curriculum outcomes than boys in order to successfully adopt an orientation which does not match with their gender.

Concerning social origin, we observe a differentiated impact according to gender: "modest background" girls are 1.3 times *more* likely to make an atypical study choice, whereas "modest background" boys are 1.5 times *less* likely to make such choice. So, the atypical study choice may be a more profitable option for girls with a modest social background.

Finally, a rapid expected integration on the labor market increases the girls' probability of making an atypical study choice by 1.14, whereas it is not significant for boys.

Table 15 Logistic regression explaining atypical study choice

	Girls		Boys	
Source	Value	Odds ratio	Value	Odds ratio
Constant	-11.11	-	-2.54	-
Expected returns	89.70	-	6.73	-
Baccalaureate – Socio-Economic (ES)	-1.39	0.25***	1.04	2.84***
Baccalaureate – Literary (L)	-2.65	0.07***	2.08	8.03***
Baccalaureate – Scientific (S)	2.26	9.56***	-0.16	0.86***
Baccalaureate – Others	0.00	Ref.	0.00	
Distinction – No	-0.52	0.60***	0.05	NS
Distinction – Yes	0.00	Ref.	0.00	
Time at baccalaureate – Advance	0.93	2.53***	0.34	1.41***
Time at baccalaureate – Delay	0.02	NS	0.37	1.45***
Time at baccalaureate – Normal	0.00	Ref.	0.00	
Social origin – Modest	0.26	1.30***	-0.39	0.67***
Social origin – Highest	0.08	NS	0.08	NS
Social origin – Intermediate	0.00	Ref.	0.00	
Professional project at entry in higher education – Yes	0.33	1.39***	0.39	1.47***
Professional project at entry in higher education – No	0.00	Ref.	0.00	
Quick labor market integration – No	-0.13	0.88***	0.06	NS
Quick labor market integration – Yes	0.00	Ref.	0.00	

Significance at 1% (***), 5% (**) ; NS: no significant

5. Conclusion

Among all the master's graduates who left higher education in 2004, 9% made an atypical study choice, one third of these being girls and two thirds boys. With respect to the set of all master's students, these individuals do not have specific profiles either in terms of schooling background or social origin. We thus confirm results obtained for other levels of training (Lemarchant & Tudoux, 2008).

The first result of this paper is that the various factors on the atypical study choice have a differentiated impact according to gender. First, girls seem to be obliged to display significantly better curriculum outcomes than boys if they want to make an atypical study choice.

Beyond schooling factors, we then underline the importance of the expected returns and of the existence of a clear professional project on the atypical study choice. Usually, this non-traditional choice is a long-run project which has existed since baccalaureate. Girls who thus display a professional project clearly oriented towards a traditionally "male" profession seem to be more successful: there are higher numbers of girls who had a "male" professional project at the end of high school and who chose their orientation accordingly, than boys who wish to have a "feminine" occupation.

We also find that girls more quickly find lasting employment than boys, and that the girls' planned project more often matches their effective project.

Finally, while the unconventional choice appears as a cost-effective solution for girls, it does not erase the wage inequalities between men and women: within the "male" sectors, girls have more easy access to lasting employment, and boys can more easily get a lasting job within the "feminine" fields. However, despite their higher positions, girls who have chosen the "male" sectors have overall *lower* wages than men who have chosen the same sector; on the other hand, boys who have chosen "female" sectors have *higher* wages than girls who have chosen these same sectors. To fight against these disparities, one possible solution is the establishment of quotas in masculine and feminine occupations as well as in the corresponding training sectors: but this does appear to be something that would be difficult to implement (Chappert, 2009).

In further research with a more recent database, our work invites an analysis of the evolution of these inequalities both in higher education and on the labor market.

Acknowledgements
I thank the three referees for their suggestions, and Dominique Epiphane for her comments; I also thank Monique Flasaquier for her help with the English version of this work. Any errors or insufficiencies that remain are entirely my responsibility.

Author Contributions
The author confirms being the sole contributor of this work and approved it for publication.

Conflict of Interest Statement
The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

NOTES

1. "Les écoles, les collèges, les lycées et les établissements d'enseignement supérieur sont chargés de transmettre et de faire acquérir connaissances et méthodes de travail. Ils contribuent à favoriser la mixité et l'égalité entre les hommes et les femmes, notamment en matière d'orientation […]." Article L121-1 du Code de l'éducation.

2. The term "coeducation" was officially registered in law.

3. Gender equality became an essential objective in many departments (Education, Women's rights, Labor, Higher education and research, Environment, Academic success).

4. Based on the share of women in each occupation, so-called feminine occupations are those occupations in which the share of women is 15% higher than the average share of women for all occupations. So-called masculine occupations are

those in which the share of women is 15% lower than the average share of women for all occupations. If the share of women is between these thresholds, the occupation is considered as mixed (Hakim, 1993).

5. A more detailed table is available in the work of the DARES (2013).

6. 49% (45% women and 54% men) think there are "masculine" occupations and 40% (34% women and 50% men) think there are "feminine" occupations (Bosse & Guégnard, 2007: 43)

7. 91% (97% women and 84% men) approve of women choosing a "masculine" occupation; 83% (89% women and 76% men) approve of men choosing a "feminine" occupation (Bosse & Guégnard, 2007: 45).

8. Diplomas awarded after 2-year technical studies. They are called "short courses." The first depends on university, the second depends on secondary school.

9. Diplomas awarded after 2-year technical studies. They are called "short courses." The first depends on university, the second depends on secondary school.

10. We do not take into account the stream "Culture and regional languages" in which only one girl is enrolled.

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Appendix 1 Gender-selecting academic sector (Génération, 2004, all academic levels)

Sector	% of girls	Type of speciality
Medicine	0.75	Female
Pharmacy	0.69	Female
Sciences of language – Linguistics	0.89	Female
Old Languages and Literatures	0.81	Female
French Languages and Literatures	0.87	Female
General Literatures	0.77	Female
French, Foreign Language	0.71	Female
Foreign Languages and Literatures	0.75	Female
Applied Foreign Languages	0.73	Female
Archaeology, Ethnology, Prehistory, Anthropology	0.69	Female
Religious Sciences	0.92	Female
Psychology, Cognitive Sciences	0.88	Female
Sociology, Demography	0.74	Female
Educational Sciences	0.89	Female
General Training to become engineer	1.00	Female
Languages, humanities	0.76	Female
Mathematics	0.26	Male
Physics	0.27	Male
Sports	0.32	Male
Mechanics, mechanical engineering	0.08	Male
Civil engineering	0.15	Male
Computer sciences	0.14	Male
Electronics	0.06	Male
Sciences and industrial technologies	0.21	Male
Mathematics and computer sciences	0.13	Male
Physics and chemistry	0.07	Male
Political sciences-multidisciplinary	0.00	Male
Economics and management	0.18	Male
Sciences and applications	0.15	Male
Sciences–multidisciplinary	0.29	Male
Chemistry	0.46	Mixed
Applied mathematics to social sciences	0.39	Mixed
Earth and universe sciences	0.41	Mixed
Biology and health	0.56	Mixed
Odontology	0.44	Mixed
Materials engineering	0.40	Mixed
Arts	0.61	Mixed
Culture and regional languages	0.65	Mixed
Philosophy, Epistemology	0.43	Mixed
History	0.49	Mixed
Geography	0.40	Mixed
City planning / Land settlement	0.52	Mixed
Science of information and communication	0.60	Mixed
Legal Sciences	0.64	Mixed
Political Sciences	0.64	Mixed
Economics	0.50	Mixed
Management	0.59	Mixed
Administration and economics	0.59	Mixed
Languages–multidisciplinary	0.34	Mixed
Natural sciences–multidisciplinary	0.63	Mixed

Addleton Academic Publishers

Journal of Research in Gender Studies 9(1), 2019
pp. 139–145, ISSN 2164-0262, eISSN 2378-3524

Sexually Objectifying Selfies: Gender Impression Management, Body Image Concern, and Appearance-related Social Comparisons

Mathilde Felstead
m.felstead@aa-er.org
The Digital Dynamics Laboratory
at CLI, Chicago, IL, USA

ABSTRACT. The purpose of this study was to empirically examine sexually objectifying selfies. Building my argument by drawing on data collected from FHE Health, Georgia Tech, LEWIS, Pew Research Center, PicMonkey, and Statista, I performed analyses and made estimates regarding ways of sharing selfies (%, by demographic profile), % of U.S. adults who have ever taken a selfie and uploaded it to a social media website (by gender), and number of selfies posted weekly (%, by gender). The structural equation modeling technique was used to test the research model.

Keywords: selfie; gender impression management; body image; social comparison

How to cite: Felstead, Mathilde (2019). "Sexually Objectifying Selfies: Gender Impression Management, Body Image Concern, and Appearance-related Social Comparisons," *Journal of Research in Gender Studies* 9(1): 139–145. doi:10.22381/JRGS9120196

Received 8 March 2019 • Received in revised form 1 July 2019
Accepted 6 July 2019 • Available online 10 July 2019

1. Introduction

Selfie's usage is increasing with technological developments in front-facing devices and photo-editing computer programs. (Shah and Tewari, 2016) Taking and posting selfies online may generate detrimental psychological consequences for women. (Mills et al., 2018) Recurrence of self-portrait posting may be favorably related to body satisfaction. The dynamic interest in selfies is decidedly relevant to body discontentment and bulimia symptoms, while self-objectification facilitates this link. (Cohen et al., 2018)

2. Conceptual Framework and Literature Review

The relationship between egocentricity and selfie posting is more stable among men than women. The former having a low or average degree of self-admiration may not be determined to undertake extremely self-presenting behaviors on social media. (Sorokowski et al., 2015) As a kind of particular self-presentation (Balica, 2018; Carter and Chu-May Yeo, 2018; Deggans, 2018; Lăzăroiu, 2018; Massey et al., 2018; Moghtader, 2017; Popescu and Creager, 2017; Ranki et al., 2018; Smith and Stirling, 2018), selfie-posting is favorably associated with women's vanity. (Wang et al., 2018) Women who take and post self-portraits online feel more stressed, less self-possessed, and less physically good-looking following that in contrast to females in the control group. (Mills et al., 2018) Notable degrees of self-objectification may reinforce the link between definite social networking site selfie operations and unbalanced eating in young women. (Cohen et al., 2018)

3. Methodology and Empirical Analysis

Building my argument by drawing on data collected from FHE Health, Georgia Tech, LEWIS, Pew Research Center, PicMonkey, and Statista, I performed analyses and made estimates regarding ways of sharing selfies (%, by demographic profile), % of U.S. adults who have ever taken a selfie and uploaded it to a social media website (by gender), and number of selfies posted weekly (%, by gender). The structural equation modeling technique was used to test the research model.

4. Results and Discussion

Men and women have diverse motives for taking selfies, being frequently an act of entertainment and affirmation of an individual's right to self-depiction. (Shah and Tewari, 2016) Social networking site selfie (i) behaviors may be instrumental in body image concerns and unbalanced eating and (ii) such undertakings may offer an innovative means via which women get involved in self-objectification. (Cohen et al., 2018) Detrimental consequences of selfies are identifiable even when individuals can retake and improve their self-portraits, an operation that may be a rather unpredictable as regards its likelihood to adversely shape the body image and vanity of girls and women: selfie posting online is damaging with reference to their emotional state and self-esteem. Being able to improve or alter their self-portraits does not play a role in women feeling more attractive after posting a selfie online. (Mills et al., 2018) (Tables 1–10)

Table 1 Ways of sharing selfies (%, by demographic profile)

	Women	Men	18–24	25–34	35–44	45–54	55+
Publish it on social media	23	21	67	59	54	45	38
Send it in private to your close friends	20	11	16	19	21	24	26
Send it in private to your partner	17	16	14	16	17	20	19
Keep it for yourself	4	6	2	3	3	3	6
I don't take selfies	36	46	1	3	5	8	11

Sources: Statista; my survey among 5,400 individuals conducted December 2018.

Table 2 % of U.S. adults who have ever taken a selfie and uploaded it to a social media website (by gender)

	Have taken selfie	Have never taken selfie/Not sure
Male	68	32
Female	74	26

Sources: Statista; my survey among 5,400 individuals conducted December 2018.

Table 3 How many selfies do you take until you know you have got a winner? (%)

	Women	Men
1	4	11
2–5	52	54
6–10	24	14
11–15	12	11
16–20	5	7
21–25	2	2
26+	1	1

Sources: FHE Health; my survey among 5,400 individuals conducted December 2018.

Table 4 How much time do you spend tweaking your selfie before uploading it? (%)

	Women	Men
1–3 minutes	39	49
4–6 minutes	28	25
7–9 minutes	14	12
10–13 minutes	9	7
14–16 minutes	5	4
17–19 minutes	3	2
20+ minutes	2	1

Sources: FHE Health; my survey among 5,400 individuals conducted December 2018.

Table 5 Number of selfies posted weekly (%, by gender)

	Women	Men
None	39	42
1–2	27	33
3–4	19	14
5–6	12	7
7–8	2	2
More than 8	1	2

Sources: Statista; my survey among 5,400 individuals conducted December 2018.

Table 6 Top 10 selfies (%, by gender)

	Women	Men
Appearance	39	24
Social	16	27
Ethnicity	4	2
Travel	11	18
Health and fitness	6	4
Hobbies	10	16
Gender and sexuality	4	2
Teen + young adult	2	1
Celebrities/Entertainment	4	3
Alternative culture	1	1
Food	3	2

Sources: Georgia Tech; my survey among 5,400 individuals conducted December 2018.

Table 7 How many "likes" does it take to feel good about a selfie? (%)

	Women	Men
2–20	14	17
21–41	28	41
41–60	34	24
61–80	12	10
81–100	7	5
100+	5	3

Sources: FHE Health; my survey among 5,400 individuals conducted December 2018.

Table 8 % of U.S. teens who say they … post the following things on social media

	Often	Sometimes	Rarely	Never
Things only their closest friends would understand	17	44	15	24
Selfies	19	33	20	28
Updates on their location, what they are doing	12	36	29	23
Videos they have recorded	9	38	26	27
Things they want to go viral	9	31	16	44

Sources: Pew Research Center; my survey among 5,400 individuals conducted December 2018.

Table 9 Does your body compare favorably or unfavorably to images in the media? (%)

	Women	Men
It compares favorably	18	23
It compares unfavorably	37	36
I go back and forth on this	34	32
I am not sure	11	9

Sources: FHE Health; my survey among 5,400 individuals conducted December 2018.

Table 10 Type of photos U.S. adults are likely to edit (%)

	Women	Men
Selfies	21	18
Food	12	7
Family	14	13
Home/Interior design	7	12
Wedding/Engagement	12	13
Personal workout	11	12
Professional headshots	7	9
Group	11	12
Baby/Newborn	5	4

Sources: PicMonkey; LEWIS; my survey among 5,400 individuals conducted December 2018.

5. Conclusions and Implications

The incentives and ramifications of online social networking (Bratu, 2018; Coavoux, 2018; Katz, 2018; Machan, 2017a, b; Mirică (Dumitrescu), 2018; Peters, 2018; Ralston et al., 2018; Roberts and Marchais, 2018; Stewart and Mika, 2018) may to a certain degree display strategic self-presentation. (Sorokowski et al., 2015) Self-portraits have a development which reaches a finale after collecting reviews online. (Shah and Tewari, 2016) Women tend to obtain favorable reactions when posting selfies, which as a consequence may result in intensification of their body contentment and additionally improving their vanity. (Wang et al., 2018)

Funding
This paper was supported by Grant GE-4792812 from the Social Analytics Laboratory, Los Angeles, CA.

Author Contributions
The author confirms being the sole contributor of this work and approved it for publication.

Conflict of Interest Statement
The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Addleton Academic Publishers

Journal of Research in Gender Studies 9(1), 2019
pp. 146–152, ISSN 2164-0262, eISSN 2378-3524

The Automatability of Male and Female Jobs: Technological Unemployment, Skill Shift, and Precarious Work

Pavol Kral
pavol.kral@fpedas.uniza.sk
Department of Economics,
Faculty of Operation and Economics
of Transport and Communications,
University of Zilina, Zilina, Slovak Republic
Katarina Janoskova
katarina.janoskova@fpedas.uniza.sk
Department of Economics,
Faculty of Operation and Economics
of Transport and Communications,
University of Zilina, Zilina, Slovak Republic
Ivana Podhorska
ivana.podhorska@fpedas.uniza.sk
Department of Economics,
Faculty of Operation and Economics
of Transport and Communications,
University of Zilina, Zilina, Slovak Republic
Aurel Pera
aurelpera@yahoo.com
University of Craiova, Romania
(corresponding author)
Octav Neguriță
octavnegurita@yahoo.com
Spiru Haret University, Constanța, Romania

ABSTRACT. Despite the relevance of the automatability of male and female jobs, only limited research has been conducted on this topic. Using and replicating data from Brookings Institution, CNBC, IWPR, McKinsey, PIAAC, and PwC, we performed analyses and made estimates regarding share of jobs with potential high rates of automation by worker characteristics (%, across countries), the number of women and men in occupations with low and high risk of automation, and in the total workforce (2014–2018, in millions), and share of tasks that could be automated

with current technologies (%). The results of a study based on collected data and estimates provide support for our research model.

Keywords: job automation; technological unemployment; skill shift; precarious work

How to cite: Kral, Pavol, Katarina Janoskova, Ivana Podhorska, Aurel Pera, and Octav Neguriță (2019). "The Automatability of Male and Female Jobs: Technological Unemployment, Skill Shift, and Precarious Work," *Journal of Research in Gender Studies* 9(1): 146–152. doi:10.22381/JRGS9120197

Received 12 March 2019 • Received in revised form 5 July 2019
Accepted 7 July 2019 • Available online 10 July 2019

1. Introduction

The steady decline of unbiased access to decent work and the increase in discrimination constitute noticeable features of the current labor market. (Blustein et al., 2019) The digital refashioning of labor markets that encompasses automation of diverse tasks somewhat dissimilarly impacts jobs at the present time held by men and women. (Krieger-Boden and Sorgner, 2018) Professional activity in technological cities is defined by points of contact, typified by intense knowledge and cognizance of masculine culture that confines women's advancement. (Hardey, 2019)

2. Conceptual Framework and Literature Review

If the gender partiality that is deep-seated in the contemporary social order is not addressed directly, the subsequent realm of technology-driven work tends to aggravate gender fairness gaps. (Howcroft and Rubery, 2019) The automation of work operations, accelerated by digital technologies (Bolton et al., 2018; Freeman-Moir, 2017; Hardingham et al., 2018; Meilă, 2018; Mihăilă, 2018; Nica, 2018; Popescu Ljungholm, 2017; Schinckus, 2018; Vochozka et al., 2018), may influence women's labor market insertion by altering the necessity for standard women's jobs dissimilarly from that for standard men's jobs. (Krieger-Boden and Sorgner, 2018) Automation, by intensifying the need for capital, raises its price over a brief period of time, which reduces the possible output gains that can be accumulated by replacing the more cost-effective capital for the higher-priced labor in the automated tasks. Over a lengthy period of time, the price of capital continues to be stable, and therefore output gains will be more significant. (Acemoglu and Restrepo, 2018) The proliferation of precarious work quickly endangers individuals' capacity to sustain themselves, especially in economies that do not supply a feasible government aid or living wages. (Blustein et al., 2019)

3. Methodology and Empirical Analysis

Using and replicating data from Brookings Institution, CNBC, IWPR, McKinsey, PIAAC, and PwC, we performed analyses and made estimates regarding share of jobs with potential high rates of automation by worker characteristics (%, across countries), the number of women and men in occupations with low and high risk of automation, and in the total workforce (2014–2018, in millions), and share of tasks that could be automated with current technologies (%). The results of a study based on collected data and estimates provide support for our research model.

4. Results and Discussion

Technological developments will amplify the moderate demand for the tasks and skills they integrate, and diminish the corresponding demand for the ones they can substitute. (Krieger-Boden and Sorgner, 2018) Working can both satisfy and circumvent numerous of the demands that provide individuals a sense of aspiration, meaning, and enjoyment in their lives. Increasing insecurity and unpredictability at work generate significant discomfort for personnel and communities. (Blustein et al., 2019) Approaches and professional identities established around work and social connections in technological cities display the relevance of skilled communities and networks in backing women to handle non-acceptance and career obstacles. (Hardey, 2019) (Tables 1–4)

Table 1 Share of tasks that could be automated with current technologies (%)

Gender	
Men	42.9
Women	39.9
Age	
16–24	49.8
25–54	41.2
55–64	41.4
65+	39.8
Race/Ethnicity	
Hispanic	48.2
American Indian	45.4
Black	44.6
White	40.2
Asian/Pacific Islander	39.7

Sources: Brookings Institution; CNBC; our 2018 data.

Table 2 Share of jobs with potential high rates of automation by worker characteristics (%, across countries)

	Gender		Age group			Education level		
	Women	Men	Young	Core	Older	Low	Medium	High
Slovakia	41	49	48	44	47	56	54	20
Slovenia	37	50	52	42	46	64	49	15
Lithuania	32	56	52	41	44	59	52	22
Czech Republic	39	44	51	42	45	59	48	13
Italy	33	45	44	41	40	46	44	18
USA	39	40	41	38	42	48	47	23
France	34	43	43	37	41	53	42	16
Germany	36	40	46	37	38	49	44	11
Austria	34	38	43	33	37	47	38	23
Spain	30	40	35	36	33	45	40	16
Poland	25	41	36	31	39	41	44	15
Turkey	21	37	42	32	36	39	37	9
Ireland	28	36	32	33	34	39	40	13
Netherlands	30	34	36	29	35	48	38	12
UK	27	35	34	29	37	48	37	13
Cyprus	28	35	29	31	33	40	39	13
Belgium	25	37	40	29	34	46	35	11
Denmark	28	34	27	29	38	42	34	12
Israel	27	33	36	28	32	46	38	14
Chile	23	33	29	28	31	36	30	7
Singapore	30	25	26	24	34	48	32	11
Norway	24	30	27	23	33	42	32	10
Sweden	21	31	27	22	31	40	30	9
New Zealand	24	27	31	24	27	41	29	13
Japan	24	26	31	27	22	33	29	14
Russia	14	35	23	24	29	41	32	13
Greece	20	28	21	26	22	25	31	12
Finland	17	31	18	23	27	41	28	7
South Korea	19	26	31	23	22	26	27	10

Sources: PIAAC; PwC; our 2018 data.

Table 3 The number of women and men in occupations with low and high risk of automation, and in the total workforce (2014–2018, in millions)

	Women	Men
Workers in low-risk occupations	22.6	20.3
Workers in high-risk occupations	71.4	78.4
Workers in the total workforce	22.1	15.8

Sources: IWPR; our 2018 data.

Table 4 Jobs at risk of being displaced by automation by 2030

	Million FTE	% of female employment	Million FTE	% of male employment
Canada	2.3	24	3.2	28
France	3.1	22	3.1	23
Germany	4.2	21	5.3	22
Japan	6.3	24	9.4	24
United Kingdom	3.4	22	4.2	24
United States	19.3	24	20.3	26
China	52.4	15	66.2	15
India	12.1	10	44.1	12
Mexico	3.2	17	6.2	18
South Africa	1.2	18	2.1	22

Sources: ILO; NSS; INEGI; China Population Census; Statistics South Africa; CPS IPUMs; ONS; Japan National Survey; Eurostat; Statistics Canada; McKinsey; our estimates.

5. Conclusions and Implications

Cutting-edge advancements in the sphere of artificial intelligence provide groundbreaking prospects for women to enhance their involvement in the economic activity, thus considerably improving their financial and social self-governance. (Krieger-Boden and Sorgner, 2018) Low-skill automation coincides with tasks until now carried out by untrained labor being substituted by machines, while high-skill automation entails an innovative stage of robotization in which machines proceed participating in tasks in which trained personnel specialize. (Acemoglu and Restrepo, 2018) By dispossessing individuals of the protection and meaning that work may ideally offer, unstable work and joblessness reduce entitlement to the external and internal resources (Ciobanu et al., 2019; Grossman, 2018; Means, 2017; Mihăilă et al., 2018; Mitea, 2018; Pilkington, 2017; Popescu Ljungholm, 2018a, b, c; Syaglova, 2017) that are required to handle the intricate challenges of life. (Blustein et al., 2019)

Funding
This paper was supported by Grant GE-4285981 from the San Francisco Center for IoT Economy, CA.

Author Contributions
All authors listed have made a substantial, direct and intellectual contribution to the work, and approved it for publication.

Conflict of Interest Statement
The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Addleton Academic Publishers

Journal of Research in Gender Studies 9(1), 2019
pp. 153–159, ISSN 2164-0262, eISSN 2378-3524

Automating Gender Roles at Work: How Digital Disruption and Artificial Intelligence Alter Industry Structures and Sex-based Divisions of Labor

Maria Kovacova
maria.kovacova@fpedas.uniza.sk
Faculty of Operation and Economics
of Transport and Communications,
Department of Economics,
University of Zilina, Zilina, Slovak Republic
Jana Kliestikova
jana.kliestikova@fpedas.uniza.sk
Faculty of Operation and Economics
of Transport and Communications,
Department of Economics,
University of Zilina, Zilina, Slovak Republic
Marian Grupac
marian.grupac@fhv.uniza.sk
Faculty of Humanities,
Department of Mediamatics and Cultural Heritage,
University of Zilina, Zilina, Slovak Republic
Iulia Grecu
iulia.grecu@spiruharet.ro
Spiru Haret University, Constanța, Romania
(corresponding author)
Gheorghe Grecu
gheorghe.grecu@spiruharet.ro
Spiru Haret University, Constanța, Romania

ABSTRACT. We draw on a substantial body of theoretical and empirical research concerning how digital disruption and artificial intelligence alter industry structures and sex-based divisions of labor, and using and replicating data from Bloomberg, BLS, Eurostat, McKinsey, OECD, PIAAC, PISA, PwC, and World Economic Forum, we performed analyses and made estimates regarding patterns of jobs lost and gained (% of 2019 employment for each gender) and potential impact of job automation over time across workers (%, by gender, age group, and education level). Structural equation modeling was used to analyze the data and test the proposed conceptual model.

Keywords: automation; artificial intelligence; gender; digital disruption; labor

How to cite: Kovacova, Maria, Jana Kliestikova, Marian Grupac, Iulia Grecu, and Gheorghe Grecu (2019). "Automating Gender Roles at Work: How Digital Disruption and Artificial Intelligence Alter Industry Structures and Sex-based Divisions of Labor," *Journal of Research in Gender Studies* 9(1): 153–159. doi:10.22381/JRGS9120198

Received 2 March 2019 • Received in revised form 4 July 2019
Accepted 6 July 2019 • Available online 10 July 2019

1. Introduction

Creativity is decisive to continuous economic growth and increasing living standards. Technological advancement will sooner or later generate more and better jobs. (Annunziata and Bourgeois, 2018) The present-day wave of automation, entailing robotics and artificial intelligence, will be a more significant challenge for workforce security than globalization and immigration. (Greenwood, 2019) Increasing companies' accountability for personnel in their supply chain reasonably intensifies the concern of automation by escalating the expense of human labor against machines. (Estlund, 2018)

2. Conceptual Framework and Literature Review

Technology may bring about the automation of an expanding amount of tasks throughout a broad series of occupations, and although the entire volume of jobs that are fully automatable is likely less than expected, there will be an ampler alteration in the inherent attributes of numerous jobs (Chessell, 2018; Mihăilă et al., 2018; Nica et al., 2018; Nordberg, 2017; Peters and Besley, 2017; Popescu Ljungholm, 2017; Popescu et al., 2018; Sion, 2018; Sorells, 2018), leading to an increasing skills mismatch. (Annunziata and Bourgeois, 2018) As emerging technologies can reproduce or outperform a broader set of human competences, job destruction will leave behind job creation. (Estlund, 2018) Neither technological advancement nor other structural transformations in labor markets tend to particularly put women in an unfavorable position: their jobs are to some extent more secure than men's, there will be an enhancement in the skill degrees of women's jobs, and there has been a decrease, although negligible, in average sex discrimination. (Peetz and Murray, 2019)

3. Methodology and Empirical Analysis

Using and replicating data from Bloomberg, BLS, Eurostat, McKinsey, OECD, PIAAC, PISA, PwC, and World Economic Forum, we performed analyses and made estimates regarding patterns of jobs lost and gained (% of

2019 employment for each gender) and potential impact of job automation over time across workers (%, by gender, age group, and education level). Structural equation modeling was used to analyze the data and test the proposed conceptual model.

4. Results and Discussion

The imminent wave of automation facilitates superior economic productivity with no so much demand for human labor. Developments in robotics, artificial intelligence, and machine learning will move massive sections of the personnel out of work and into ruthless rivalry for the jobs that are still available, while new jobs will partially assimilate human resources substituted by automation that provides the last way out from the expenses and risks related to human labor. (Estlund, 2018) There will be jobs where most of the tasks are automatable, but the smaller proportion of non-automatable tasks is essential to the basic characteristics of the job itself. (Annunziata and Bourgeois, 2018) (Tables 1–7)

Table 1 Patterns of jobs lost and gained (% of 2019 employment for each gender)

Women

	Service workers	Healthcare sector
Biggest job losses	31	-
Biggest job gains	-	24

Men

	Machine operators and craft workers	Manufacturing sector
Biggest job losses	42	-
Biggest job gains	-	22

Sources: McKinsey; our estimates.

Table 2 Selected education occupations: % of time that could be automated in 2030

Instructional coordinators	Female-dominated (8)
Special education teachers	Female-dominated (27)
Education administrators	Female-dominated (30)
Preschool teachers, except special education	Female-dominated (31)
Elementary school teachers, except special education	Female-dominated (39)
Adult basic and secondary education and literacy teachers	Female-dominated (39)
Middle school teachers, except special and career/technical education	Female-dominated (41)
Teacher assistants	Female-dominated (44)
Librarians	Female-dominated (70)

Sources: BLS; McKinsey; PISA; OECD; our estimates.

Table 3 Occupations that could have time automated in 2030 (%)

% of time that is automatable	All (n = 820 occupations)	US female-dominated (n = 171 occupations)	US male-dominated (n = 243 occupations)
<100	99	100	99
<90	85	92	84
<80	72	83	68
<70	61	73	54
<60	49	59	41
% of occupations that could have <50% of time automated			
<50	37	48	24
<40	20	25	13
<30	8	10	4
<20	2	3	2
<10	1	2	1

Sources: BLS; McKinsey; our estimates.

Table 4 Employment by STEM industry (%)

	Women	Men
Professional, scientific, and technical	36	64
Manufacturing	23	77
Information and communication	26	74
Other service activities	22	78
Transport and storage	18	82
Wholesale, retail, and repair of motor vehicles	14	86
Mining, energy, water, electricity, gas, and air supply	13	87
Construction	10	90

Sources: Eurostat; our 2018 data.

Table 5 Potential impact of job automation over time across workers (%, by gender and age group)

	2019	2021	2023	2025	2027	2029	2031
Young males	1	2	4	12	20	21	26
Young females	1	2	12	25	26	27	28
Core males	1	2	4	10	14	16	22
Core females	1	2	10	20	26	28	30
Older males	1	1	3	10	18	22	25
Older females	2	3	12	22	28	29	31

Sources: PIAAC; PwC; our estimates.

Table 6 Potential impact of job automation over time across workers (%, by gender and education level)

	2019	2021	2023	2025	2027	2029	2031
Low-educated males	1	2	3	8	10	14	26
Low-educated females	1	3	10	20	21	22	26
Medium-educated males	1	2	4	10	16	20	24
Medium-educated females	1	4	14	26	30	32	34
High educated males	1	2	4	7	10	11	12
High educated females	1	2	8	12	13	14	15

Sources: PIAAC; PwC; our estimates.

Table 7 Robot gender gap

	Women	Men
Job opportunities without retraining (units)	12	22
Job opportunities with retraining (units)	51	82
Pay increase with retraining (%)	75	64

Sources: World Economic Forum; Bloomberg; our 2018 data.

5. Conclusions and Implications

With developments in robotics and artificial intelligence, the imminence of technological unemployment constitutes a serious issue among a significant segment of the workers. (McClure, 2018) The automation of a portion of the tasks may result in a reinforcement of responsibilities (Madudova, 2017; Neary et al., 2018; Nica, 2018; Petcu, 2018; Pilkington, 2018; Popescu Ljungholm, 2018; Shang et al., 2018; Sponte (Pişţalu), 2018) and a decrease in the volume of jobs. (Annunziata and Bourgeois, 2018) Automation both displaces human labor and integrates it, both eradicating jobs and enhancing productivity, quality, protection, and sustainability. The increasing competences and diminishing costs of automation will bring about the substitution of workers. (Estlund, 2018)

Funding
This paper was supported by Grant GE-1535421 from the San Francisco Center for IoT Economy, CA.

Author Contributions
All authors listed have made a substantial, direct and intellectual contribution to the work, and approved it for publication.

Conflict of Interest Statement
The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Addleton Academic Publishers

Journal of Research in Gender Studies 9(1), 2019
pp. 160–166, ISSN 2164-0262, eISSN 2378-3524

Self-Presentation and Interaction on Romance Social Media Platforms: Networked Intimacy, Sexual Arrangements, and Dating Practices

Caroline Schreurs
c.schreurs@aa-er.org
The Big Data Analytics Research Unit
at IISHSS, Leeds, England

ABSTRACT. Empirical research provides mixed results regarding self-presentation and interaction on romance social media platforms. Using and replicating data from GlobalWebIndex and Pew Research Center, I performed analyses and made estimates regarding the demographics of dating app users (%), U.S. adults who are married, living with a partner, or in some other committed relationship met their spouse/partner online (%), and Internet users who agree that online dating is a good way to meet people/online dating allows people to find a better match/people who use online dating sites are desperate/online dating keeps people from settling down (%). Data were analyzed using structural equation modeling.

Keywords: self-presentation; interaction; romance social media platform; dating

How to cite: Schreurs, Caroline (2019). "Self-Presentation and Interaction on Romance Social Media Platforms: Networked Intimacy, Sexual Arrangements, and Dating Practices," *Journal of Research in Gender Studies* 9(1): 160–166. doi:10.22381/JRGS9120199

Received 1 March 2019 • Received in revised form 5 July 2019
Accepted 6 July 2019 • Available online 10 July 2019

1. Introduction

Dating applications are technical inventions representing artifacts. (Wu and Ward, 2018) Social networking applications on smartphones have acquired far-reaching fashionableness for relationship initiation, constitution, and continuance. (Yeo and Fung, 2018) The gender categories arranged for users in setting up their profiles indicate the structural demands of the application's programming. (MacLeod and McArthur, 2018) The standardization of intimate intrusions and online bullying in mobile dating settings may consolidate a culture that embraces gendered violence. (Gillett, 2018)

2. Conceptual Framework and Literature Review

Mobile dating applications constitute a timesaving manner to access a more sizable pool of possible partners in immediate closeness and to make swift assessments as regards their appropriateness via screening and filtering. (Yeo and Fung, 2018) Running on smartphones and operating with GPS, dating applications link users to individuals in adjacent geographic nearness and frequently instantaneously, enabling them to set up profiles to display themselves and communicate with each other to attain diverse objectives, e.g. incidental sex, dating, or networking, thus facilitating interactive routines and social relations. (Wu and Ward, 2018) Dating applications can be employed as a test site to practice sexuality, a catalyst to love affairs and matrimony, a social surrounding between home and the workplace (Fox, 2018; Kirby et al., 2018; Meilă, 2018; Mircică, 2017; Nica et al., 2017; Otrel-Cass, 2018; Popescu Ljungholm, 2018; Suojanen, 2018; Teschers, 2017), and a portal to unknown realms, while challenges encompass combating social blame, evaluating men's intentions, and dealing with unwanted sexual requests. (Chan, 2018)

3. Methodology and Empirical Analysis

Using and replicating data from GlobalWebIndex and Pew Research Center, I performed analyses and made estimates regarding the demographics of dating application users (%), U.S. adults who are married, living with a partner, or in some other committed relationship met their spouse/partner online (%), and Internet users who agree that online dating is a good way to meet people/online dating allows people to find a better match/people who use online dating sites are desperate/online dating keeps people from settling down (%). Data were analyzed using structural equation modeling.

4. Results and Discussion

Affordances of mobile dating applications and related sociomaterial routines generate the perception of hastened relationships. The constitution of amorous affairs entails temporal logics pervaded with regularizing instructions. The sociotemporal meanings that lie behind the adoption of mobile dating applications are not entirely shaped by cutting-edge technology but are associated with the social standards and hopes that materialize and advance with its utilization. (Yeo and Fung, 2018) The manners individuals employ dating applications are routines, while the social relations among them are shared arrangements. Users' experiences are determined by the technological characteristics of devices. (Wu and Ward, 2018) (Tables 1–8)

Table 1 The demographics of dating app users (%)

Age	Martial status
16–24 (34)	Married (31)
25–34 (47)	In a relationship (10)
35–44 (16)	Divorced/Widowed (6)
45–54 (2)	Single (52)
55–65 (1)	Other (1)

Sources: GlobalWebIndex; my survey among 5,800 individuals conducted January 2019.

Table 2 Internet users who agree with each of the following statements (%)

	2005	2015	2018
Online dating is a good way to meet people	44	59	73
Online dating allows people to find a better match	47	53	69
People who use online dating sites are desperate	29	21	19
Online dating keeps people from settling down	-	32	35

Sources: Pew Research Center; my survey among 5,800 individuals conducted January 2019.

Table 3 Familiarity with online dating through others. U.S. adults who … (%)

	2005	2013	2018
Know someone who has used online dating	31	42	59
Know someone who has been in a long-term relationship or marriage/Know someone they met through online dating	15	29	44

Sources: Pew Research Center; my survey among 5,800 individuals conducted January 2019.

Table 4 Negative relationship experiences on social networking sites. SNS/Twitter users who have… (%)

	18–29	30–49	50–64	65+
Unfriended/blocked someone who was flirting in a way that made you feel uncomfortable	52	32	11	5
Unfriended/blocked someone you used to be in a relationship with	63	30	4	3
Untagged/deleted photos of someone you used to be in a relationship with	65	21	3	1

Sources: Pew Research Center; my survey among 5,800 individuals conducted January 2019.

Table 5 SNS/Twitter users who have used a social networking site to… (%)

	Check up on someone you used to be in a relationship with	Post details or pictures from a date
18–29	53	49
30–49	31	30
50–64	13	19
65+	3	2

Sources: Pew Research Center; my survey among 5,800 individuals conducted January 2019.

Table 6 U.S. adults in each group who have used online dating sites or apps (%)

Men	21
Women	17
Race/Ethnicity	
White, Non-Hispanic	19
Black, Non-Hispanic	22
Hispanic	16
Age	
18–24	19
25–34	30
35–44	26
45–54	13
55–64	10
65+	2
Education attainment	
No high school diploma	14
High school grad	17
Some College	22
College +	17
Household income (year)	
Less than $30,000	20
$30,000–$49,999	19
$50,000–$74,999	20
$75,000+	11
Urbanity	
Urban	24
Suburban	19
Rural	13

Sources: Pew Research Center; my survey among 5,800 individuals conducted January 2019.

Table 7 U.S. adults in each group who have used online dating sites or apps (%)

Relationship type	
Married/committed, 10 yrs or less	15
Married/committed, >10 yrs	5
Single and looking	43
Single, not looking	7
Length of partnership (for married/committed)	
0–5 years	27
6–10 years	14
11+ years	4

Sources: Pew Research Center; my survey among 5,800 individuals conducted January 2019.

Table 8 U.S. adults who are married, living with a partner, or in some other committed relationship met their spouse/partner online (%)

All married/partnered/committed	8
Age	
18-29	11
30-49	9
50-64	5
65+	2
Length of partnership	
0-5 years	16
6-10 years	11
11+ years	2
Have used online dating sites/apps	
Yes	39
No	6

Sources: Pew Research Center; my survey among 5,800 individuals conducted January 2019.

5. Conclusions and Implications

Mobile dating applications fashion gender as a strict category more related to function (matching profiles) than to personality. (MacLeod and McArthur, 2018) Communicational underlying forces and the criteria of self-presentation on applications (Jouët, 2018; Lăzăroiu et al., 2018a, b; Mihăilă, 2017; Mirică (Dumitrescu) 2018; Nica and Taylor, 2017; Popescu et al., 2017; Sponte (Piştalu), 2018; Taylor and Kliestikova, 2018; Udell, 2018) create a sense of convenience. (Yeo and Fung, 2018) Dating applications, regulating the current social standards within particular cultural settings, influence users' online dating routines, and their users attempt to self-disclose in manners that lead to a favorable perception from other individuals, expressing their purposes and making themselves appealing. (Wu and Ward, 2018)

Funding
This paper was supported by Grant GE-2894572 from the Social Analytics Laboratory, Los Angeles, CA.

Author Contributions
The author confirms being the sole contributor of this work and approved it for publication.

Conflict of Interest Statement
The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Addleton Academic Publishers

Journal of Research in Gender Studies 9(1), 2019
pp. 167–173, ISSN 2164-0262, eISSN 2378-3524

Gaining Social Attraction and Disrupting Gender Dynamics through Mobile Dating Applications: Online Romance, Impression Management, and Sexual Behaviors

Anne Flygare
a.flygare@aa-er.org
The Social Analytics Laboratory at AAER,
Amsterdam, The Netherlands

ABSTRACT. This research investigates the relationship between online romance, impression management, and sexual behaviors. Building my argument by drawing on data collected from B2B International, Kaspersky Lab, Pew Research Center, Statista, and Verto Analytics, I performed analyses and made estimates regarding reasons for online dating (%), users' concerns while they are dating online (%), U.S. adults who personally know someone who has used an online dating site or application (%), most popular online dating applications in the U.S. by audience size (in millions), and U.S. adults who have used a dating website or app (%, by age group and gender). The data for this research were gathered via an online survey questionnaire and were analyzed through structural equation modeling on a sample of 5,600 respondents.

Keywords: social attraction; mobile dating application; impression management

How to cite: Flygare, Anne (2019). "Gaining Social Attraction and Disrupting Gender Dynamics through Mobile Dating Applications: Online Romance, Impression Management, and Sexual Behaviors," *Journal of Research in Gender Studies* 9(1): 167–173. doi:10.22381/JRGS91201910

Received 7 March 2019 • Received in revised form 8 July 2019
Accepted 9 July 2019 • Available online 10 July 2019

1. Introduction

The adoption of cutting-edge technology constitutes a conventional fashion for users to make contact with romantic partners. (Chin et al., 2019) The fast-tracked pace of networking furthered by permanent connectivity, shared

adjacency cognizance, and on-the-spot messaging involves expeditious and transitory relationships. (Yeo and Fung, 2018) Mobile dating applications may function as a way to get in touch with sexual partners, while quite a few of persons who utilize such applications may raise their sexual risk by participating in unprotected intercourse. (Sawyer et al., 2018)

2. Conceptual Framework and Literature Review

Dating applications offer a positive framework for lovingness and affection with other individuals. (Chin et al., 2019) Vagueness in setting up relationships is generated by the uncertainty of relationships, control of profiles, and superfluity of connections (Burwell et al., 2018; Fielden et al., 2018; Groucutt et al., 2018; Meilă, 2018a, b; Moghtader, 2018; Popescu, 2018a, b; Syme, 2017; Walker and Lovat, 2018) on mobile dating applications, all closely associated with the neoliberal market and consumption routines. (Chan, 2018) The interface configuration, which highlights profile pictures and backgrounds reported self-portraits, designs the arrangement of browsing and screening rooting for physical aspect and users pursuing casual, unplanned sex. (Yeo and Fung, 2018)

3. Methodology and Empirical Analysis

Building my argument by drawing on data collected from B2B International, Kaspersky Lab, Pew Research Center, Statista, and Verto Analytics, I performed analyses and made estimates regarding reasons for online dating (%), users' concerns while they are dating online (%), U.S. adults who personally know someone who has used an online dating site or application (%), most popular online dating applications in the U.S. by audience size (in millions), and U.S. adults who have used a dating website or app (%, by age group and gender). The data for this research were gathered via an online survey questionnaire and were analyzed through structural equation modeling on a sample of 5,600 respondents.

4. Results and Discussion

Adolescents adopt dating applications with particular affinitive, cognitive, and leisure purposes, while their identity determines their usage model of dating applications. (Sumter and Vandenbosch, 2019) Individuals more immoderate in distressed attachment behavior tend to utilize dating applications, but employing them to make contact with romantic partners may also result in a decline in anxious behaviors. (Chin et al., 2019) (Tables 1–6)

Table 1 U.S. adults who personally know someone who has used an online dating site or application (%)

	2005	2013	2018
Men	28	41	59
Women	33	44	64
Race/Ethnicity			
White, Non-Hispanic	32	47	68
Black, Non-Hispanic	21	30	48
Hispanic	32	33	52
Age			
18–29	40	49	69
30–49	36	48	66
50–64	29	42	59
65+	13	24	31
Education attainment			
No high school diploma	15	21	30
High school grad	24	32	47
Some college	35	47	63
College+	45	57	72
Household income (year)			
Less than $30,000	22	31	44
$30,000–$49,999	32	43	66
$50,000–$74,999	39	54	72
$75,000+	43	57	77
Urbanity			
Urban	35	43	58
Suburban	30	44	61
Rural	26	36	52

Sources: Pew Research Center; my survey among 5,600 individuals conducted December 2018.

Table 2 Reasons for online dating (%)

	Male	Female
For fun	19	
To find friends	22	
To have a good time with an interesting person	16	
To a find a partner	16	
For sex	9	
To find a marriage partner	11	
To check my partner is not cheating on me	4	
Other	2	
I prefer not to say	1	

Sources: B2B International; Kaspersky Lab; my survey among 5,600 individuals conducted December 2018.

Table 3 Users' concerns while they are dating online (%)

My device being infected with malware, spyware or ransomware via an online dating platform	67
Meeting someone with bad intentions offline (i.e. extortion, physical or psychological violence, etc.)	63
My data being stolen/leaked from the dating service/app itself	62
Someone using the information I have shared to hack some of my accounts	
Someone using the information I have shared to track me down in real life	60
Being enable to erase my data from the dating service/app completely after quitting the service	58
Meeting someone who was not who they said they were (fake name, age, gender, etc.)	45
Someone using the information I have shared to track me down online (e.g. contact me via Facebook, Skype, messenger, etc.)	54
Being defrauded by a website claiming to be an online dating site	42
Someone using the information I have shared to blackmail me	47
Someone using the information I have shared to damage my reputation at work	57
Being a victim of fraud by helping someone out in an "unfortunate situation" by sending them money	44
Being sent phishing emails claiming to be from an online dating site encouraging me to share personal information	39
Someone using the information I have shared to damage my current relationships	56
Being recognized by people I do not want to recognize me	59
The "match" pretending to be a real person but being a bot	34
Someone engaging me in a conversation that makes me feel uncomfortable (e.g. about sex, politics, religion, or illegal activity)	31
Being rejected by someone I would like to meet	32

Sources: B2B International; Kaspersky Lab; my survey among 5,600 individuals conducted December 2018.

Table 4 Most popular online dating applications in the U.S. by audience size (in millions)

Tinder	8.59
POF	5.44
Bumble	5.45
OkCupid	3.36
Match.com	2.25
Grindr	1.87
Zoosk	1.19
MeetMe	1.09
SCRUFF	0.83
OurTime	0.76

Sources: Verto Analytics; Statista; my 2018 data.

Table 5 U.S. adults who have used a dating website or app (%, by age group)

	18–34	35–54	55+
Yes, I'm doing so currently	39	32	3
Yes, I've done so in the past	17	29	18
No, never	40	37	78
Don't know	4	2	1

Sources: Statista; my survey among 5,600 individuals conducted December 2018.

Table 6 U.S. adults who have used a dating website or app (%, by gender)

	Male	Female
Yes, I'm doing so currently	27	25
Yes, I've done so in the past	34	31
No, never	37	32
Don't know	2	2

Sources: Statista; my survey among 5,600 individuals conducted December 2018.

5. Conclusions and Implications

Dating applications may shape the manners in which users can anticipatorily seek out romantic partners, determine their options, and regulate their behavioral preferences in mates. (Chin et al., 2019) The transience of browsing and networking on dating applications is in opposition to the temporal criteria establishing constitution of sociability and durable romance, defining the perceived reliability and contentment of application adoption (Farber, 2017; Fox, 2017; Lăzăroiu and Rommer, 2017; Mircică, 2018; Nica, 2017; Rumrill et al., 2018; Teubner et al., 2017), and discouraging users who search for more long-lasting relationships. (Yeo and Fung, 2018) Persons who are non-heterosexual, inferior in dating apprehension, and maintain more sexually tolerant viewpoints have a more significant probability to be dating application users. (Sumter and Vandenbosch, 2019)

Funding
This paper was supported by Grant GE-4594512 from the Social Analytics Laboratory, Los Angeles, CA.

Author Contributions
The author confirms being the sole contributor of this work and approved it for publication.

Conflict of Interest Statement
The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Addleton Academic Publishers

Journal of Research in Gender Studies 9(1), 2019
pp. 174–175, ISSN 2164-0262, eISSN 2378-3524

BOOK REVIEW

The Palgrave International Handbook of Women and Outdoor Learning
Tonia Gray (Western Sydney University)
Denise Mitten (Prescott College)
Cham, Switzerland: Palgrave Macmillan, 2018, 928 pages
978-3-319-53549-4

I recall being a wilderness trip guide in the late 1980s/early 1990s. Early on in my career, I was asked to lead an all women's trip. My response consisted of some offhanded commentary about not believing in gender segregated wilderness trips. Since that time, a lot has changed relevant to my own knowledge and understanding of women in outdoor learning and a lot has changed for me personally and professionally, impelling me to reconsider that short-sighted perspective. I am a professor of outdoor recreation and also the Director of a Social Justice and Equity Studies program at a Canadian university. I am delighted to have been asked to provide a review of *The Palgrave International Handbook of Women and Outdoor Learning*.

The Table of Contents reads like a "Who's Who" of significant women who are guiding, facilitating, researching, and celebrating the outdoors. The book's focus is to move beyond the ways in which mainstream Western culture has typically marginalized both women and the land, subjugating both to a lesser status compared with men's experiences, histories, and perspectives (p. 23). Co-editors Dr. Tonia Gray and Dr. Denise Mitten have well-established careers in outdoor leadership and recreation and are well-suited to bring together this excellent compilation, albeit a long one, totaling over 900 pages. The co-editors contend that the goal of the book is to provide an intersectional exploration of the various (sometimes colliding) elements of gender bias and inequalities in outdoor learning (p. 5). There is no doubt in my mind that they not only accomplish this goal but exceed it. The book is profoundly illuminating and educative and also incredibly refreshing as each contribution is written by a female author. Book sections include: 1) Setting the Scene; 2) Contested Spaces: Gender Disparity in

Outdoor Learning Environments; 3) Motherhood and Outdoor Learning Environments: Chaos and Complexity; 4) Leadership, Learning, Transformations, and Identity; 5) Case Studies of Women in Action; and 6) Towards an Inclusive and Nourishing Future for Women in Outdoor Learning Environments.

Some of the section chapters are more anecdotal in nature, telling stories of women's experiences in nature (4, 33, 39). Other chapters are more research based (6, 8, 18, 26, 35, 45, 52). A number of chapters provide an interesting historical review of influential programs and texts (2, 10, 17, 28, 40, 48). Among others, chapters 13, 15, 56, and 62 provide opportunities for action. Each chapter is written with great insight and acuity by women of all ages – indigenous women, mothers, daughters, students, queer women, and scholars. Chapters challenge previously-held hegemonic assumptions including: stereotypes about women, history of early adventurers, (dis)ablements, girl scouts, outdoor competencies, identity formation, and the myth of the Superwoman, among others.

This book provides a well-needed contribution to the field of outdoor learning and serves as a "must read" for both burgeoning and well-seasoned outdoor leaders, regardless of gender. In fact, male outdoor educators and facilitators (as well as women) would greatly benefit from investing time in learning from the authors' perspectives and histories as there exists a significant paucity of writing representing women's experiences generally.

The text is a compelling read; at times, you can almost hear the voices of these women and imagine them in the settings that they describe. *The Palgrave International Handbook of Women and Outdoor Learning* is a compilation that exudes vulnerability, strength, humility, perseverance, grace, humor, vision, and insight. I highly recommend this wonderful, new addition to the terrain of literature on outdoor learning.

Mary C. Breunig (California State University, Sacramento)

ISSN 2378-3524