

Which Gender is More Concerned About Transgender Women in Female Bathrooms?

Rebecca J. Stones^{1,2} 

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Abstract We enumerate 1035 user comments from 190 online articles to gauge public opinion about safety and privacy when transgender women use female bathrooms. In these comments, we find that cisgender males are around $1.55\times$ as likely to express concern about safety and privacy as cisgender females. Moreover, we find that when expressing concern (a) cisgender females are around $4\times$ as likely as cisgender males to assert that transgender women do not directly cause their safety and privacy concerns, typically emphasizing their concerns are about ‘perverts’ posing as transgender females, and (b) cisgender males are around $1.5\times$ as likely as cisgender females to assert that transgender females directly cause their safety and privacy concerns. We theorize that the heightened concern seen in males in these comments stems from them being more likely to view transgender females not as females, but as males who are lying or mistaken about their gender, and consequently they view themselves as protecting females from these males intruding into private, female-only spaces. This may be further exacerbated by a fear of deception and a belief that transgender people are mentally ill or ‘sick’.

Keywords Bathrooms · Gender identity · Prejudice · Public attitudes · Transgender

Introduction

People assume a level of privacy and safety when using public bathrooms. The presence of a transgender person in a public bathroom that matches their gender identity may be viewed as crossing a societal boundary, and can cause other

✉ Rebecca J. Stones
rebecca.stones82@gmail.com

¹ College of Computer and Control Engineering, Nankai University, Tianjin, China

² Faculty of Information Technology, Monash University, Melbourne, Australia

bathroom users to question which other boundaries that transgender person might cross, raising questions of safety and privacy.

Other bathroom users, particularly those unfamiliar with transgender people, might question or protest a transgender person's presence in the bathroom, possibly arguing that they're not really the gender they claim to be [5, 17, 57] or that transgender people are inherently unsafe [46]. Security or the police might be contacted, or a transgender person might be accosted by members of the public in the vicinity [8]. Consequently, for many transgender people, simply using a public bathroom can be a daunting prospect [19, 26].

Laws concerning whether or not a certain transgender person is permitted to use a bathroom consistent with their gender identity are controversial and vary considerably [11, 15, 21, 22, 36, 45]. There are currently numerous news articles and opinion pieces on proposed laws designating under what circumstances transgender people may use a bathroom consistent with their gender identity. These so-called 'bathroom bills', predominantly from the USA, propose criteria for when it is suitable for someone to use a gendered bathroom. The content of these bills may be influenced by psychosocial versus biomedical lay theories on transgenderism [14].

Restrictive laws and regulations are usually proposed on the grounds they 'will protect women and children' [47, 51] and 'for public safety and privacy' [2]. Investigating how big of a concern this is to female bathroom patrons (whose safety and privacy is hypothetically being put at risk) is the motivation of this paper.

Regardless of their stance, online articles contribute to public awareness of transgender people, and, in particular, their use of bathrooms. Moreover, these articles, and the Internet in general, also affect how transgender identities are shaped [1, 23, 48].

Many online news articles allow for user comments to be posted, which can allow a researcher to gain insight into the topic (see [41] for more information about using the Internet as a source of sexuality data). In this paper, we use such comments to gauge public opinion on the use of public bathrooms by transgender females consistent with their gender identity.

We use a mixed methods approach: enumerating web comments for hypothesis testing (quantitative) and inspecting web comments for common themes (qualitative). We focus exclusively on transgender females (male-to-female transgender people of all ages) in this paper because the overwhelming majority of comments are directed towards this class of transgender people. We also choose to focus on opinions regarding safety and/or privacy of patrons in female bathrooms.

There is a dearth of research concerning attitudes towards transgender people separate from other LGBT subgroups [18], and, in particular, separate studies for individual transgender subgroups [59].

Previous work on public opinions of transgender people has mainly involved surveys and interviews, and are not specifically directed towards bathroom usage; see [43] for a survey. We instead take the approach of analyzing Internet comments for public opinions. We focus on a particular sub-topic, bathroom safety and privacy, as it is currently a hot topic in online news and consequently receives many user comments.

The author is aware of two previous works analyzing online data in regards to transgenderism: Westbrook and Schilt [54] observed an overwhelming focus on genitalia as the determining factor of gender: ‘opponents (of *trans*-inclusive policies) give penises the power to destroy the sanctity of women’s spaces through their (presumed natural) propensity to rape’ (p. 48). Krueger and Young [33] enumerated Twitter tweets containing transgender-specific hashtags, finding that 80%+ of tweets related to (positive or negative) social ideas, events, or actions (predominately Laverne Cox’s Emmy nomination), with a small percentage (around 5%) relating to bathrooms.

In this paper, a person is described as *transgender* if their gender (or gender identity) does not match their sex assigned at birth. A *transgender female* refers to a transgender person that identifies as female, and of any age. We similarly define a *transgender male*. A person is described as *non-binary* if they neither identify as male nor female. A person is *cisgender* if they are not transgender. We use ‘trans’ and ‘cis’ as abbreviations for ‘transgender’ and ‘cisgender’.

Because it’s less cumbersome to write ‘female’ and ‘male’ than ‘women or girl’ and ‘man or boy’, respectively, we use these terms irrespective of a person’s phenotypic sex and medical history. Thus, in referring to someone as e.g. a transgender female, we make no claims about their use of hormones, their genitals, and so on.

Quotes are used throughout this paper and, unless otherwise indicated, each is a snippet from one of the 1035 online comments enumerated in this research (paraphrased to inhibit searching and preserve users’ anonymity for ethical compliance).

Transphobia in Males

Previous work consistently found that males were significantly more transphobic than females [7, 10, 18, 20, 27, 34, 35, 37, 42, 43, 52, 53, 56, 58], and that male violations from societal gender norms evoke stronger negative reactions than female violations [38, 39, 49, 58]. Baiocco et al. [3] observed that females were reported to have a higher percentage of cross-gender best friends than males. Davies and Hudson [12] compared attitudes of heterosexual men and women when considering rape of men and transgender people; they found that men blamed the transgender victims more, and considered rape of a transgender person less severe. Transphobia is also highly correlated with homophobia [42, 52], and males tend to also be more homophobic than females [25, 31, 32, 42, 57].

It is not currently clear why males tend to be more transphobic than females; a number of possible explanations for this difference have been suggested, including:

- (a) because males tend to have essentialist gender belief systems [30, 50],
- (b) because males have greater anxiety when gender boundaries are blurred [28, 42, 43],
- (c) because males are attempting to be better accepted by their peers [43], and
- (d) because males are more invested than females in adhering to gender norms [24, 29, 42].

In any case, we might expect to find that males might be more concerned than females about transgender female usage of female bathrooms.

A small imbalance was observed in the results of a CBS News telephone poll [9] conducted in March 2014, which asked 1016 US adults:

Do you think school-aged children who believe they are transgendered—that is, someone who identifies themselves as the sex or gender different from the one they were born as—should they be allowed to use the bathrooms and locker rooms of their preferred gender or should they have to use the bathrooms and locker rooms of the gender they were born as?

They found that 62% of US men and 56% of US women responded ‘birth gender’, differing by a factor of approximately 1.1.

Data Collection

In this section, we describe how we collect comments from online news articles pertaining to the safety and privacy of patrons in female bathrooms, dividing them according to (a) the gender of the user who made the comment, (b) whether or not the comment is a negative comment, and (c) in the case of a negative comment, whether the comment describes a causal or incidental link between transgender females and safety and privacy in female bathrooms (or neither). The raw frequencies are given in Table 1, and the full details are described below. Comments are coded as binary (true/false) variables as described in Table 2.

The author searched the Australian version of Google News (sourced between April 29 and May 16, 2015) for news and blog articles for phrases such as *transgender bathroom* and manually inspected a large number of web news articles and opinion pieces for comments made in relation to safety and/or privacy in female bathrooms. Of the articles inspected, 190 contained suitable comments,

Table 1 The frequencies of online news article comments that contain an opinion about whether the use of female bathrooms by transgender females put female safety and/or privacy at risk

	Negative		Non-negative		Sum
	Confirmed	Suspected	Confirmed	Suspected	
Cis male	264	28	102	10	404
Cis female	119	6	137	6	268
Trans male	1	0	5	2	8
Trans female	3	1	82	29	115
Non-binary	0	0	8	0	8
Sum	387	35	334	47	803
Gender unclear	149		83		232
Sum	571		464		1035

Table 2 Coding the users' comments into negative or non-negative, and the negative comments into causal or incidental (or neither causal nor incidental)

Criteria for inclusion	The user's comment pertains to the privacy and/or safety surrounding transgender females using female-only bathrooms or facilities likely to contain toilets	<i>n</i> = 1035 (100%)
Negative	The user's comment expresses or implies concern about privacy and/or safety	<i>n</i> = 571 (55%)
Causal	The user's comment is negative and expresses that it's transgender females causing those concerns	<i>n</i> = 176 (17% of all comments; 31% of negative comments)
Incidental	The user's comment is negative and expresses that it's <i>not</i> transgender females causing those concerns	<i>n</i> = 59 (6% of all comments; 10% of negative comments)
Non-negative	The user's comment is not negative	<i>n</i> = 464 (45%)

from which the author collected 1035 comments. All articles were dated between 1 December 2014 and 10 May 2015 (inclusive).

The comments collected were categorized as *negative* and *non-negative*, according to whether or not the comment expresses (or implies) concern that safety and/or privacy is being put at risk. Among the negative comments were those that pertain to (a) transgender females directly violating other female patrons, and (b) transgender female usage of female-only bathrooms, or laws that facilitate such usage, enabling others to violate other female patrons.

Comments that do not contain or imply an opinion over safety and/or privacy were not included, although they might be negative, e.g. 'I don't want to go in the bathroom and find a man in there at the same time'; 'They can use a tree or a fire hydrant like other animals!'; 'We should kick that kid out of school and put him in a nut house where he belongs.'

Comments were further categorized according to the gender of the user; this resulted in six categories: *cisgender male*, *cisgender female*, *transgender male*, *transgender female*, *non-binary*, and *unclear* (when the available data was not enough to provide a reasonable suspicion of the user's gender). These gender groups were split into *confirmed*, where there was conclusive evidence of a user's gender, and *suspected*, where there was reason to suspect a user had a certain gender, but the evidence wasn't conclusive.

The author based her categorization of a user's gender based on (a) usernames, (b) the content of the comment and other comments that user made, and (c) the user's profile. In many cases, the user had a linked Facebook account, where it could be straightforward to verify the user's gender and transgender status. If a user had a gendered username, the user did not express that they are transgender, and their user history indicated that they had often used their account for commenting on articles about topics other than transgenderism, the author took this a 'confirmed' gender. If a user commented predominately on transgender topics, or had several transgender-appearing friends on their Facebook page, the author suspected they would be transgender themselves. If a user expressed a surprisingly favorable view of transgender people, they were also suspected of being transgender (this errs on the

side of caution when testing the hypothesis that cisgender males express more concern than cisgender females). Using terms such as ‘transgendered’ or ‘tranny’, which are currently unpopular in transgender communities, and misgendering transgender individuals led the author to suspect a user is cisgender (although, this would be interpreted in-context).

The author attempted to be as exhaustive as possible in her search. All articles that were found and had suitable and accessible comments were included. No effort was made to filter articles based on the political opinions expressed in the articles; some articles were clearly *trans*-positive whereas others were clearly *trans*-negative. Users who made multiple comments (sometimes over more than one news article) were always consistent in making either negative or non-negative comments, and so they were only counted once.

Three ambiguous user comments were omitted (e.g. a user suggested that ‘rape rates would increase’ but it was unclear who the hypothetical rapes would be against, and in what circumstance). One news article with more than 3500 comments was not able to be fully inspected as viewing a large number of these comments would cause the author’s computer to become unstable; 180 predominately negative comments came from this single source. One news article with more than 10,000 comments was not inspected to completion; 15 of the total number of comments came from this source.

Comments by Gender

To highlight which gender makes which kind of comment (negative or non-negative), we plot the sampled distribution of comments by cisgender males and cisgender females in Fig. 1. Transgender people almost uniformly wrote positive comments, so we don’t include those comments in Fig. 1.

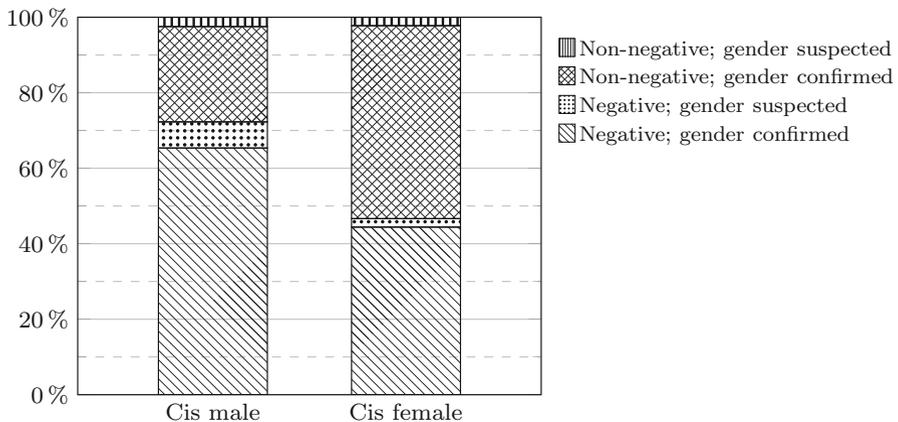


Fig. 1 The proportions of negative and non-negative comments made by suspected and confirmed cisgender males ($n = 404$) and females ($n = 268$)

We further class the negative comments by confirmed cisgender males, confirmed cisgender females, and by people whose gender were unclear as ‘incidental’ and ‘causal’, as defined in Table 2. The results are plotted in Fig. 2.

We test the stability of the key numerical observations by repeating the enumeration while ignoring any particular comment with probability 30%. This is repeated 100×, and we calculate the standard deviation of the sample obtained. In this way, we give a basic measure of how sensitive the numerical results are to omissions. The results are included within the following.

The observed proportion of negative comments is found to be around 72% for cisgender males (264 out of 366) and 46% for cisgender females (119 out of 256), differing by a factor of around 1.55 (SD 0.08). The factor remains approximately the same if we include the data from ‘suspected’ genders. This shows that cisgender males are more likely to be concerned with safety and privacy surrounding transgender females in female bathrooms than cisgender females (consistent with the well-established hypothesis that males are more transphobic than females).

This observation was, in fact, reflected in a comment by a cisgender female:

I worked with a trans woman. There were *men* who were concerned about her using the women’s bathroom. I told them we didn’t care; we have stalls and don’t watch each other pee.

Although not all cisgender females feel that way:

I work with a male trans and he uses our ladies bathroom, so I have to go upstairs.

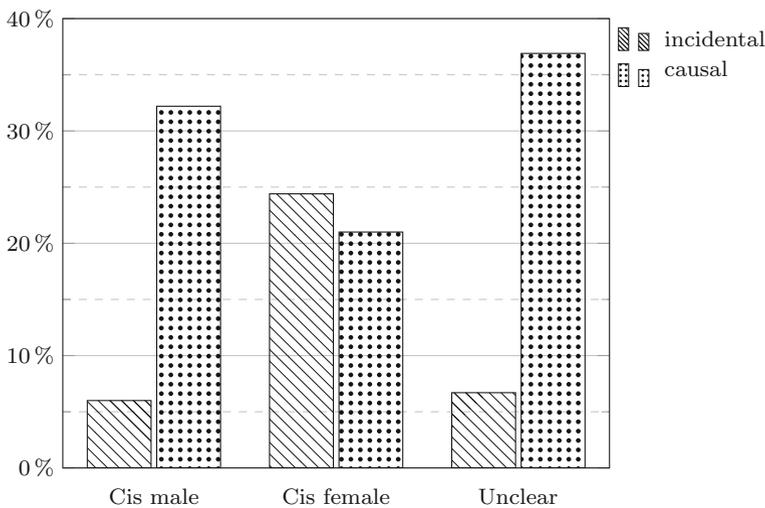


Fig. 2 Proportion of negative comments by confirmed cisgender males ($n = 264$) and females ($n = 119$) and those whose gender was unclear ($n = 149$), classed as ‘incidental’ and ‘causal’ (as defined in Table 2)

Comments classed as ‘incidental’ comprise around 6% of the negative comments for cisgender males (16 out of 264) and 24% for cisgender females (29 out of 119), differing by a factor of around 4 (SD 0.9). Comments classed as ‘causal’ comprise around 32% of the negative comments for cisgender males (85 out of 264) and 21% for cisgender females (25 out of 119), differing by a factor of around 1.5 (SD 0.2). This second observation is comparable to an observation by [35], who found that 1.5× more males thought transsexuality is ‘always wrong’ in a survey of 318 university students.

These statistics show that cisgender males are not only more likely to be concerned with safety and privacy surrounding transgender females in female bathrooms, but are also more likely to express that transgender females directly cause their concerns.

Discussion

The fact that cisgender males don’t normally use female bathrooms makes the observations about their heightened concerns about transgender females in female bathrooms particularly curious. Female concerns tend to be similar in content to male concerns, but are less frequently posted and phrased less intensely.

Why Do These Males Care More Than Females?

User comments suggests the male gender role of *the protector* as having an influence on male transphobia, which is indicated by their comments, e.g.:

‘I don’t want some guy-turned-girl in a restroom while my wife is in there’; ‘What about my daughter’s rights to privacy in the bathroom?’; ‘I have a teenage daughter and I demand that her privacy is protected from a gender-confused pervert that might walk in on her while she’s in the restroom!’; ‘If that transgender male walked in on my wife, I would finish his transformation.’; ‘I’d pull my daughter out of school before they’d let some pervert in the locker rooms and bathrooms claiming he’s transgender!!!’.

Moreover, these comments indicate that males more frequently hold an unfavorable mental picture of transgender females: that they are actually male, and are either lying or mistaken about being female, e.g.:

‘Do you want a man going into a women’s bathroom where your daughter is because he *feels* like a woman?’; ‘I feel sorry for the gender confused and mentally ill, but I wouldn’t want my wife or daughter in a locker room or bathroom with anyone with a penis.’; ‘Their feelings are of zero importance to me... their attitude, actions, mindset, and self-view are not just messed up or confused, they are *wrong!*’; ‘I hope you and your daughters enjoy sharing bathrooms and changing rooms with well-hung males who ‘self-identify’ as females.’

In these comments, we see males dismiss the gender of transgender females. It's an important step to arguing against bathroom access consistent with their gender identity, after all, if transgender females are recognized as female, why shouldn't they use female bathrooms? Consequently, males view females as needing protection from these 'males' who are willingly entering female-only spaces. This even leads to threats of violence:

'I don't care about political correctness: If a man followed my wife into the bathroom, I would beat the shit out of him'; 'If that was my wife complaining and the gym did nothing about it, I would go there and punch the daylights out of that weirdo and also the staff for allowing that'; 'If my wife saw a man in a ladies locker room... I would likely go in and drag him out.'

(Note that website administrators may remove threatening comments, which would have resulted in other such comments being inaccessible). As these threats of violence are publicly available online, they are accessible by transgender females, and can be particularly frightening for those who are just starting to use the female bathrooms.

In some comments by males, the belief that transgender people are mentally ill or 'sick' seems to exacerbate the idea that females need protection in the bathroom:

'We must protect our kids from these depraved homosexuals' (conflating homosexuality with transgenderism); 'Gender dysphoria: another reason why he should not use the girls bathroom, he's fucking nuts'; 'Transgenders are delusional and need psychological help ... you want me to send my daughters into a locker room, alone, with a sexually confused adult man?'; 'The accommodation they need is a mental institution, not a female public bathroom.'

This observation is consistent with Reed et al. [44] who found that hiring recommendations for transgender females are vulnerable to mental health stigma, among other factors.

It's possible that males believe they are voicing female concerns. However, many females do not share these concerns:

'As a woman, I have no problems with a man, transgender or not, using a woman's bathroom. I have lived in Europe long enough to know it's not a big deal. Also, I've used men's rooms and again, no fuss'; 'I'm a 63-year old woman, and I don't see why this is a big deal. We aren't dainty little flowers needing protection by men. I don't care if the woman in the stall next to me is transgender or not'; 'I couldn't care less where people pee and poo. It's not like this person is going to be ogling us.'; 'As a woman who uses public bathrooms, I do not care if a trans person is in there with me'; 'I have no problems using a ladies bathroom with a transgender woman'; 'I can't speak for other women, but it doesn't bother me'; 'People dress according to their gender. I dress as a woman, and a trans woman dresses as a woman. As women, we should both be permitted to use the women's bathroom'; 'I'm a girl, and if a transgender was in 'my' bathroom, so what?'; 'Unless I am

threatened, I don't think I care... and I've never heard a complaint about transgender women using a female restroom, from anyone.'

Some comments made by both males and females indicate they believe that most women do not support transgender females using female bathrooms:

You may not mind if a man sits next to you to take a dump... but most people in this country do mind. – gender unclear
 We have one pervert that wants to be comfortable using the ladies locker room vs. hundreds of women who'd like to be comfortable. – cisgender male
 Having men in the women's rooms is unacceptable to the vast majority of American women. – cisgender female

The observations in this paper do not support the belief that most women are against transgender females using female bathrooms: we find that, in the sampled population, about 70% of cisgender female users post non-negative comments, and about a half of the negative comments by cisgender females are incidental.

One user even expressed surprise at the responses they received when commenting on a gym's Facebook page in response to an incident involving a transgender woman in a gym locker room:

User A: Most women do not want these freaks around when they are undressing. – cisgender male
 User B: You would think so. But I posted on [gym name]'s Facebook page... and I was amazed at the comments made against me. I guess people really want this. – gender unclear

Consistent with Westbrook and Schilt [54], we also observe a strong fixation on penises (regardless of gender, transgender status, or stance on bathroom usage), e.g.:

'Wait until 12-year-old Susie comes face-to-face with Mr. Happy.'; 'We are talking about big penises in the ladies' room; children and those with the correct chromosomes should come first!'; 'If a penis is allowed to wander freely around a women's bathroom, do you really think that penis wants to stay tucked away, regardless of who it's attached to?'; 'The right thing to do is let transnys with penises share girl's bathrooms? BS!'; 'Don't let the penis or beard fool you; I'm 100% woman in my brain'; 'I couldn't care less if the woman next to me has a penis or not'; 'Is it okay for him to flip out his penis in the girl's bathroom in front of your daughter?'; 'Some women have a penis, some men have a vagina'; 'If you have a penis, then it's fine for a woman to want you out'; 'It is not a transgender's right to put their penis in front of women'; 'Maybe we should put *penis* and *vagina* on the bathroom doors, so HE will not be confused.'

Scaling to the General Population

The high proportion of negative to non-negative comments would likely not hold true for the general (English-speaking) population. After all, there are hundreds of thousands of transgender females in the US alone [16], many of whom would use

female bathrooms every day, and we would expect a lot more commotion if the proportions in Fig. 1 were indicative of the larger population.

Often, what prompts a reader to comment on an online news article is an intense interest or a passionate emotional response [13], and while most Internet users read online news articles, they do not tend to comment [4]. Thus, we expect that users with strong and polarized opinions predominately comment on these articles, while there remains a silent non-commenting majority who are primarily apathetic towards (or even unaware of) the use of female bathrooms by transgender females. Consequently, when scaling to the general population, we expect a ‘watering down’ of what we see in web comments, i.e.:

1. The proportion of males with concerns and the proportion of females with concerns are both substantially smaller than measured here.
2. The proportion of males with concerns remains higher than females when scaled to the general population.

Item 1 above was also raised by a cisgender woman in a blog article:

If a trans person ‘passes’ well enough for the gender they identify as, no one will be the wiser. And even if they don’t, most people are unlikely to a) care, or b) care enough to confront a stranger about whether they’re ‘really’ a woman or a man. – [6]

Williams [55], in the course of fact-checking a claim that a transgender female student was harassing another female student in a school bathroom, included a web comment from a user who claimed to be a girl from the school, which also supports item 1:

He either uses our bathroom and makes MAYBE 30% of the girls uncomfortable, or he uses the boy’s restroom and gets beat up. ... He didn’t hurt or harass anyone.

As evidence supporting item 2, we observe an imbalance in the House debate for Canada’s Bill C-279 proposing protections against discrimination based on gender identity [40]. In this debate, neither of the two women opponents of the bill expressed concerns about transgender females in female bathrooms, instead opposing the bill based on its viability or necessity. In fact, one woman opponent stated in regards to transgender people:

...they live with the consequences of these acts of non-compassion, of false assumptions that, simply by virtue of their state, they are sexually promiscuous, or more ludicrously, that they are criminal. – Michelle Rempel

On the other hand, three out of six men opponents of the bill expressed concern:

...the door would be open to sexual predators having a legal defence to charges of being caught in a women’s washroom or locker room. – Dean Allison

Bill C-279, otherwise known as ‘the bathroom bill’... would give transgendered men access to women’s public washroom facilities. – Rob Anders

It's implausible for the two women opponents in this debate to be unaware of or indifferent to concerns about safety and privacy in female bathrooms. Therefore, we surmise that they did not consider transgender females in female bathrooms a serious concern for their constituents (unlike 50% of the men opponents).

Future Research Directions

Uncovered in this research were other recurring themes, which would be interesting to investigate individually.

A transgender female using a female bathroom or a transgender male using a male bathroom is inherently wrong 'Females shouldn't have to share a locker room with someone with a penis'; 'People should use the bathroom that matches their current genitalia'; 'Any person who doesn't know which bathroom to use, should just stay home'; 'He is a man and should behave like one'.

These comments present a feeling as opposed to an argument. Research in this direction could investigate how these feelings change over time, as transgender people become more familiar to the general public.

Transgender identities are insignificant 'Can I say I feel like a women and walk into the female bathroom?'; 'The wants of a few shouldn't outweigh the needs of the many'; 'A dude decides one day that he wants to 'identify' as a female, then he can use the girl's bathroom'.

These comments indicate a lack of public awareness of the strength of the conviction transgender people have for their gender identities. Comments such as 'look in your pants: if you have a penis then you belong in the mens room' overlook the fact that a lifetime of living with a penis is not enough to convince a transgender woman that she is a man. This raises the question: does awareness of the strength of transgender identities correlate with acceptance of them using bathrooms consistent with their gender identities?

Victims of assault by men will be adversely affected by transgender females using female bathrooms 'I wonder how a women who has been assaulted would feel knowing a man could be in the bathroom?'; 'Shouldn't there be a 'trigger warning' above the locker room for those women who might have been raped, sexually assaulted, etc., before they enter the peep show?'

In the enumerated user comments, (a) three cisgender women claimed to have been sexually assaulted by men at some point in their lives (one repeatedly) who said they would have no discomfort with sharing a female bathroom with a transgender female, (b) one cisgender woman was 'molested as a young girl' and said she is '...not worried about transgenders, only people who would use that in order to access children', and (c) two cisgender women reported being assaulted (one by a transgender woman) and one cisgender woman reported an attempted assault, who all expressed strong concerns with sharing a female bathroom with a transgender female. This raises the question: how does this sentiment extend to the larger population?

Strengths and Limitations of This Study

Potential for human error Although effort was taken to minimize human error in recording, the author cannot eliminate the possibility that she skipped some relevant comments and/or articles. Comments omitted in this way should not disproportionately affect the results.

All comments that pertained to safety and/or privacy were included. We classify a comment as ‘negative’ if it expresses concern about safety and/or privacy, regardless of how intense the comment was phrased. This choice of definition almost always resulted a clear distinction as to which comments should be classed as negative, making it difficult to misclassify comments.

In some cases, the intent of the user needs to be incorporated into the classification, e.g. in the case of a rhetorical question (e.g. ‘And how often do perverts dress up as women to invade ladies bathrooms?’ would be classed as non-negative) or sarcasm (e.g. ‘I want some pervert to try to get in a bathroom my granddaughter is using’ would be classed as negative).

Sometimes, context needs to be taken into account in classifying user comments. E.g. a comment such as ‘persecuting transgender people will not make anyone safe; sexual predators look ordinary and would prefer not to draw attention to themselves’ written in response to an article about ‘bathroom bills’ would be included and classed as non-negative.

Practical constraints (financial and geographical constraints, along with the tedious and time-consuming nature of reviewing a large number of user comments) have made it infeasible for the author to recruit another suitable party to rate comments, and consequently the author performed this task herself. Nevertheless, the experiments described here are easily capable of being reproduced.

Unclear genders Many users do not provide sufficient information to either deduce their gender, or even have a reasonable suspicion as to what their gender is; these users’ genders we classify as ‘unclear’. Comments made by users with unclear genders comprise around 22% of all comments (232 out of 1035), with around 64% of these comments being negative (149 out of 232).

About 37% (55 out of 149) of the negative comments made by users with unclear genders were classed as ‘causal’. Consequently, caution should be taken when interpreting the observations in Fig. 2. It is likely these negative causal comments were made almost solely by cisgender males and females. The author cannot exclude the possibility that a large proportion of these comments were made by cisgender females, although she sees no concrete reason for this to be the case, instead expecting that these comments are male-dominated like the remainder of the comments.

Many of the causal negative comments by users with unclear genders express extreme views:

‘Keep these freaks of nature away from women’; ‘The government passes these laws for one reason: to destroy the moral fabric of Americans’; ‘Gay rights stuffed down our throats’; ‘Sick male Mfer’; ‘Criminal “feelings” are more important than safety’.

Such extreme comments may not be genuine views or may be exaggerated views. It is plausible that many of these comments are simply intended to incite arguments (so-called ‘trolling’). They may also arise as a result of anonymity, or, more generally, the online disinhibition effect.

Deleted comments Many sites have moderators who delete comments that violate the rules of the individual site: e.g. they might be deemed offensive. These comments would have included those with extreme anti-transgender sentiment. Some of the worst that the author encountered were:

I feel sorry for the many, *many* normal people that need to interact with these side show freaks... For them, suicide *is* the noble option! – cisgender male

Brilliant idea! Let’s mix homosexual HIV positive males, pervert predators, and male IV drug abusing hepatitis carriers, with women in the bathroom. – cisgender female

We can imagine a boy bullying a girl: ‘I saw your vagina! I saw your vagina!’ And a few days later, that girl commits suicide. – cisgender male

Open carry ladies. Having a 357 on your hip will keep those weirdos in their place. – suspected cisgender male

If a boy walked into the girls washroom while my daughter is in there, he better watch out: he’ll be unconscious and on the floor within five seconds, transgender or not. – suspected cisgender male

Additionally, some comments have been deleted by their original authors after being posted. These comments are consequently not available for analysis.

User demographics Aside from gender, the author made no attempt to control for the users’ demographics (age, race, religion, sexual orientation, etc.). This was for practical reasons: in the vast majority of cases it is simply not possible to determine these demographics from the available user data.

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Compliance with Ethical Standards

Conflict of interest The author declares that she has no conflict of interest.

Ethical Standard To preserve user anonymity and for ethical compliance: (a) to inhibit searching, quotes and snippets of web comments have been paraphrased without affecting their meaning (the use or misuse of pronouns and transgender terminology was left unaltered), and (b) the specific web news articles included are withheld.

Human and Animal Rights This research has received ethical approval from the Monash University Human Research Ethics Committee (Project Number: CF15/1130—2015000536) and the Human Research Ethics Committee of Nankai University.

Informed Consent This research surveyed publicly available web data from around a thousand individuals; informed consent would be infeasible to obtain.

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References

1. Adams, S. S., & Peirce, K. (2006). Is there a transgender canon? Information seeking and use in the transgender community. In: *Proc. annual conference of Canadian association for information science (CAIS)*.
2. Artiles, F. (2015). *HB 583: Single-sex public facilities*. <http://blog.frankartiles.com/hb-583-single-sex-public-facilities/>. Accessed 9 May 2015.
3. Baiocco, R., Santamaria, F., Lonigro, A., Ioverno, S., Baumgartner, E., & Laghi, F. (2014). Beyond similarities: Cross-gender and cross-orientation best friendship in a sample of sexual minority and heterosexual young adults. *Sex Roles*, 70(3–4), 110–121.
4. Bergström, A. (2008). The reluctant audience: Online participation in the swedish journalistic context. *Westminster Papers in Communication and Culture*, 5(2), 60–80.
5. Bettcher, T. M. (2007). Evil deceivers and make-believers: On transphobic violence and the politics of illusion. *Hypatia*, 22(3), 43–65.
6. Brown, E. N. (2015). *Florida bill would make using opposite-sex bathroom a crime*. Hit and Run Blog. <http://reason.com/blog/2015/02/06/florida-anti-transgender-bathroom-bill>. Accessed 9 May 2015.
7. Carroll, L., Güss, D., Hutchinson, K. S., & Gauler, A. A. (2012). How do U.S. students perceive trans persons? *Sex Roles*, 67(9–10), 516–527.
8. Cavenagh, S. L. (2010). *Queering bathrooms: Gender, sexuality, and the hygienic imagination*. Toronto: University of Toronto Press.
9. CBS News: Transgendered students and school bathrooms. (2014) *CBS News*. http://www.cbsnews.com/htdocs/pdf/CBSNewsPoll_Mar2014b_Transgender.pdf.
10. Ceglie, C. M. P., & Lyons, N. N. (2004). Gender type and comfort with cross-dressers. *Sex Roles*, 50(7–8), 539–546.
11. Darden, E. C. (2014). The law trends toward transgender students. *Phi Delta Kappan*, 92(2), 76–77.
12. Davies, M., & Hudson, J. (2011). Judgments toward male and transgendered victims in a depicted stranger rape. *Journal of Homosexuality*, 58(2), 237–247.
13. Diakopoulos, N., & Naaman, M. (2011). Towards quality discourse in online news comments. In: *Proc. ACM conference on computer supported cooperative work* (pp. 133–142).
14. Furnham, A., & Sen, R. (2013). Lay theories of gender identity disorder. *Journal of Homosexuality*, 60(10), 1434–1449.
15. Garcia, E. (2014). AB 1266: The school success and opportunity act or a violation of the constitutional right to privacy? *University of La Verne Law Review*, 35(2), 243.
16. Gates, G. J. (2011). *How many people are lesbian, gay, bisexual, and transgender?* The Williams Institute. <http://williamsinstitute.law.ucla.edu/research/census-lgbt-demographics-studies/how-many-people-are-lesbian-gay-bisexual-and-transgender/>.
17. Gazzola, S. B., & Morrison, M. A. (2014). Cultural and personally endorsed stereotypes of transgender men and transgender women: Notable correspondence or disjunction? *International Journal of Transgenderism*, 15(2), 76–99.
18. Gerhardtstein, K. R., & Anderson, V. N. (2010). There's more than meets the eye: Facial appearance and evaluations of transsexual people. *Sex Roles*, 62(5–6), 361–373.

19. Grant, J. M., Mottet, L. A., Tanis, J., et al. (2011). *Injustice at every turn: A report of the national transgender discrimination survey*. Available from <http://endtransdiscrimination.org/>.
20. Grigoropoulos, I., & Kordoutis, P. (2014). Social factors affecting anti-transgender sentiment in a sample of Greek undergraduate students. *International Journal of Sexual Health, 27*(3), 276–285.
21. Hart, L. (2014). With inadequate protection under the law, transgender students fight to access restrooms in public schools based on their gender identity. *Northern Kentucky Law Review, 41*(315), 315–337.
22. Harvard Law Review. (2014). *Transgender youth and access to gendered spaces in education, 127, 1722–1745*.
23. Hegland, J. E., & Nelson, N. J. (2002). Cross-dressers in cyber-space: Exploring the internet as a tool for expressing gendered identity. *International Journal of Sexuality and Gender Studies, 7*(2–3), 139–161.
24. Herek, G. M. (1986). On heterosexual masculinity: Some psychical consequences of the social construction of gender and sexuality. *American Behavioral Scientist, 29*(5), 563–577.
25. Herek, G. M. (1988). Heterosexuals' attitudes toward lesbians and gay men: Correlates and gender differences. *Journal of Sex Research, 25*(4), 451–477.
26. Herman, J. L. (2013). Gendered restrooms and minority stress: The public regulation of gender and its impact on transgender people's lives. *Journal of Public Management and Social Policy, 19*(1), 65–80.
27. James, O. (2014). *An exploration of the predicting factors of positive and negative attitudes towards LGBT people and queer families in Northern Ireland*. Master's thesis, Trinity College, Dublin.
28. Juge, G. E. (2013). *"Get away from me!": Implicit and explicit transphobia in Swedish-speaking men*. Master's thesis, Lunds Universitet.
29. Kimmel, M. S. (1994). Masculinity as homophobia: Fear, shame, and silence in the construction of gender identity. In: H. Brod, M. Kaufman (Eds.) *Research on Men and Masculinities Series: Theorizing masculinities* (pp. 119–142). Sage Publications.
30. King, M. E. (2008). *Transprejudice in Hong Kong: Chinese attitudes towards transgenderism and transgender civil rights*. Ph.D. thesis, The University of Hong Kong.
31. Kite, M. E. (1984). Sex differences in attitudes toward homosexuals: A meta-analytic review. *Journal of Homosexuality, 10*(1–2), 69–81.
32. Kite, M. E., & Whitley, B. E., Jr. (1998). Do heterosexual women and men differ in their attitudes toward homosexuality? A conceptual and methodological analysis. In G. M. Herek (Ed.), *Stigma and sexual orientation: Understanding prejudice against lesbians, gay men, and bisexuals* (pp. 39–62). Beverly Hills: Sage.
33. Krueger, E. A., & Young, S. D. (2015). Twitter: A novel tool for studying the health and social needs of transgender communities. *JMIR Mental Health, 2*(2), E16.
34. Landén, M., & Innala, S. (2000). Attitudes toward transsexualism in a Swedish national survey. *Archives of Sexual Behavior, 29*(4), 375–388.
35. Leitenberg, H., & Slavin, L. (1983). Comparison of attitudes toward transsexuality and homosexuality. *Archives of Sexual Behavior, 12*(4), 337–346.
36. Levi, J., & Redman, D. (2010–2011). The cross-dressing case for bathroom equality. *Seattle University Law Review, 34*, 133–171.
37. Maguen, S., Shepherd, J. C., Harris, H. N., & Welch, L. P. (2007). Prevalence and predictors of disclosure of transgender identity. *International Journal of Sexual Health, 19*(1), 3–13.
38. Martin, C. L. (1990). Attitudes and expectations about children with nontraditional and traditional gender roles. *Sex Roles, 22*(3–4), 151–166.
39. McCreary, D. R. (1994). The male role and avoiding femininity. *Sex Roles, 31*(9–10), 517–531.
40. Mulley, M. (2013). *Bill C-279: An act to amend the Canadian human rights act and the criminal code (gender identity)*. Open Parliament. <https://openparliament.ca/bills/41-1/C-279/>. Accessed 9 May 2015.
41. Mustanski, B. S. (2001). Getting wired: Exploiting the internet for the collection of valid sexuality data. *Journal of Sex Research, 38*(4), 292–301.
42. Nagoshi, J. L., Adams, K. A., Terrell, H. K., Hill, E. D., Brzuzy, S., & Nagoshi, C. T. (2008). Gender differences in correlates of homophobia and transphobia. *Sex Roles, 59*(7–8), 521–531.
43. Norton, A. T., & Herek, G. M. (2013). Heterosexuals' attitudes toward transgender people: Findings from a national probability sample of U.S. adults. *Sex Roles, 68*(11–12), 738–753.

44. Reed, O. M., Franks, A. S., & Scherr, K. C. (2015). Are perceptions of transgender individuals affected by mental illness stigma? A moderated mediation analysis of anti-transgender prejudice in hiring recommendations. *Psychology of Sexual Orientation and Gender Diversity*, 2(5), 463–469.
45. Schmidt, D. A. (2013). Bathroom bias: Making the case for trans rights under disability law. *Michigan Journal of Gender and Law*, 20, 155–186.
46. Serano, J. (2007). *Whipping girl: A transsexual woman on sexism and the scapegoating of femininity*. Derby: Seal Press.
47. Shadwick, L. (2015). Texas 'bathroom bill' criminalizes entering facility of opposite sex. Breitbart Texas. <http://www.breitbart.com/texas/2015/03/22/texas-bathroom-bill-criminalizes-entering-facility-of-opposite-sex/>.
48. Shapiro, E. (2004). 'Trans'cending barriers: Transgender organizing on the internet. *Journal of Gay and Lesbian Social Services*, 16(3–4), 147–164.
49. Sirin, S. R., McCreary, D. R., & Mahalik, J. R. (2004). Differential reactions to men and women's gender role transgressions: Perceptions of social status, sexual orientation, and value dissimilarity. *Journal of Men's Studies*, 12(2), 119–132.
50. Smiler, A. P., & Gelman, S. A. (2008). Determinants of gender essentialism in college students. *Sex Roles*, 58(11–12), 864–874.
51. Taylor, M. (2015). *The growing trend of transgender 'bathroom bully' bills*. Aljazeera. <http://america.aljazeera.com/articles/2015/4/1/transgender-bathroom-bills-are-a-statewide-trend.html>.
52. Tee, N., & Hegarty, P. (2006). Predicting opposition to the civil rights of trans persons in the United Kingdom. *Journal of Community and Applied Social Psychology*, 16(1), 70–80.
53. Walch, S. E., Ngamake, S. T., Francisco, J., Stitt, R. L., & Shingler, K. A. (2012). The attitudes toward transgendered individuals scale: Psychometric properties. *Archives of Sexual Behavior*, 41(5), 1283–1291.
54. Westbrook, L., & Schilt, K. (2014). Doing gender, determining gender: Transgender people, gender panics, and the maintenance of the sex/gender/sexuality system. *Gender and Society*, 28(1), 32–57.
55. Williams, C. (2013). *Trans student attacking girls in school restroom! Or, you know... not*. The Transadvocate. http://www.transadvocate.com/trans-student-attacking-girls-in-restroom-or-you-know-not_n_10284.htm.
56. Willoughby, B. L. B., Hill, D. B., Gonzalez, C. A., Lacorazza, A., Macapagal, R. A., Barton, M. E., et al. (2010). Who hates gender outlaws? A multisite and multinational evaluation of the genderism and transphobia scale. *International Journal of Transgenderism*, 12(4), 254–271.
57. Winter, S., Chalungsoot, P., Teh, Y. K., Rojanalert, N., Maneerat, K., Wong, Y. W., et al. (2009). Transpeople, transprejudice and pathologization: A seven-country factor analytic study. *International Journal of Sexual Health*, 21(2), 96–118.
58. Winter, S., Webster, B., & Cheung, E. P. K. (2008). Measuring Hong Kong undergraduate students' attitudes towards trans people. *Sex Roles*, 59(9–10), 670–683.
59. Worthen, M. G. F. (2013). An argument for separate analyses of attitudes toward lesbian, gay, bisexual men, bisexual women, MtF and FtM transgender individuals. *Sex Roles*, 68(11–12), 703–723.