

The Changing Meaning Of “No” In Canadian Sex Work

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Abstract

This study considers how Canadian contact sex workers communicate by examining how the word “no” was used by over one hundred thousand online advertisers over a 15-year period.

Source materials consisted of three collections of online advertising representing 214456 advertisers: 385729 ads collected between April 2007 and April 2009 (7939 advertisers), 2951642 ads collected between November 2014 and December 2016 (167539 advertisers), and 887698 ads collected between September 2021 and September 2022 (38978 advertisers).

Advertisers and demographic variables were extracted from ad metadata. Common terms surrounding the word “no” were used to identify themes. The word “no” was used by 115127 advertisers. Five major themes were identified: *peace of mind* (54084 advertisers), *communication* (47130 advertisers), *client race* (32612 advertisers), *client behavior* (23863 advertisers), and *service restrictions* (8545 advertisers). The likelihood of there being an association between an advertiser and a major theme was found to vary in response to several variables, including: time period, region, advertiser gender, and advertiser ethnicity. Collectives, those advertising in multiple regions, and cis-female advertisers were more likely to use “no”. Over time, the themes of *client behavior*, *service restrictions*, and *client race* became more prominent, suggesting that, over the 15-year period, Canadian sex workers’ exercise of agency was increasing.

Keywords: sex work, advertising, health and safety, information and communication technology

Introduction

In this study, I consider how three large cohorts of Canadian contact sex work advertisers communicated with prospective clients over a span of 15 years. In particular, I consider how the word “no” was used in this context. Contact sex workers provide sexual services to clients in person. Researchers describe these workers as a hidden population (Benoit et al., 2005). However, over the last twenty years, as information and communication technologies (ICTs) have become the dominant way in which contact sex workers advertise in industrialized democracies, online advertising has provided an opportunity to gain insights into this hidden population in ways that were not possible before (Agresti, 2009; Argento et al., 2018; Castle & Lee, 2008; Jiao et al., 2021; Kumar et al., 2017).

Research at scale

For the purposes of this analysis, “at scale” refers to data sources that likely represent over 1000 workers. Document analysis at scale is common in abolitionist literature. See (Dimas et al., 2022) for a review. The bulk of these studies seek to identify trafficking networks, often based on untested criteria. For example, the criteria to identify trafficking related ads used by (Giommoni & Ikwu, 2021) such as “risky sex services” or “in-call only” are clearly not valid discriminators as many choosing to be contact sex workers will use these terms in ads. In contrast, (Dubrawski, Boecking, et al., 2015) were not successful in finding the expected number of trafficking ads suggested by their law enforcement sources who believed that 40% of all online contact sex work ads represented trafficked persons. Indeed, it was routine that the sex trafficking studies described in (Dimas et al., 2022) did not provide empirical justification for the criteria used to identify coercion in the industry.

Outside the abolitionist context, research using large document collections appears have a wider focus: (Cunningham & Kendall, 2010) analyzed metadata from over 90000 sex worker profiles on one popular US sex work review site to better understand their health and safety practices; (Nelson et al., 2019) in their study of factors affecting hourly rates looked at an initial sample of 1730 independent escorts; similarly, (Griffith et al., 2016) reviewed 2925 advertisements of female contact sex workers comparing advertised physical attributes with fees charged; (Kingston & Smith, 2020) enumerated gender and sexual orientation of contact sex workers in the UK, reviewing 25511 escort directory member profiles; (Chan et al., 2019) used 16735 online profiles to identify changes in county-level prostitution activity as a popular online classifieds site expanded; lastly, (Kennedy, 2022) used a database of over 3.6 million Canadian online classified ads to examine how contact sex worker populations change over time.

Limits and safety

In this study, safety is defined as “a state in which hazards and conditions leading to physical, psychological or material harm are controlled in order to preserve the health and well-being of individuals and the community” (Maurice et al., 1998). This definition is used because, as will be seen in the analysis below, the concept of safety in advertising extends beyond freedom from physical harm to include psychological and financial risks.

As a safety strategy, advertising online significantly reduces risk for contact sex workers (Argento et al., 2018; Machat et al., 2022; Sanders et al., 2018). Workers also describe investing considerable effort in getting to know clients before any in-person contact is initiated (Argento et al., 2018; Bungay & Guta, 2018; Jiao et al., 2021) and this can include more formal screening processes in some cases (Argento et al., 2018; Bernier et al., 2021; Bungay & Guta, 2018;

Minichiello et al., 2013; Sanders et al., 2018). Information sharing between workers is another important safety strategy (Strohmayr et al., 2019) and how workers share information has changed as the internet has become the dominant way that workers advertise (Argento et al., 2018; Bungay & Guta, 2018; Strohmayr et al., 2019). Communication in advertising plays an important part in this process as a critical first step in the worker-client relationship.

Advertising often uses limits or restrictions, short imperative statements such as “no explicit talk”, to set ground rules for the interaction between the advertiser and prospective clients. These restrictions can relate to health related messaging (Kille et al., 2017) but also, as will be shown in this study, encompass other criteria relating to physical, material and psychological safety. Furthermore, these types of statements, as will be shown below, are now more common in advertising, suggesting that the adoption of internet advertising has provided Canadian workers more choice than in the past.

Methodological considerations

The motivation for this study emerged from the process of characterizing systematic error in (Kennedy, 2022). This required reading texts from thousands of ads, where phrases starting with “no ...” would appear quite frequently. The majority of these statements appeared to refer to restrictions. A review of older and newer datasets, included in this study, showed that this type of phraseology has been in use by sex work advertisers for quite a long time.

In addition to analysis of ad text, ad metadata, or easily identifiable information visible in large groups of ads, can be used to provide context for who uses these phrases. This is similar to the approach taken by (Cunningham & Kendall, 2010). In general, this metadata can tell us when and where the advertiser is advertising, what gender and, sometimes, ethnicity they self-identify

as. In addition, behavioral information such as how active they were on the advertising platform is readily available with a sufficiently complete dataset. Lastly, given that three collections spanning a 15-year period are available, it is possible to consider the historic progression of how the use of the word “no” evolved, perhaps reflecting more general trends in the industry.

Research questions and objectives

The primary objective of this study is to catalog how the word “no” was used in advertising. Is it always the case that this refers to a restriction? For uses which refer to restrictions, what types of prohibitions are imposed?

Secondary questions relate to differences in the advertisers who use “no” versus other advertisers: are there behavioral or demographic variables that differentiate these advertisers? Lastly, are there temporal, regional, gender or ethnic associations with the different ways this language is used?

Materials and Methods

This study considers how common themes in sex work advertising relate to demographic variables surrounding how the word "no" is used. The likelihood of there being an association between an advertiser using “no” and a major theme is calculated for several variables, including: time period, region, advertiser gender, and advertiser ethnicity.

Extracting ad data

Source materials for the analysis were advertising texts from online classified ads. These ads were collected from six prominent advertising sites during three time periods: April 1, 2007

to March 31, 2009 inclusive, November 1, 2014 to December 31, 2016 inclusive, and September 15, 2021 to September 22, 2022 inclusive. The sites in question were well known advertising venues for sex work in Canada as determined by a group of experts from the *Sex, Power, Agency, Consent, Environment and Safety* Project (SPACES) (SPACES Team, 2016). SPACES was initiated in 2012 at the University of British Columbia to explore health and safety issues experienced by off-street sex workers.

All sites used similar navigation for classified ads, where regional pages would display the most recent classified ads for that region. To find ads, these pages were downloaded and scanned for ad URLs. In addition, *sitemaps* or lists of ad URLs provided by site operators were used to find ads. Ads from both sources were downloaded multiple times per hour for the 2007-2009 and 2014-2016 collections, and ads from sitemaps were downloaded multiple times per day for the 2021-2022 collection.

The ad collections for 2014-2016 and 2021-2022 included ads from all provinces and territories in Canada. The 2007-2009 collection included ads from British Columbia only. Similar to (Cunningham & Kendall, 2010), this study uses the abstract entity of an *advertiser* (Kennedy, 2022) as a meaningful way to group ads. An advertiser represents the author of a distinct group of ads in each collection. Advertisers, who could represent one or more workers, were identified either from contact information in 2007-2009 and 2014-2016 or internal chat ids in 2021-2022 using methods described in (Kennedy, 2022).

Defining “no”

For the thematic analysis, ad texts were cleaned by removing most non-alphanumeric characters and were scanned for relevant groups of terms. Pairs of words (bigrams), and triplets

of words (trigrams) were extracted along with associated advertiser metadata. Metadata came from two sources: the ads themselves and ad URLs. In both cases, common identifiable fields were used to extract the metadata. All data was stored in a MariaDB database (MariaDB & Widenius, 2017) for further analysis. Supplemental materials S1 File contains a copy of the anonymized database.

In this work, frequently used bigrams beginning with “no” were combined with the most common words preceding and following them to generate a relatively small number of meta-documents that could be analyzed for common themes. Context words were discovered based on common trigrams embedding each bigram. These files can be found in Supplemental materials S2 File. QualCoder (Curtain, 2023) was used to code the files. Theme ranks were calculated by counting the number of advertisers associated with bigrams related to that theme. The thematic analysis was based on three groups of 100 files, one for each collection.

Figure 1 is an example of one of the input files for the bigram “no low”. This bigram was included in the *client behavior* code described below, as the embedded usage of the bigram refers to restrictions on negotiating prices. Note that in this case, the words following the bigram are the most salient terms. This was usually the case for most bigrams. In general, the meanings of the bigrams were consistent based on context words.

Figure 1: Example coding file for the bigram “no low” for the 2021-2022 collection. “Before” and “after” words are terms that preceded and followed the bigram ordered in descending order by advertiser frequency. “_NNNN_” replaces a four-digit number in the anonymized data.

```
pp2021-0005.txt
collection: pp2021, rank: 5
advertisers: 2658, proportion: 0.0561
before:
only, gents, calls, available, please, friendly, _NNNN_, free, services, service, independent,
pictures, you, wasters, men, pics, time, real, outcall, fee, showered, classy, and, me, bb, must,
call, greek, gentlemen, rush, accepted, negotiations, play, more, negotiable, gentleman,
blocked, av

term: no low

after:
ballers, baller, balling, ball, ballersno, price, balls, service, bawlers, rates, prices, iballers, rate,
bait, ballerno, ballin, budget, baller's, ballers, ballrs, ballersreal, ballersif, ballersi, ballersclick,
ballersand, services, ballersupon, offers, bowlers, ballerdrama, ballerb
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Thematic analysis as described by (Braun & Clarke, 2006) “involves searching across a data set to find repeated patterns of meaning.” In this study, themes were based on the semantic meanings of frequently used phrases in advertising. In most cases, advertisers assume that the reader knows common abbreviations and terms. Clients typically learn these from other online resources such as review sites (Horswill & Weitzer, 2016) and these sites proved to be an invaluable resource for understanding how advertisers communicate. This thematic analysis provides a detailed account of these commonly used phrases and does not rely on a theoretical framework to interpret the themes. I take a realist approach to understanding the texts: similar texts are assumed to have similar meanings based on how those terms are commonly used in the cultural context of Canadian sex work.

Statistical measures

Advertisers using “no” were compared with other advertisers on two behavioral measures: days from the first ad to the last ad, and number of ads produced. Significance was tested using Welch’s modified two sample t-test, *tsum.test* from the R BSDA package (Arnholt & Evans, 2021). R version 4.2.2 was used to perform all tests using a 95% confidence level.

The proportion of advertisers associated with each coded theme was calculated and segmented by the following variables: time period, region, self-identified gender, and self-identified ethnicity. The variables were taken from ad metadata. These proportions represent the probability that an advertiser fitting a specific demographic category was associated with a given code (e.g., $p(\textit{communication} = \textit{True} \mid \textit{gender} = \textit{male})$). For each code, the differences between advertiser proportions for each of the demographic variables and the proportions for all advertisers were tested for significance using the R *prop.test* function (R Core Team, 2021).

Advertisers could violate the independence of samples by being associated with multiple identifiers. However, this does not appear to be common (Kennedy, 2022) and the reported results do not attempt to compensate for this violation of independence. Compensating for the use of multiple identifiers generally increased the probabilities of an advertiser category being associated with any theme, but did not substantially change the relative associations between advertisers and themes. See supplemental materials S3 file for a comparison.

Advertiser frequencies for other terms were tabulated to better understand some emergent themes. To better understand how advertiser communication around safety has changed, the most common health related bigrams starting with the word “safe” (“safe play”, “safe service”, “safe services”, and “safe gfe”) were searched, and advertiser frequencies were calculated. More recently, advertisers have started screening clients and asking for deposits before meeting them.

To provide historic context for this phenomenon, “screening” and “deposit required” were searched as well.

To better understand the theme of *client race* described below the number of advertisers who accepted clients of any race, the terms “all races”, “all nationalities”, “all backgrounds”, and “all ethnicities” were also searched.

Ethics statement

All source data used in this study consisted of publicly available data at the time it was collected and was collected in accordance with the policies of the sites in effect at the time. The methods used are conformant with the ethical standards of the Canadian Sociology Association (section 4.10 II) and the American Sociology Association (section 10.5 c) (American Sociological Association, 2018; CSA-SCS Policy, Ethics, and Professional Concerns Subcommittee, 2018). As the replicability of the main results of this paper is important, a data set is provided as part of the supporting information. However, to protect the safety and privacy of advertisers and third parties, all identifying information has been removed, including the names of the source websites.

Results

Collected data

Table 1 summarizes the advertising data in the three collections. A total of 4225069 ads were used (2007-2009: 385729 ads, 2014-2016: 2951642 ads, 2021-2022: 887698 ads). Of these, 39% (N=1628698) were ads that contained the word “no”. Figure 2 shows three word clouds

illustrating the relative term frequencies of the words following “no” for each period. More than half of all advertisers used “no” in at least one ad (54%, N=115127) and on average these advertisers used 2.3 distinct “no” bigrams (SD 2.1).

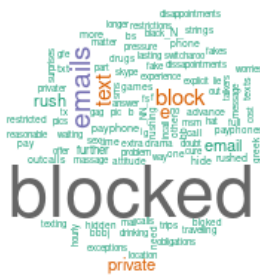
Table 1: Ads and number of advertisers by time period.

period	region	sites	ads		advertisers	
			total	using “no”	total	using “no”
2007-2009	British Columbia	1	385729	160458 (42%)	7939	4146 (52%)
2014-2016	Canada	6	2951642	1051167 (36%)	167539	91106 (54%)
2021-2022	Canada	1	887698	417073 (47%)	38978	19875 (51%)
All		6	4225069	1628698 (39%)	214456	115127 (54%)

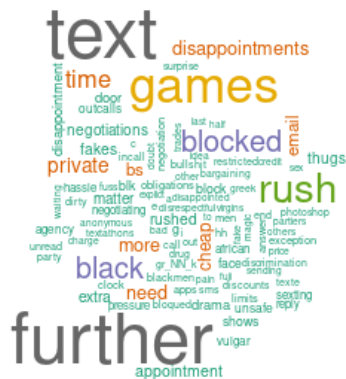
Figure 2: Top 100 terms following the word “no” by time period based on term frequency.

Larger words represent more frequently used terms.

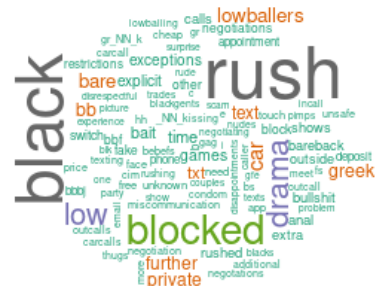
a) 2007-2009



b) 2014-2016



c) 2021-2022



Advertising behavior

Differences in advertising behavior were found between advertisers who used the word “no” and other advertisers. Advertisers using the word “no” advertised more frequently (mean 30

ads, SD 264 versus mean 8 ads, SD 67) and were found to advertise longer (mean 118 days, SD 172 versus mean 75 days, SD 131). Welch's modified two sample t-test indicated that the differences between the "no" group and other advertisers were significant for both duration ($t = -65.731$, $df = 211139$, $p < 0.001$) and ads posted ($t = -27.317$, $df = 131888$, $p < 0.001$).

Themes and codes

Table 2 shows the number of associated advertisers, and the most commonly associated bigrams for each theme. A total of 168 unique "no" bigrams were represented in the top 100 bigrams from every period. A total of 14 theme codes were created from the analysis of these bigrams and context words. The vast majority of advertisers using "no" statements are associated with both the top 100 bigrams for each period (92%, $N=105838$) and the top 5 codes (88%, $N=100688$). The supplemental materials S2 File contains the QualCoder (Curtain, 2023) project used in this study.

Table 2: Coded themes relating to the usage of the word “no” based on the top 100 bigrams for each period. Ambiguous bigrams are followed by the most common succeeding terms in parentheses.

theme codes	advertisers	common bigrams
<i>peace of mind</i>	54084 (25%)	“no games”, “no disappointments”
<i>communication</i>	47130 (22%)	“no blocked” (calls), “no emails”, “no text”
<i>client race</i>	32612 (15%)	“no black” (gents), “no african”, “no aa”
<i>client behavior</i>	23863 (11%)	“no lowballers”, “no negotiations”
<i>service restrictions</i>	8545 (4%)	“no bareback”, “no anal”
<i>service location</i>	3532 (2%)	“no carcalls”, “no outcall”
<i>services offered</i>	2786 (1%)	“no limits”, “no restrictions”
<i>no pictures</i>	2713 (1%)	“no picture”, “no face”, “no free” (pictures)
<i>pimps or law enforcement</i>	2679 (1%)	“no law” (enforcement), “no thugs”, “no pimps”
<i>service time</i>	1426 (1%)	“no hh”, “no half” (hour)
<i>employment</i>	988 (<1%)	“no experience”
<i>client age</i>	917 (<1%)	“no young” (men)
<i>appearance</i>	294 (<1%)	“no tattoos”
<i>payment</i>	169 (<1%)	“no e” (transfer)

The top 5 themes were coded as *communication*, *peace of mind*, *client behavior*, *client race*, and *service restrictions*. Three of these themes related to restrictions: *client behavior*, *client race* and *service restrictions*. Over 51% of advertisers used at least one restriction associated with the top five themes (51567/100696).

Less common themes used by 2% or fewer advertisers were coded as *services offered*, *no*

pictures, pimps or law enforcement, service time, employment, client age, appearance, and payment.

The *communication* theme related to restrictions on how the advertiser wished to be contacted, including requiring caller ID for phone calls. *Peace of mind* refers to “no” statements that were intended to reassure prospective clients. *Client behavior* refers to restrictions related to etiquette such as not negotiating prices, wasting the advertiser’s time, or using explicit language. *Client race* refers to advertisers restricting prospective clients based on racial background. In the vast majority of cases, this is a restriction on Black or African American clients. The term *race* is used here because of how clients were typically identified in the ads. *Service restrictions* refer to statements regarding disallowed types of services.

Other service related themes were *payment, service location, and service time* which described restrictions on methods of payment, venues, and service duration respectively. In addition to *client race, client age, and pimps or law enforcement* are restrictions on who can contact the advertiser and could be said to overlap with *client behavior*. The *no pictures and appearance* themes relate to restrictions on presentation in the ad and presentation in person, respectively. Finally, *employment* is unique to advertisers looking for prospective employees rather than clients.

Variables

The following sections describe how the variables of time period, region, advertiser gender, and advertiser ethnicity are associated with the 5 most prevalent codes. In all cases, the R *prop.test* function showed that the proportions of subgroups of advertisers using “no” were significantly different from the proportions of all advertisers using “no” ($p < 0.001$). Except where noted, the proportions of advertiser subgroups associated with individual codes were also significantly different from the proportion of all advertisers associated with that code ($p < 0.001$).

Time period

Data in 2007-2009 was only available for British Columbia (BC) therefore a comparison by time period was made for advertisers who had advertised in BC. Table 3 shows the proportions of advertisers using “no” by time period for these advertisers.

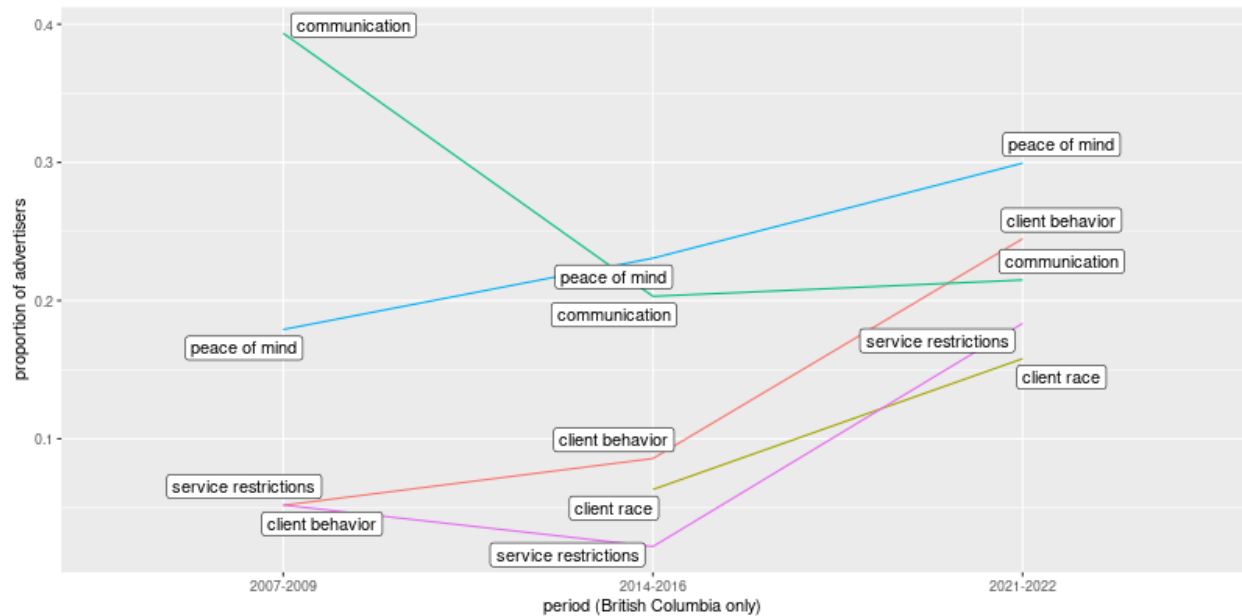
Table 3: Advertisers by time period for British Columbia. The p and CI values are the results of *prop.test* comparisons between the proportion of advertisers using “no” from BC versus the proportion of advertisers using “no” from all regions.

period	total	using “no”	p	CI
2007-2009	7939	4146 (52%)	–	–
2014-2016	24420	10759 (44%)	<0.001	[-0.11,-0.10]
2021-2022	7840	5175 (66%)	<0.001	[0.14,0.16]
all	40199	20080 (50%)	<0.001	[-0.04,-0.03]

The relative ranks of the top 5 codes changed significantly between periods for BC advertisers. Figure 3 shows the relative ranks of the top 5 codes by time period. With the

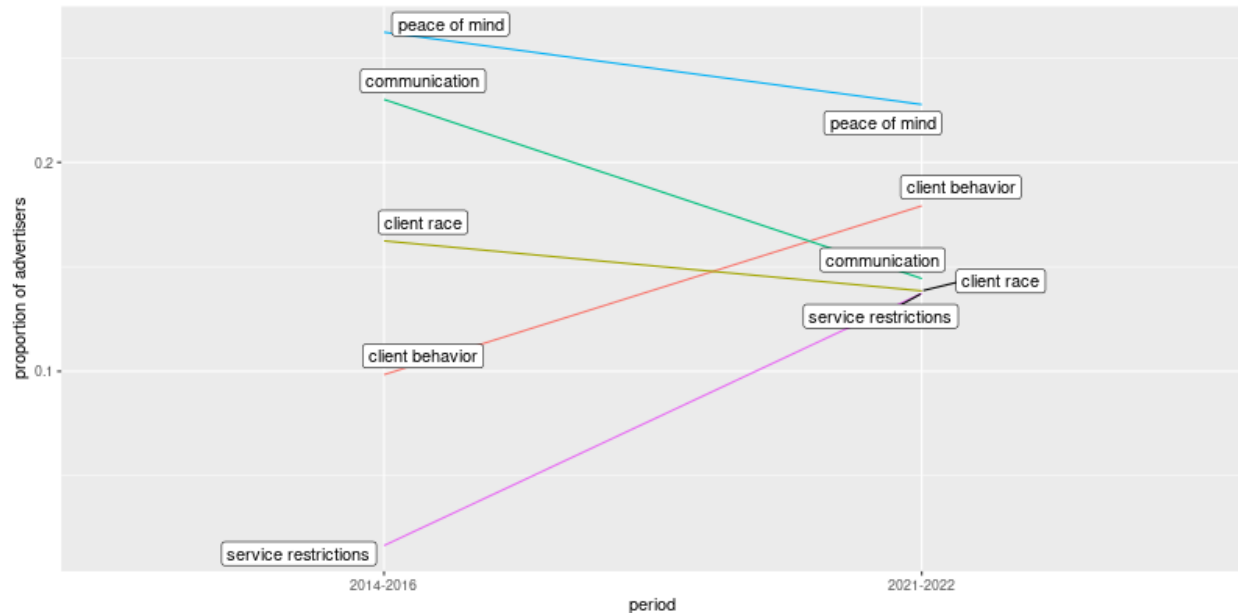
exception to *communication*, themes became more prominent between 2007-2009 and 2021-2022. Three restriction-related themes had the largest increases during this period: *service restrictions* (13% increase), *client race* (16% increase), and *client behavior* (19% increase).

Figure 3: Proportions of advertisers using the top 5 codes by time period in British Columbia.



How do advertisers from all regions in Canada compare? Figure 4 shows the relative ranks of the top 5 codes for periods where data was available from all regions. Comparing Figures 3 and 4, the relative rank of *client race* in 2014-2016 was higher for Canada (third) than it was for BC (fourth). However, *client race* became less prominent in 2021-2022 for Canada (12%, N=5397) compared to BC (16%, N=1239).

Figure 4: Proportions of advertisers using the top 5 codes by time period for periods including all regions.



Advertisers in the later collections were increasingly likely to advertise in multiple provinces. Between 2014-2016 and 2021-2022 the number of advertisers advertising in multiple provinces doubled both for all advertisers (7%, N=11929 in 2014-2016 versus 15%, N=5713 in 2021-2022) and for advertisers advertising in BC (14%, N=3309 in 2014-2016 versus 36%, N=2779 in 2021-2022).

Safety-related messaging generally became more common between 2007 and 2022. In addition to safety related “no” terms such as those associated with the *service restrictions* code, the usage of the word “safe” itself provided further evidence for this trend. Over all periods 6% (N=16127) of advertisers used at least one of the tested “safe” bigrams (“safe service”, “safe services”, “safe gfe” and “safe play”). In 2007-2009 these bigrams were not common with only 1.3% (N=105) of advertisers using them. However, in 2014-2016 this increased to 7% of

advertisers (N=12166) and 10% (N=3856) in 2021-2022. Most advertisers using these “safe” bigrams also used “no” (84%, N=13522 all periods).

Safety messaging was not limited to health. The terms “deposit required” and “screening” were less commonly used but represent important safety strategies. These became more prevalent between 2007 and 2022. In 2007-2009 only 2 advertisers (<1%) used the bigram “deposit required” however by 2021-2022 usage increased to 1725 advertisers (4%). Similarly, the term “screening” in 2007-2009 was used by 8 advertisers (<1%) but in 2021-2022 this grew to 522 (1.3%).

Region

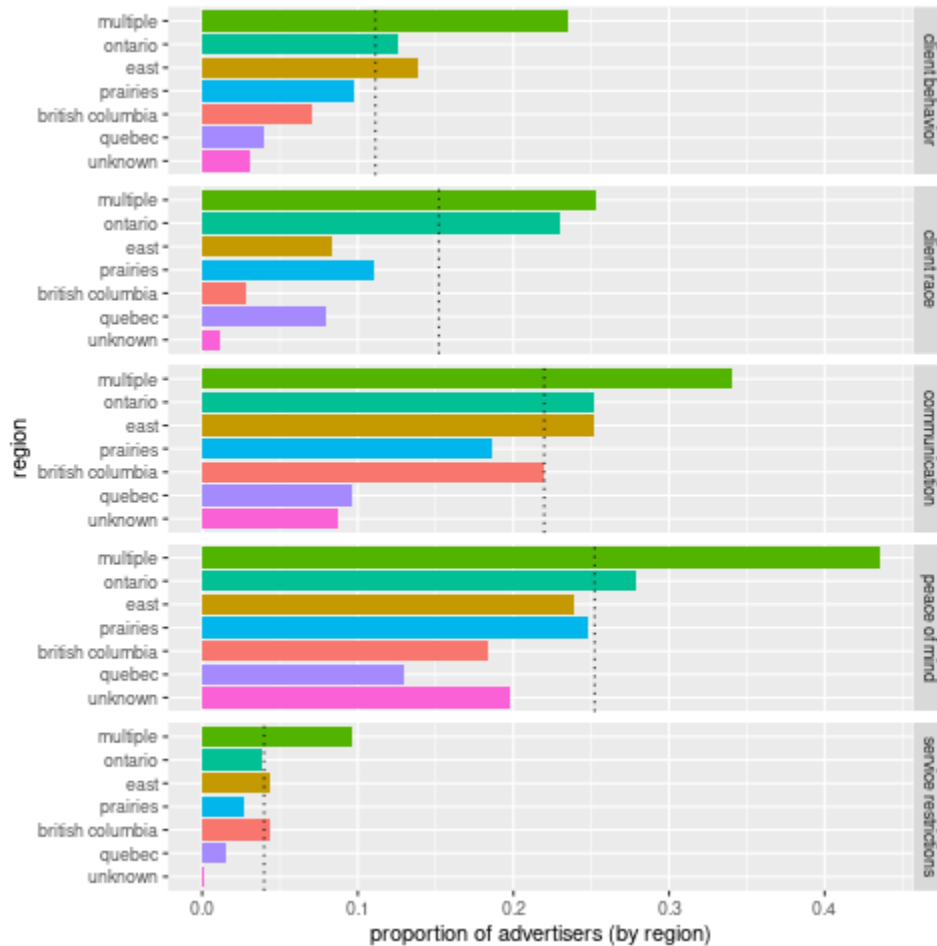
Table 4 shows the distribution of advertisers by region. Advertisers associated with multiple provinces used the word “no” more often than advertisers who only advertised in single provinces (75%, N=17641 versus 51%, N=97201) followed by Ontario advertisers (61%, N=48491) and those with no geographic information (56%, N=1734). Those exclusively advertising in the far north (NW, NV and YK; N=86) were included in *multiple* because most advertisers who advertised in those regions advertised in other provinces (N=912).

Table 4: Advertisers by region.

region	provinces	advertisers	using “no”
<i>multiple</i>	Multiple and the north (Northwest Territories, Nunavut, and the Yukon)	23676	17641 (75%)
<i>ontario</i>		79621	48491 (61%)
<i>unknown</i>	No geographic information	1734	970 (56%)
<i>prairies</i>	Alberta, Manitoba, Saskatchewan	41382	21206 (51%)
<i>east</i>	New Brunswick, Nova Scotia, Newfoundland, Prince Edward Island	6927	3319 (48%)
<i>british columbia</i>		31987	14855 (46%)
<i>quebec</i>		29131	8360 (29%)

Regional differences in code usage are illustrated in Figure 5. All proportions of advertisers were significantly different from the overall proportion for each theme, except for service restrictions in *ontario* ($p = 0.09$) and the *east*. In the *east*, service restrictions ($p = 0.35$), communication ($p = 0.81$), and client behavior ($p = 0.015$) were not significantly different from the average. Those advertising in *multiple* regions were significantly more likely to be associated with one of the *client behavior*, *client race*, and *service restrictions* codes compared to other advertisers (41%, $N=9707$ versus 24%, $N=51567$, *prop.test* CI [0.25, 0.26], $p < 0.001$). *Ontario* advertisers were also more likely to be associated with these codes (32%, $N=25092$, *prop.test* CI [0.16, 0.17], $p < 0.001$).

Figure 5: Proportions of advertisers by region associated with the top 5 codes. The dotted lines indicate the proportion of all advertisers associated with each coded theme.



For *multiple* region advertisers, the most common provinces were Ontario (67%, N=11074) and Alberta (52%, N=8652), associated with 91% of advertisers.

Advertiser gender

Table 5 shows the number of advertisers associated with self-identified gender. Advertisers associated with multiple genders (likely representing collectives) were the most likely to use “no” (62%, N=6289) followed by cis-female advertisers (57%, N=100865). Advertisers who self-identified using multiple genders represented 1.8% of advertisers overall.

These advertisers were mostly associated with cis-female and cis-male identity (62%, N=2425) or cis-female and transgender women (25%, N=984).

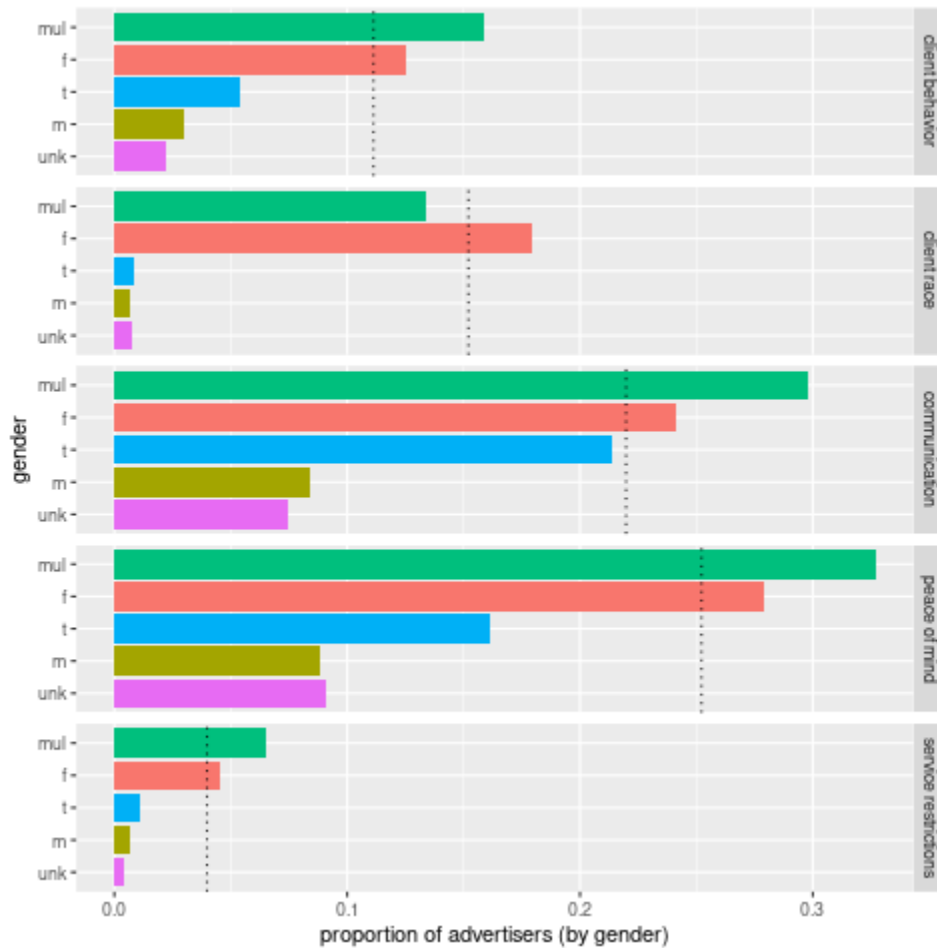
Table 5: Advertisers by gender.

gender	advertisers	using “no”
multiple (<i>mul</i>)	6289	3895 (62%)
female (<i>f</i>)	175513	100865 (57%)
trans women (<i>t</i>)	3392	1511 (45%)
unknown (<i>unk</i>)	13359	4253 (32%)
male (<i>m</i>)	15905	4318 (27%)

Figure 6 shows the relative proportions of advertisers associated with the top 5 codes. All proportions of advertisers were significantly different from the overall proportion for each theme, except for trans female advertisers (*t*) associated with the *communication* code ($p = 0.38$).

Advertisers self-identifying as cis-female were significantly more likely than other advertisers to be associated with one of the *client behavior*, *client race*, or *service restrictions* codes (28%, N=48601 versus 8%, N=2989, *prop.test* CI [0.15, 0.16], $p < 0.001$). Cis-male advertisers were the least likely to be associated with *client behavior*, *client race*, and *service restrictions* (4%, N=671).

Figure 6: Proportions of advertisers by gender using the top 5 codes. Gender codes: *f* cis-female, *m* cis-male, *t* trans-female, *mul* more than one gender was associated with the advertiser and *unk* means that no gender was associated with the advertiser. The dotted lines indicate the proportion of all advertisers associated with that coded theme.



Advertiser ethnicity

The source site for the 2021-2022 dataset, had an optional “ethnicity” field. Given the context, this field is more akin to the concept of “race” (American Psychological Association, 2023) as physical characteristics are the likely differentiator in most categories except Canadian Born Chinese. Table 6 shows the available field values with proportions using “no”. *Multiple*

ethnicity advertisers were associated with more than one ethnicity but *Mixed* self-identified as multi-ethnic. *Unknown* did not provide any ethnicity.

Advertisers associated with more than one ethnic identity were the most likely to use “no” (75%, N=4766) followed by *Mixed* (60%, N=1912) and *Hispanic* (57%, N=1029). Advertisers who provided no ethnic identity information were much less likely to use “no” in ads (9%, N=609). Consistent data on self-identified ethnicity were only available for the 2021-2022 period.

Table 6: Advertisers by self-identified ethnicity in 2021-2022.

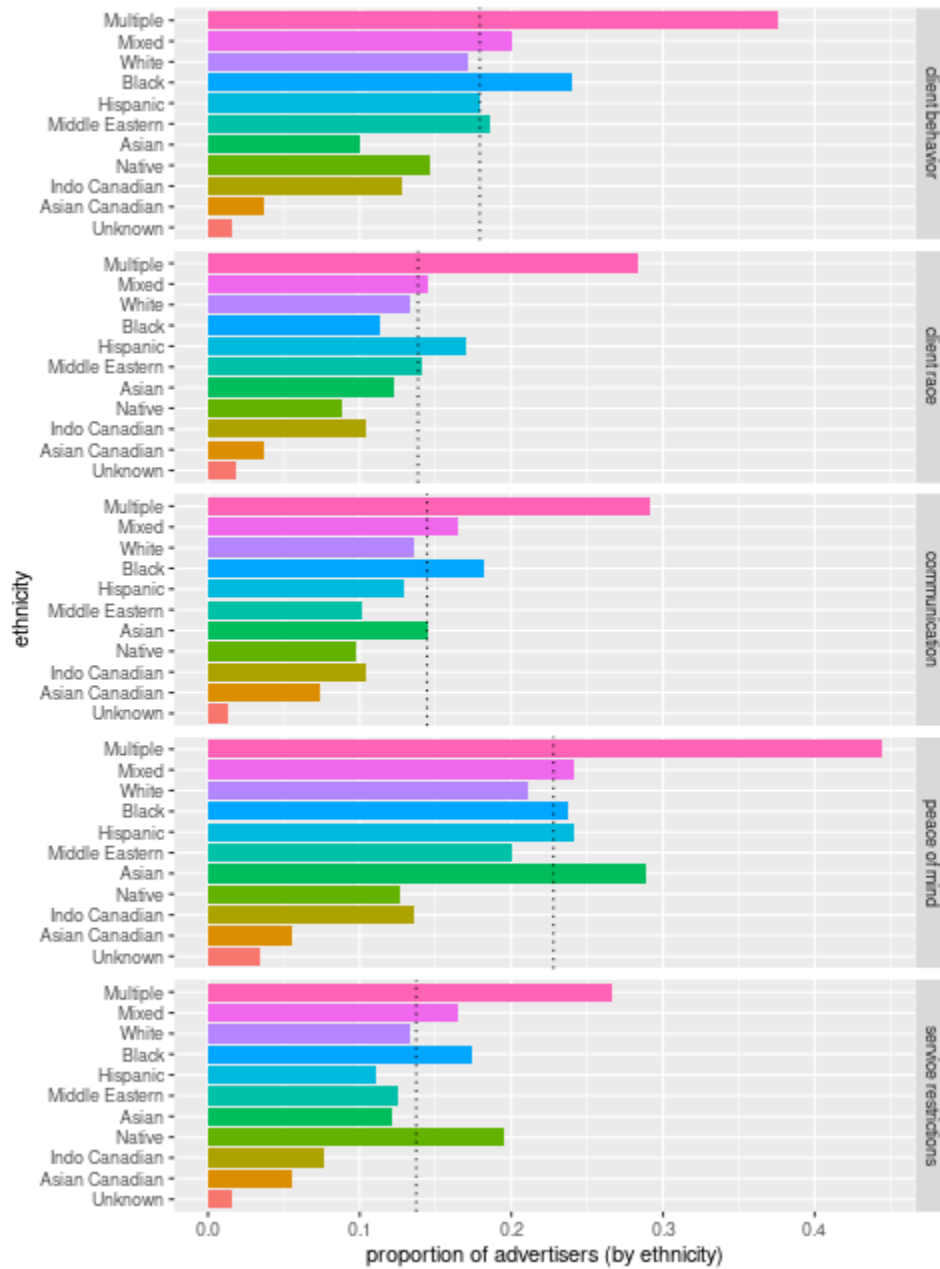
ethnicity	advertisers	using “no”
<i>Multiple</i> (used multiple ethnicities)	6380	4766 (75%)
<i>Mixed</i> (identifies as multi-ethnic)	3165	1912 (60%)
<i>Black</i>	1851	1098 (59%)
<i>Hispanic</i>	1811	1029 (57%)
<i>White</i>	15551	8560 (55%)
<i>Asian</i>	2505	1363 (54%)
<i>Middle Eastern</i>	425	230 (54%)
<i>Native</i>	205	107 (52%)
<i>Indo Canadian</i>	392	181 (46%)
<i>Asian Canadian</i>	54	21 (39%)
<i>Unknown</i>	6641	609 (9%)

In 2021-2022, 6380 advertisers (13%) were associated with more than one ethnic identifier. The supplemental materials S4 File “ethnicity” tab shows how frequently these

identifiers were used. The identifiers Caucasian/White (69%, N=3273) and Mixed (62%, N=2979) are associated with 95% (N=4463) of these advertisers.

Figure 7 shows the proportions of advertisers associated with each of the top 5 codes in 2021-2022. All proportions of advertisers were significantly different from the overall proportion for each code. Advertisers using *Multiple* ethnic identifiers were significantly more likely to be associated with one of the *client behavior*, *client race*, and *service restrictions* codes compared to other advertisers (93%, N=5905 versus 36%, N=11831, *prop.test* CI [0.55, 0.57], $p < 0.001$).

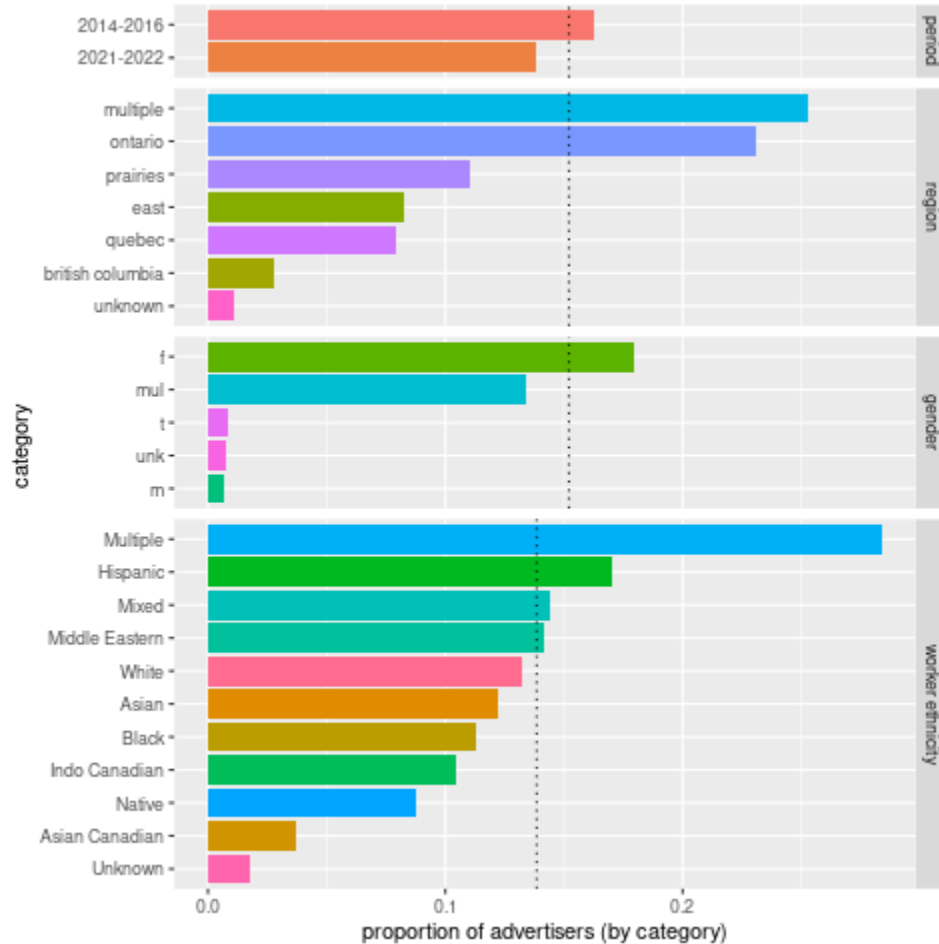
Figure 7: 2021-2022 advertisers associated with the top 5 codes by ethnicity. *Mixed* in this context is a single ethnic option, but *Multiple* refers to advertisers who indicated more than one ethnicity in their ads. The dotted lines indicate the proportion of all 2021-2022 advertisers associated with that coded theme.



Client race

Many advertisers restricted clients based on racial background. In the later collections, 32610 advertisers (overall: 15%; 2014-2016: 16%, N=27215; 2021-2022: 12%, N=5397) were associated with the *client race* restriction. In the 2007-2009 collection the number of advertisers using racial restrictions was minimal (“no asians” N=2, “no black” N=9, “no indians” N=1). Figure 8 summarizes the demographic characteristics of the advertisers associated with *client race*. Cis-female advertisers (18%, N=31540, *prop.test* CI [0.03, 0.03], $p < 0.001$), advertisers who advertised in multiple provinces (25%, N=5992, *prop.test* CI [0.10, 0.11], $p < 0.001$), or advertisers who only advertised in Ontario (23%, N=18353, *prop.test* CI [0.08, 0.08], $p < 0.001$) were significantly more likely to be associated with the *client race* code than all advertisers associated with this restriction (15%, N=32610). Those exclusively identifying as cis-men were the least likely to be associated with the *client race* code ($<1\%$, N=101, *prop.test* CI [-0.15, -0.14], $p < 0.001$).

Figure 8: Proportions of advertisers by category who restrict clients based on *client race*. The dotted lines are the proportion of all advertisers with this type of restriction. 2021-2022 was the only period with reliable data for advertiser ethnicity.



Ethnic self-identification affected the probability of being associated with the *client race* code. The majority of advertisers (60%, N=23429) did not identify as *White* where ethnicity data was available. *White* advertisers were slightly but significantly less likely to be associated with *client race* restrictions (*White* 13%, N=2062 versus not *White* 14%, N=3333, *prop.test* CI [-0.017, -0.003], $p = 0.007$). Advertisers associated with the *Multiple* ethnicities group were the most likely to be associated with client race restrictions (28%, N=1811) followed by the *Hispanic* (17%, N=309), *Mixed* (14%, N=457), *Middle Eastern* 14% (N=60), *White* (13%,

N=2062), *Asian* (12%, N=309), *Black* 11% (N=209), *Indo Canadian* 10% (N=41), *Native* (9%, N=18) and *Unknown* (2%, N=119).

A search for the terms “all races”, “all nationalities”, “all backgrounds”, and “all ethnicities” found 2139 advertisers (1% of all advertisers) indicating that this was the case for at least some advertisers. Furthermore, the number of advertisers using these terms increased by a factor of 7 from 2007-2009 to 2021-2022 (2007-2009: 0.3%, N=27, 2014-2016: 0.7%, N=1238, 2021-2022: 2.2%, N=874).

Discussion and conclusions

Over the 15-year period represented by the collections in this study, roughly similar proportions of advertisers used the word “no”. However, how advertisers used “no” in the earliest collection appears to be different from how “no” was used in later collections. In later collections, the word “no” was more likely to refer to restrictions: *client behavior*, *service restrictions*, or *client race*. Overall, 51% of advertisers who used “no” in ads were referring to a restriction. Cis-female advertisers, those advertising in multiple provinces, and collectives (based on use of multiple genders, or use of multiple ethnic identities) tended to use the word “no” more often than others. Cis-female advertisers were also much more likely to use language relating to restrictions in ads, perhaps reflecting the greater sense of risk experienced by these workers.

The *service restrictions* theme increased substantially over time, both for British Columbia, a 13% increase between 2007 and 2022, and for Canada as a whole, a 12% increase between 2014 and 2022. This suggests that, as online advertising has become more common, contact sex workers may be under less pressure to accept dangerous practices. It may also suggest less competition in the market as structural barriers to advertising, such the relative lack

of free advertising and the requirement of cryptocurrency for payments, have increased.

Advertising in multiple provinces appears to have become more common from 2007 to 2022. These are likely a combination of workers who travel and collectives that span multiple provinces. There is some evidence for advertising as a service in later collections, and these collectives could reflect that. The fact that these advertisers use restrictions more frequently appears to have influenced the regional likelihood of restrictions, specifically the *client race* restriction.

Sex workers should always have the right to refuse service (Abel et al., 2007; International Planned Parenthood Federation, 2022) and even in a criminalized environment, as is the case in Canada (Protection of Communities and Exploited Persons Act, 2014), sex workers routinely exercise agency (Benoit & Millar, 2001; Bungay et al., 2011; Ham & Gerard, 2014; Jeffrey & MacDonald, 2006; Jiao et al., 2021). Nevertheless, it was striking that over 32000 advertisers used *client race* restrictions. Text analysis alone cannot answer why this was the case, but it can provide clues for further investigation. This type of restriction appears to be mainly associated with cis-female advertisers, and appears to be more prominent in some regions. Notably, most advertisers using this restriction did not self-identify as *White* and 11% of advertisers who self-identified as *Black* were associated with the *client race* theme. Qualitative research sampling from these advertisers is needed to understand and how gender, ethnicity and location influence the use of this restriction.

The prevalence of this restriction is puzzling as recent opinion polls that show that gender equality is important to the majority of African Americans (Cox, 2023) and research on clients shows that in general clients are not more sexist than other people (Milrod & Monto, 2012; Monto & Milrod, 2014; Sanders, 2020). Black racialized clients appear to represent a minority in

online spaces in North America (Milrod & Monto, 2012; Monto & Milrod, 2014; Sanders, 2020). More generally, Black racialized people are often at a disadvantage in other online dating spaces (Bany et al., 2014; Bedi, 2015; Feliciano et al., 2009; Robnett & Feliciano, 2011; Wade et al., 2022).

Evidence presented here suggests, however, that advertiser attitudes may be changing over time. Not only did the overall number of advertisers with *client race* restrictions drop from 2014-2016 to 2021-2022, but the number of advertisers who explicitly accepted clients from any background increased substantially.

Limitations

Small proportions of advertisers, typically around 5%, are not sex workers (Kennedy, 2022). The 2021-2022 dataset was extensively screened for non-sex work related advertisers, and this appears to have also significantly reduced the detected number of duplicate profiles.

While many advertisers in Quebec used “no”, the way similar types of statements are represented in French language ads is different from how these are represented in English, resulting in undercounting of Francophone advertisers. This could be seen in the 2014-2016 data, where one predominantly Francophone site had a far smaller proportion of included advertisers (11% = 422/3892). More work is needed to understand the effect of linguistic identity and occupational health and safety communication for these advertisers.

Conclusions

The use of the word “no” in ads by contact sex workers reveals a number of trends that warrant further exploration. For example, the *client race* restriction seen in this study has not

been reported widely, if at all. Research is needed to understand what motivates the use of this restriction. Furthermore, collectives and advertisers who advertised in multiple provinces appear to have a heightened sense of risk. More research is needed to understand why this is the case, as well as what drives regional differences in how advertisers communicate with prospective clients. Lastly, how well do restrictions work and what effect do they have on the income of workers? Research addressing these questions will likely need to blend data acquisition from advertising to identify relevant samples for investigation with qualitative techniques.

Online advertising that supports contact sex workers is an essential structural tool. However, for it to be useful it should be driven by the needs of workers and not profit. Workers who advertise online use restrictions to protect themselves. These limits are a reflection of sex worker agency and are an important source of information on how stigma manifests itself in the industry. Post #MeToo, it is clear that Canadian sex workers have become far less tolerant of bad behavior online and are growing to be far more assertive about their rights and sexual health, even in the face of significant structural challenges.

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Declaration of interest statement

The authors have declared that no competing interests exist.

Supplemental Materials

All materials can be found at <https://osf.io/hwzsn/>

S1 File. MariaDB database. <https://osf.io/7s69q>

S2 File. QualCoder project with coded documents. <https://osf.io/k85pf>

S3 File. Effect of weighting on probability estimates. <https://osf.io/wdj3t>

S4 File. Tables. <https://osf.io/2svka>

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