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Discrimination and Health among Taxi Drivers in New York and Toronto

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Abstract

Immigrant taxi drivers in metropolitan cities are exposed to experiences of discrimination and occupation-based health risks. Given the structural differences in health care systems in the United States and Canada, we investigated the differences in reports of discrimination, health conditions and concern about health conditions between taxi drivers in New York City and Toronto, Ontario. Participants were recruited for a taxi driver Needs Assessment Survey as part of a Taxi Network needs assessment project using a street side convenience sampling technique in New York City and Toronto. The matched sample contained 33 drivers from Toronto and 33 drivers from NYC. All Toronto drivers in our sample reported having health insurance while over a quarter of NYC drivers did not have health insurance. Toronto drivers reported greater everyday and workplace discrimination. Drivers in both cities experienced higher rates than average, and reported concern

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CONFLICT OF INTEREST

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about, major health conditions. We also found preliminary evidence suggesting a relationship between experiencing discrimination and reporting chronic pain. Our findings suggest the need for future research to more closely examine the associations between discrimination and health among the taxi driver population.

Keywords

discrimination; health; taxi drivers; chronic pain

Recent work has linked the experience of chronic and persistent discrimination to negative physical health outcomes (Brondolo et al., 2008; Chae, Nuru-Jeter, Lincoln, & Arriola, 2012; Paradies et al., 2015; Williams & Mohammed, 2009). However, little research has investigated discrimination among taxi drivers, a large and particularly vulnerable population, the impact of discrimination on their health risk, and the association of discrimination and health risk with decreased access to health care. Drivers have multiple daily interactions with customers and potentially with traffic enforcement agents, and there are a high percentage of immigrants, minorities, and individuals with low socioeconomic status among drivers' ranks (Schaller Consulting, 2004). In a report on working conditions among Toronto taxi drivers, Abraham, Sundar, and Whitmore (2008) found that drivers reported safety concerns, including racist verbal encounters from passengers and police, due in part to their immigrant status and lack of English proficiency. Taxi-driving in Canada is reportedly among the most dangerous occupations, and stress associated with assault encounters have health repercussions for drivers (Perreault, 2011).

Taxi drivers face a host of challenges imposed by their occupational environments. Within large, metropolitan centers, driving a taxi exposes one to a variety of health risks: genitourinary pathology (Mass, Goldfarb, & Shah, 2014), lower rates of having health insurance than the general population (Gany et al., 2015), and chronic diseases including cardiovascular risk factors and disease (Chen, Chen, Chang, & Christiani, 2005; Elshatarat & Burgel, 2016; Kurosaka et al., 2000), cancer (Hansen, Raaschou-Nielsen, & Olsen, 1998), diabetes (Lim & Chia, 2015), fatigue (Lim & Chia, 2015), compromised immune function (Nakano et al., 1998), and pain (Chen et al., 2004). The extremely sedentary nature of taxi driving, wherein drivers work for an average of 9.5 hours per day and 6 days per week (Gany et al., 2015; Waheed & Romero-Alston, 2003) contributes to higher disease risk (Kurosaka et al., 2000). In a focus group exploring South Asian taxi drivers' perceptions of cardiovascular disease risk, participants discussed their experiences of discrimination and how high stress, lack of activity, poor diet, and poor health care access contributed to this risk (Gany, Gill, Ahmed, Acharya, & Leng, 2013). Taxi driver health risks are prevalent in New York City, and in other major metropolitan areas, such as San Francisco (Burgel, Gillen, & White, 2012), Los Angeles (Blasi & Leavitt, 2006), Chicago (Apantaku-Onayemi et al., 2012), and Toronto (Abraham et al., 2008).

Poor taxi driver health outcomes could potentially be mitigated by patient-centered primary care, facilitated by health insurance access. In New York City, drivers have lower rates of health insurance than the general population, which could deprive them of this potential

relief (Gany et al., 2015). Directly across the Canadian border, where there is a system of universal health care, most taxi drivers have access to covered health care. This includes Toronto, where, because of the Canada Health Act, immigrants are eligible for publicly-funded basic health care, with a maximum waiting period of three months of residence in the province (Canada Health Act, 1985).

Within New York City, there are over 148,000 active driver licenses, with over 55,000 medallion drivers and over 90,000 for-hire vehicle drivers (TLC, 2016). In Toronto, there are over 4,800 licensed taxicabs (Toronto Taxi Alliance, 2013) and over 10,000 drivers (Xu, 2012), the majority of whom drive standard taxicabs, which are privately owned taxis that may or may not be owner-driven (in comparison to Toronto's Ambassador taxicabs, which are owner-operated). In both NYC and Toronto, as in many other metropolitan cities, the large majority of the driver population is immigrant, primarily hailing from South Asia (e.g., India, Bangladesh, and Pakistan). Both NYC and Toronto have large, diverse immigrant populations overall. In New York City, 38% of drivers are from South Asia, followed by 23% from the West Indies (e.g., Dominican Republic and Haiti), and 14% from Africa (e.g., Egypt, Morocco, Ghana, and Nigeria; Schaller Consulting, 2004). In Toronto, drivers are also predominantly from South Asia (37%), followed by 12% from the Middle East (e.g., Lebanon, Iran, Iraq), 9% from Africa (e.g., Somalia, Ethiopia, Eritrea, and Morocco), and 7% from the West Indies (e.g., Haiti and Jamaica; (Xu, 2012). Their status as immigrants, coupled with potential language barriers (Facey, 2010), their skin color (Klonoff & Landrine, 2000), and the nature of their work (Facey, 2003), exposes taxi drivers to potentially high rates of discrimination.

While there are important similarities between New York City and Toronto, such as the diversity and size of the immigrant population in the two cities, they differ in the accessibility of covered health care. This study examines whether there are differences in experiences of discrimination, health conditions, and concern about health conditions between NYC and Toronto drivers, considering the structural differences in health care access between New York City and Toronto.

Methods

Participants were recruited for a taxi driver Needs Assessment Survey as part of a Taxi Network needs assessment project, conducted from March 2013 to October 2016, using a street side convenience sampling technique. Inclusion criteria included being a full-time (i.e., 35 hours or more) male driver. We restricted this study to males since they comprise the overwhelming majority of drivers. Recruitment occurred primarily at taxi stands, taxi garages, and airport holding lots. Drivers were approached and led to a semi-private area for survey administration. Research staff verbally read out survey items and indicated participants' responses on hard copies or electronically on study tablets. Informed written consent was obtained from participants. This study was approved by the Institutional Review Board at Memorial Sloan Kettering Cancer Center and by the St. Michael's Hospital Research Ethics Board.

Measures

In addition to demographics, the Needs Assessment Survey included measurements to assess everyday discrimination, workplace discrimination, health conditions, and concern about getting health conditions (see Table 1).

Discrimination—Perceived everyday discrimination was measured using five items from the Everyday Discrimination Scale (Sternthal, Slopen, & Williams, 2011). Items were chosen based on their relevance to the population. Reliability in this sample ($\alpha = .78$) was similar to other studies using the shortened version of the EDS ($\alpha = .77$; Sternthal et al., 2011). Because the EDS did not include a specific item on workplace discrimination, one item was included to assess work-related discrimination.

Health Conditions and Concern about Getting Health Conditions—Participants were queried on their medical history. These conditions were included based on common reports from prior work done by the team.

Data Analysis Overview

In New York, 535 drivers were recruited for the needs assessment; in Toronto, 33 drivers were recruited based on approximate proportions to the population sizes of drivers in these cities. Given the large differences in sample size across the two cities, we created a random matched sample of 33 individuals from the NYC dataset that was comparable to the Toronto sample of 33 individuals, based on gender, geographic region of origin, years in the US/Canada (within a five year range), and interview language. We used the sample function in R statistical software (Version 3.3.1) to randomly select a participant from the NYC dataset who had the same profile of each Toronto participant based on the four matching factors. For one driver in the Toronto sample, there was no perfect match in the NYC sample so we identified a match whose only difference was that they were in the adjacent category for years living in the US/Canada.

We ran a small simulation to demonstrate that we would only have the statistical power to detect differences greater than 20% in the items of interest. As such, for the first research question, exploring differences between Toronto and NYC drivers' experiences of discrimination, health conditions, and concern about health conditions, we report descriptive data for each variable of interest for NYC and Toronto drivers. Because we expected that there may be incidences of fewer than five in a given cell, we conducted Fisher's exact tests to investigate differences between the samples (McDonald, 2014). Additionally, we used *t*-tests to investigate differences in perceived everyday discrimination and work-related discrimination between NYC and Toronto drivers. We performed an available case analysis for all prevalence estimates and bi-variate statistical tests involving variables with missing data. For the second research question, examining the relationship between experiences of discrimination and health conditions for the total sample, we dichotomized each discrimination variable based on the mean and then conducted Fisher's exact tests to investigate differences in health conditions between groups reporting low and high discrimination.

Results

The matched sample contained 33 drivers from Toronto and 33 drivers from NYC. All drivers were male. The mean age for New York drivers was 44.52 ($SD = 9.62$) and for Toronto drivers 46.91 years ($SD = 9.24$). In both cities, the majority of drivers identified countries in South Asia as their countries of origin (NYC $n = 21$; Toronto $n = 21$), followed by African/Afro-Caribbean countries (NYC $n = 9$; Toronto $n = 9$). Most drivers had lived in their host countries for a considerable amount of time (NYC $M = 20.21$ years; Toronto $M = 21.45$ years). Most drivers indicated that they were married (NYC $n = 20$; Toronto $n = 27$). Drivers from both cities reported driving for an average of over nine hours per day (NYC $M = 9.89$; Toronto $M = 9.84$) and for 6 days per week (NYC $M = 5.70$; Toronto $M = 6.30$). In NYC, most drove during the day shift ($n = 21$), followed by the night shift ($n = 8$), or varying shifts ($n = 4$). In Toronto, most drivers drove during the day shift ($n = 16$), followed by the night shift ($n = 9$), or varying shifts ($n = 7$), and one was unknown. Among NYC drivers, 12 drivers indicated that they currently lacked health insurance; no Toronto drivers lacked health insurance.

Toronto drivers reported significantly more everyday discrimination ($M = 1.39$, $SD = .75$) than NYC drivers ($M = 1.02$, $SD = .72$) and more workplace discrimination ($M = 1.75$, $SD = 1$; than NYC drivers ($M = 1.16$, $SD = .99$; see Table 2). Differences in self-reported health conditions are presented in Table 3. Fisher's exact tests indicated that there were no significant differences in rates of health conditions, except for chronic pain, with Toronto drivers reporting higher rates of chronic pain by 15%. Although other differences were not significant, there were higher rates of cardiovascular disease risk factors (i.e., diabetes, hypertension, and high cholesterol) among NYC drivers. There were no significant differences between the drivers on concerns about health conditions (Table 4). However, in both cities, approximately 25% or more of drivers expressed concern about diabetes, hypertension, and anxiety/depression.

Next, we dichotomized perceived everyday discrimination and workplace discrimination based on the mean, to create low and high discrimination groups. Because of the small sample, we examined the relationship between low and high discrimination groups and chronic pain for the total sample, rather than by city. Based on Fisher's exact test results, there were significant differences for chronic pain based on the level of reported discrimination. First, of those who reported chronic pain, 24% reported low everyday discrimination, while 76% reported high everyday discrimination. Of those who did not report chronic pain, 47% reported low discrimination and 53% reported high discrimination. Similarly, of those who reported chronic pain, 29% reported low workplace discrimination in comparison to 71% who reported high workplace discrimination. Of those who did not report chronic pain, 59% reported low discrimination and 41% reported high discrimination. These differences were significant at the $p < .05$ level.

Discussion

Because of the nature of their occupation, taxi drivers potentially face excessive exposure to detrimental social experiences such as discrimination, based on their ethnicity/race,

immigrant status, English proficiency, and/or profession. Focusing on drivers in New York City and Toronto, the current study sought to explore the drivers' experiences of discrimination and the relationship of those experiences with health conditions and concern about health conditions. Overall, Toronto drivers reported greater everyday discrimination and workplace discrimination than NYC drivers and more chronic pain. We also found that discrimination and chronic pain were related among the total sample of drivers, such that there was a greater likelihood of experiencing higher discrimination among those who reported chronic pain. However, despite reporting greater discrimination, Toronto drivers expressed less concern about their health conditions, perhaps because of their greater access to health care.

Although there is a preponderance of attention paid to racial discrimination in the United States, research has less often studied these issues in Canadian contexts. While immigration in the United States certainly has a long and complicated history, Canada was 95% White as recently as 1981 (Statistics Canada, 2016). In a review of anti-discrimination public policy in Canada, the author made the observation that, although there exists the perception of Canada as a multi-ethnic and tolerant society, the distinction may lie in lower rates of racial conflict rather than in the actual absence of racial discrimination (Reitz, 1988). Several decades later, estimates suggest that 19% of Canadians identify as belonging to a visible minority group (Statistics Canada, 2016). For immigrant taxi drivers, discrimination is potentially a chronic social stressor with which they contend, and our findings support prior research indicating that this population is particularly vulnerable to high rates of discrimination (Facey, 2003, 2010).

Our analyses were limited by sample size. Low recruitment in the Toronto sample was attributed to lower staffing levels and weather-related issues. Thus, we had a diminished ability to detect differences smaller than 20% with our matched samples. Further, our health conditions data are based on self-report. In prior studies, self-report seemed to underestimate the presence of high blood pressure and diabetes (Molenaar, Van Ameijden, Grobbee, & Numans, 2007). As a result, we take caution in interpreting these findings. Nonetheless, there are several potentially important findings. First, it is clear that the health issues that plague taxi drivers extend across large, metropolitan cities and necessitate attention. For example, approximately 21% of NYC drivers in this small sample reported type 2 diabetes. Additionally, 39% of drivers in Toronto reported experiencing chronic pain, much higher than the rate across Canada generally, 18% (Schopflocher, Taenzer, & Jovey, 2011). We also found that drivers who experience chronic pain are more likely to report high levels of both everyday and workplace discrimination, similar to findings in the U.S. among older African American males (Burgess et al., 2009). The sedentary nature of taxi driving may cause and exacerbate chronic pain (Booth, Roberts, & Laye, 2012). One explanation for high rates of chronic pain among Toronto taxi drivers despite access to health insurance may be that the Ontario Health Insurance Plan (OHIP, 2017) does not fully cover physiotherapy, massages, chiropractic services and other similar treatment modalities which may be beneficial for chronic musculoskeletal pain.

We sought to understand the differences in health conditions between these two driver populations given the vast differences in health care structures between Canada and the U.S.

In a study using population-based data from the Joint Canada/U.S. Survey of Health, almost 85% of Canadians indicated that they had a regular doctor in comparison to 79% of U.S. residents (Lasser, Himmelstein, & Woolhandler, 2006). A smaller percentage of Canadians than US residents reported needing medications that they could not afford (5% in comparison to 9%, respectively) and having unmet health needs (10% in comparison to 13%, respectively). Minorities in the U.S had less access to care than in Canada (Lasser et al., 2006). Within our sample, all Toronto drivers indicated that they had health insurance, while over a quarter of NYC drivers did not have health insurance. In the New York metro area, the rate of uninsured ranged from 10-12% in 2013-2014, when much of these data were collected. Thus, the rate of uninsured drivers within our NYC sample (36%) is higher than average and presents cause for concern.

Finally, over a quarter to a third of all drivers indicated that they were concerned about getting the queried health conditions. Future research should investigate the possible reasons underlying these concerns (e.g., specific symptoms that may prompt concern). Although only one or two drivers indicated that they had been diagnosed with anxiety or depression, 36% of NYC drivers and 24% of Toronto drivers reported being concerned about developing these mental health issues. It is possible that this concern reflects the stress to which their occupation exposes them, and/or the presence of symptoms of these issues, and should be further studied. Even with Canada's universal health care system, studies have found that immigrants in Canada often lack adequate access to care, and particularly so for mental health issues (Kalich, Heinemann, & Ghahari, 2016). NYC drivers reported higher concerns (by 12-15%) about diabetes, anxiety/depression, and chronic pain, although these differences were not statistically significant. Still, these higher concerns may be due to less accessible health care based on systems-level differences between the two cities. Regardless of location, occupational factors specific to taxi driving, such as the extremely sedentary nature of driving, expose drivers to a wide range of health risks that other immigrant workers may not experience.

Although these findings provide a first step for documenting the social and health conditions faced by taxi drivers in metropolitan cities and provide a comparative look at New York City and Toronto, given the differences in health care structures in these cities, larger studies are necessary to adequately test differences that might be attributable to city-specific factors. The major limitation of the current study is our restricted sample size and resultant lack of power for detecting differences. However, our results indicate that drivers in both cities experience higher rates than average, and report concern about, major health conditions, and we found preliminary evidence suggesting a relationship between experiencing discrimination and reporting chronic pain. Future work should consider the predictive value of social experiences such as discrimination on health, and the mechanisms by which discrimination might affect health. Future work should also further explore the specific occupation-based risks associated with taxi driving, such as poor health behaviors (lack of access to healthy food, exercise, and sleep issues), psychosocial stressors, varying shift work, lack of access to restrooms, and air pollution, particularly in comparison to other occupations largely held by immigrant workers. Despite its limitations, this is one of the few studies examining discrimination and health among taxi drivers in two large metropolitan

cities, and our findings demonstrate an increased need to better understand the experiences of these vulnerable populations.

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Table 1

Differences in experienced discrimination

	M		t
	NYC	Toronto	
Perceived everyday discrimination	1.02	1.39	-1.91
Workplace discrimination	1.16	1.75	-2.31*

Table 2

Differences in health conditions

Conditions	Group		Difference
	NYC	Toronto	
Type 2 Diabetes	21%	3%	18%
Hypertension	24%	15%	9%
High cholesterol	36%	21%	15%
Anxiety and depression	3%	3%	0%
Chronic pain	24%	39%	15% *
Cancer	3%	0%	3%
Kidney stones	0%	6%	6%

Table 3

Differences in concern about health conditions

Concern about conditions	Group		Difference
	NYC	Toronto	
Type 2 Diabetes	30%	24%	14%
Hypertension	27%	24%	3%
High cholesterol	18%	21%	3%
Anxiety and depression	36%	24%	12%
Chronic pain	24%	9%	15%
Cancer	21%	18%	3%
Kidney stones	9%	9%	0%