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Gender-based discrimination as reflected in the laws of urinary segregation: Comparing facilities in South Africa's major cities with those in East Coast cities in the United States of America

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Abstract

International treaties, national legislation and local by-laws advocate the equal treatment of people of different genders, but there are still claims of gender-based discrimination. However, indicators of discrimination against women, including employment ratios and differences in income, show that great strides have been made in the recent past. These measures are, however, often biased. In this study a different, more exact and tangible method of detecting and describing discrimination is presented, based on the difference between the number of ablution facilities provided for each gender group in public spaces. Ablution facilities at airports, train stations and shopping centres in four major South African cities (N=128) were inspected. The same was done at six East Coast cities in the United States of America (USA; N=124). Medium to large differences in the respective number of facilities were found (η^2 .05 to .13) in South Africa, with women receiving fewer services than those for men. The same tendency was not found in the USA. These results suggest that, despite the progressive legislation and vigorous affirmative action applied in South Africa, South African women are still being discriminated against on a very concrete, tangible level.

Keywords: Discrimination, tourism, leisure, ablution facilities, toilets

INTRODUCTION

The principle that all people are equal and that all individuals should have equal access to the country's resources was first legislated in the United States of America (USA) in the Bill of Rights of 1789. It evolved with amendments 14 (1868) and 15 (1870). The United Nations Universal Declaration of Human Rights (United Nations 1948) affirmed many of these principles, which were also incorporated into the Constitution of the Republic of South Africa of 1996, particularly in Chapter 2. Regarding the rights of women, the United Nations established a Commission on

the Status of Women (1946) to promote equal opportunity for women. They were offered equal opportunity in the 1964 Civil Rights Act, specifically in Title VII of the Act. In 1982, the Equal Rights Amendment affirmed women's rights in the USA. In South Africa, the Basic Conditions of Employment Act of 1997 and the Employment Equity Act of 1998 refer specifically to issues of gender equality, while the Employment Equity Act refers directly to the affirmation of women's rights in the light of previous discrimination (South Africa 1998). This suggests that women had been treated differently

and to their detriment in the past and that the situation may, in fact, be continuing today.

In assessing the extent to which discrimination against women occurs, several methods can be used. The most commonly-used method, particularly in capitalist societies, is to assess the number of women employed in the workplace, their level of employment, and the per capita income they generate. However, this method is skewed as a measure of equality because many women prefer to be, at least temporarily, unemployed or employed on a more flexible basis, for example by occupying part-time positions. This affects their employment numbers and average income (Cascio 2010; Leopold & Harris 2009).

Another method used to detect gender-based discrimination is that of self-report surveys (eg Bible & Hill 2007; Carr et al 2000). In these surveys, participants are typically asked to assess the level of discrimination they experience, thus determining perceived bias. However, surveys are, by their very nature, often flawed (Shaughnessy, Zechmeister & Zechmeister 2009), particularly those that assess aspects of out-groups (cf. Iyer & Ryan 2009; Navarrete, McDonald, Molina & Sidanius 2010). For example, when asked about discrimination against women, men often report (and possibly perceive) less discrimination against women than women themselves perceive (Sipe, Johnson & Fisher 2009). Surveys are therefore not always an objective or unbiased measure of discrimination.

In his essay "The Agency of the Letter in the Unconscious, or Reason since Freud", Jacques Lacan reflects on the

so-called "laws of urinary segregation". The present research revisits these "laws" in societies, specifically those of urban South Africa and East Coast America.

Unequal ratios are reported for the distribution of public toilets in Western Europe (Gershenson & Penner 2009), the United Kingdom (Greed 2009) and the United States of America (Anthony & Dufresne 2009), as well as in most of the Third World (Moore 2009). However, the extent of this inequality is unknown, as, although unequal ratios are reported, no numerical values could be found in the relevant articles. Furthermore, no specific statistics for the USA or South Africa could be located.

The unequal distribution of toilets implies discrimination and problems on four different levels. The first is political, as suggested in the first paragraph of this article, and is guided by legislation. It gives women the political right to equal access. Gershenson and Penner (2009: ix-x) state that "[a]t particular historic moments and in different locations, the absence of toilet facilities has signalled to various subordinate social groups that they are outsiders to the body politic and that there is no room for them in public space".

Secondly, discrimination in the allocation of toilets suggests a psychological problem, as the spaces people inhabit inform them how they should think of themselves, and suggest what others, i.e. the designers (and by proxy the lawmakers, the politicians, and society) think of them. These facilities can be considered "mirrors with which we can examine the way we want to see both ourselves and others" (Schweder 2009:182). Schweder also states the following:

“Buildings give materiality to the behavior that we consider orderly and, ultimately, enforce this order” (Schweder 2009:182).

Thirdly, discrimination in the allocation of ablution facilities constitutes a health risk. Anecdotal evidence suggests that long queues often form at facilities designated for women, while this is seldom a problem in those designated for men. This suggests that women spend more time and endure discomfort in accessing toilet facilities. It may also result in health complaints such as incontinence, distended bladders and urinary infections (Greed 2009; Gershenson & Penner 2009). Furthermore, it must be borne in mind that women are often accompanied to public toilet facilities by babies or small children and that they therefore have different needs as far as safety, hygiene and the number of facilities are concerned. Thus women often need to spend more time than men do in these spaces.

Fourthly, it could also be argued that there are commercial implications in accessing public facilities. Women tend simply to buy and consume fewer refreshments at public events in order to avoid using the restroom. This does not appear to be an issue for men. But with what would an equal distribution of toilets equate? Anthony and Dufresne (2009) suggest three measures: equal square footage, an equal number of toilets, or equal waiting time. In this research the second measure, the number of toilets per group, is used. This applied measure is not necessarily the best, as Gershenson and Penner (2009) argue that, owing to women’s toilet needs and uses, to distribute space equally between men’s and women’s rooms actually produces an unequal result.

An equal waiting time would in all likelihood be the most just measure.

It will be argued that at least equal numbers of facilities should be allocated to women and that if this is not the case, it could constitute gender-based discrimination. In applying toilet-counting as a detector of discrimination, unbiased, physical and tangible information is produced that reflects at the level of gender-based discrimination. It is not suggested that this information provides a comprehensive measure of discrimination. It should rather be seen as an additional or complementary indicator of discrimination.

PURPOSE AND OBJECTIVES OF THE RESEARCH

The purpose of this article is to introduce an alternative measure of gender bias based on tangible evidence, to be used in conjunction with other measures in order to provide a comprehensive picture of progress regarding the elimination of gender-based discrimination. The author will then present the results of the survey of ablution facilities in South Africa and the USA, and report on the levels of discrimination in both countries assessed using this supplementary measure.

LITERATURE REVIEW

The literature will be presented according to three headings. Under the first heading, different measures of gender equity will be discussed. Under the second heading, some requirements of an effective measure will be considered, and under the last heading the focus will be on the need for equity in the allocation of ablution facilities.

The measurement of gender equity

In the introduction, two methods of describing the level of gender discrimination were cited: economic measures and measurement through self-report surveys. These will be discussed in more detail in this section.

Research on gender and workplace stratification indicates that continuing employment, and wage and mobility gaps exist, and that discrimination at the organizational and interactional levels also plays a role (Ortiz & Roscigno 2009). Current statistics may be interpreted as showing either great gains or a frustrating status quo. These raw statistics give some indication of change over time, but their message is mixed and their interpretability is contestable (Barreto, Ryan & Schmitt 2009). Research also indicates that a simple comparison between salaries or strata differences may not reveal actual gender discrimination (Barrett, Alexander, Anesgart & Doverspike 1986; Gollob 1984).

In the case of differential employment, the International Labour Organization estimates that in 2008 a total of 77 486 000 males and 67 876 000 females were employed in the USA (International Labour Organization 2010). Van Klaveren, Tijdens, Hughie-Williams and Martin (2009) state that in South Africa in 2007 a total of 7 558 000 men and 6 020 000 women were employed. The International Labour Organization put the South African figures for 2008 at 7 672 000 for males and 6 041 000 for females (International Labour Organization 2010).

In the USA women's median annual earnings, as a percentage of men's earnings, were 77.0 for full-time workers in 2009. This means that the

gender wage gap for full-time year-round workers was 23% (Institute for Women's Policy Research 2010). This was much higher in the early 1970s, when the gap was more than 35%. According to the US Census Bureau (2010), the mean annual earnings of women in the USA in 2009 were \$35,549 (SE = \$79), while men earned \$45,485 (SE = \$128). According to these statistics, women earn 78.2% (SE = 0.3) of men's salary (US Census Bureau, 2010). Van Klaveren et al (2009) provide figures indicating that South African men across occupational and race groups earn more than South African women do. USAid South Africa (2006) reports that the male-to-female wage ratio in 2003 for South African workers was 70.4, suggesting a wage gap of 29.6%. This is an improvement on the gap of 39.5% in 1995. Observations on trends in the gender pay gap in South Africa also vary. Hlekiso and Mahlo (2006) found that between 2001 and 2005, gender inequality persisted and the difference between male and female wages grew from 31% to 38%. Basing their conclusions on data from Statistics South Africa for average wages, Burger and Yu (2006) observed that the gender pay gap increased over the 1995-2005 period, although the extent of the gap has narrowed since 2000. In contrast, calculations of real mean earnings based on data from the Department of Labour suggest that the gender pay gap decreased from 41% in 1995 to 25% in 2005 (Van Klaveren et al 2009).

It is clear that men's wages are generally higher than those of women and that generally more men than women are employed. Amaram (2010) states that a wage-gap (and employment opportunities) between men's and women's earnings undoubtedly continues to exist today.

Amaram (2010) argues that the gap can be explained by the choices we make, rather than gender bias. He maintains that gender bias in favour of men is no longer a viable argument for explaining why women are paid less. Amaram (2010) suggests that factors such as education and fields of study, career choice, work patterns, marital and parental status and union affiliation all contribute to the difference. Arguments such as these, suggesting that the discrimination is self-imposed, beg for a more precise measure of discrimination. Ortiz and Roscigno (2009) state that despite continued political lobbying and legislative reform the extent of women's advancement is unclear (Ortiz & Roscigno 2009). Research also indicates that a simple comparison between salaries or strata differences may not reveal actual gender discrimination (Barrett et al 1984), which necessitates an alternative measure of progress.

Using the gap between men's and women's economic outcomes to quantify gender discrimination is a crude measure. Furthermore, omitted variables, unobserved heterogeneity and measurement error can all confound statistical, residual-based estimates of labour-market discrimination. These econometric problems have led to an increased interest in using alternative strategies, including survey questions, to measure perceptions of gender discrimination (Antecol, Barcus & Cobb-Clark 2009). Several measures of perceived discrimination have been developed and used in research. Examples of these are the *Experiences of Discrimination* (EOD; Krieger, Smith, Naishadham, Hartman & Barbeau 2005), the *Schedule of Sexist Events* (SSE; Klonoff & Landrine 1995), and the *Quick Discrimination Index* (QDI;

Ponterotto et al 1995). With the EOD (Krieger et al 2005) participants are asked a general question about experiences of discrimination and then the focus moves to the types of discrimination (sex, country of birth, social class, sexual orientation, religion) participants have suffered, and where it occurred (at work, getting a job, discrimination at home by his/her partner, discrimination at home by others, when receiving medical care or being on the street or in a public setting). The SSE scale (Klonoff & Landrine 1995) consists of 13 items on which participants report, stating how often they have experienced gender discrimination in their lifetimes in various settings. The scale includes measures such as: "As a woman, how often have you been denied a raise, promotion, a job, or something at work that you deserved?" and "As a woman, how often have you been treated unfairly by your family?" The 30 items of the QDI focus on discrimination against groups, such as women and racial minorities, and on social issues, for example affirmative action and bilingual education. Items included the following: "I think there is as much female physical violence toward men as there is male physical violence toward women" (Ponterotto, Potere & Johansen 2002).

As mentioned above, surveys are by their very nature often flawed (Shaughnessy et al 2009), particularly surveys that assess aspects of out-groups (cf. Iyer & Ryan 2009; Navarrete et al 2010). For example, when asked about discrimination against women, men often report (and possibly perceive) less discrimination against women than women actually perceive (Sipe et al 2009).

What constitutes an effective measure?

The focus of the discussion on what makes an effective measure is limited and no specific attempt is made in this article to present a comprehensive discussion. However, the intention is to address the most important matters. The basic requirement for any measure is that it should be reliable and valid (Rosnow & Rosenthal 2008; Shaughnessy et al 2010; Terre Blanche, Durrheim & Painter 2006). Reliability refers, *inter alia*, to the stability or consistency of the measure. This is the terminal aspect of the measure and is traditionally reported as the correlation between the scores collected at Time 1 and Time 2 (Rosnow & Rosenthal 2008; Shaughnessy et al 2010; Terre Blanche et al 2006). For example, when referring to this study, the data collected during 2010 should correspond to the data that could be collected in 2011. Reliability also refers to the level of consensus between raters on a specific dimension (Rosnow & Rosenthal 2008). The higher the level of agreement, the higher the reliability is assumed to be. In terms of this study, it would imply that, if another researcher were to visit the same venues, s/he would find the same results.

Validity has external and internal dimensions. The external dimension refers to the extent to which the results of the measure can be used beyond the sample within which the data was collected when the measure was developed and norms were calculated (Rosnow & Rosenthal 2008). In this study, it could be asked whether the results could be applied to other cities, other airports, and other shopping centres. Internal validity has many dimensions, including face, content, construct and criteria validity. Face validity refers to the intuitive appeal of

the instrument. A measure will have high face validity when it is evident to the user that it assesses the construct it professes to measure (Rosnow & Rosenthal 2008). As far as this study is concerned, the question relates to whether other scholars would be convinced that the allocation of ablution facilities has any bearing on gender discrimination. Content validity, often used in the educational domain, has to do with how comprehensively the measure covers a particular domain (Rosnow & Rosenthal 2008). For example, a test on mathematics that covered only algebra would not have high content validity if it did not also cover trigonometry and other domains. In this case the question would ask whether the allocation of toilet facilities comprehensively described the phenomenon of gender discrimination. Construct validity refers to the extent to which an instrument measures what it intends to measure (Rosnow & Rosenthal 2008; Shaughnessy et al 2010; Terre Blanche et al 2006). For example, does a test measure mathematical knowledge or just a student's knowledge of a particular lecture? In this case, does the unequal distribution of ablution facilities equate with gender discrimination? Lastly, criterion validity refers to the level to which the results using a certain measure correlate with an outcome. Would fewer toilets have an effect on the legal rights, the psychological, or even physical health of women? This type of criterion validity is called concurrent validity when it refers to a present state of being, and predictive validity if it refers to a future state (Rosnow & Rosenthal 2008; Shaughnessy et al 2010; Terre Blanche et al 2006).

Gender equity and the allocation of ablution facilities

One argument in the allocation of ablution facilities would be to consider the number of each gender grouping in the population. In the USA the total number of males is estimated to be 151 375 321, while for females the number is 155 631 235. The United Nations Statistics Division estimates that there are 24 413 000 women in South Africa and 23 661 000 men. As women account for 50.7% of both the South African and USA populations, it could be argued that women should have access to more ablution facilities than those for men. However, the difference is very slight, practically speaking, and perhaps equal numbers of facilities should be allocated.

It could further be argued that the number of facilities provided at venues should depend on the gender grouping most frequently visiting that particular location. Historical beliefs or assumptions may dictate that men visit airports and train stations in greater numbers, and that women visit shopping centres more frequently. This is not necessarily true, as Van Herck et al (2004) demonstrate in the case of airports. The authors found, in a convenient sample (N=5 465) drawn from several European airports, that 49.6% of travellers were women, while 50.4% were men. Thanasupsin, Chaichana and Pliankarom (2010) found small gender differences in the number of air services users, where 50.6% were women and 49.4% were men (N=2000). The assumption that there are significant differences between the gender groups visiting airports are thus not supported and practically speaking these differences seem slight.

Following the same argument, the scenario at shopping centres seems to support the gender-based assumptions. In a study conducted by

the European Food and Information Council (2008) in the United Kingdom, France, Germany, Sweden, Poland and Hungary, it was found that more women than men frequented shopping centres. This was true of all six countries surveyed. The same can be said of one of South Africa's leading retail stores, Woolworths, where between 75% and 80% of the 1 million people that pass through the retail chain's doors each month are female (Gebhardt 2004). This may suggest that more facilities should be provided for women in and around these shopping areas.

Research also indicates that women spend more time in ablution facilities than men do. In a study conducted by Baillie, Fraser and Brown (2009), it was found that women (M = 178.9 sec., SD = 96.6) spend significantly more time in the restroom than men do (M = 118.4 sec., SD = 102.6; $t(118) = -3.33$, $p = .001$; $d = .34$). It was also found that women engage in more activities, and for longer periods, when using ablution facilities. It was also found that, on average, women wash their hands more often than men do when using ablution facilities (Edwards et al 2002; Johnson, Sholcosky, Gabello, Ragni & Ogonosky 2003). Furthermore, women use soap and dry their hands more often than men do (Garbutt, Simmons, Patrick & Miller 2007), and tend to spend more time, almost twice as long as men, looking at advertisements in toilets (BiziBox Media 2010). This suggests that women's ablution facilities may be more congested than those of their male counterparts, which in turn suggests that more facilities should be made available to women. The final argument presented on the allocation of ablution facilities is legislative or political. This is the case with international law, as embodied in the

Universal Declaration of Human Rights (1948),¹ and in national laws. In the USA, the Bill of Rights of 1789, the Civil Rights Act of 1964, and the Equal Rights Amendment of 1982 affirmed women's rights in the USA. In South Africa, the Constitution of the Republic of South Africa of 1996, the South African Basic Conditions of Employment Act of 1997 and the Employment Equity Act of 1998 are often interpreted to suggest that resources should be distributed equally between the gender groups. For example, the Nelson Mandela Metropolitan Municipality (Gysman 2004) strives to achieve a 50/50 representation of the gender groups in all its committees. Many others argue that the workforce does not represent the demographics of the country (cf. Bowmaker-Falconer, Horwitz, Jain & Taggar 2003; Ramutloa 2009), suggesting an underrepresentation of women. In line with the spirit of these statements, it is argued that ablution facilities in line with the national demographics should be provided, implying that 50% should be allocated to men and 50% to women.

Given the argument presented here, it would be expected that women have access to at least half the total number of ablution facilities provided in public spaces, especially in South Africa, given the political climate. If not, it would equate to gender-based discrimination.

RESEARCH DESIGN AND PROCEDURES

A cross-sectional research design was used. This design is suitable for describing the population as well as the calculation of correlations between

¹ Although the USA has signed the declaration, it has not yet been ratified.

measured constructs (Shaughnessy et al 2009). The design suits this study well, as it is primarily descriptive in nature.

Sample and data collection process and methods

The data was collected during the first six months of 2010. The target was to collect data from all the public ablution facilities provided in the major USA cities of New York, Atlanta, Miami, Orlando and Washington. This was a convenient sample. Four major South African cities were visited to collect the data: Cape Town, Johannesburg, Durban and Pretoria. The first three cities were selected because in terms of population they are the largest cities in South Africa. Cape Town has approximately 3.7 million inhabitants, Johannesburg 8.8 million and Durban 3.2 million. Pretoria was included because it is considered to be the capital city of South Africa. In each of the South African cities, four sites were visited: two well-known shopping centres, the largest airport, and a train station. As far as the USA cities were concerned, only two well-known shopping centers and the largest airports per city were visited.² Only major shopping centers with at least four ablution facilities for each gender group were included. The aim was to collect data from four different ablution facilities (per gender) at each of the sites. In Table 1, the sites visited are described.

² Train stations in the USA were not visited, as it was difficult to identify which train station would be most suitable for the analysis of facilities in a large city, such as New York, and because it is difficult to identify the boundaries of certain stations.

Table 1

Sites visited for data collection

	Airport*		Train Station		Shopping Centre 1		Shopping Centre 2	
	Male	Female	Male	Female	Male	Female	Male	Female
Cape Town	4	4	4	4	4	4	4	4
Johannesburg	4	4	4	4	4	4	4	4
Durban	4	4	4	4	4	4	4	4
Pretoria	4	4	4	4	4	4	4	4
New York	4	4	0	0	4	4	4	4
Atlanta	4	4	0	0	4	4	4	4
Miami	4	4	0	0	4	4	4	4
Orlando	4	4	0	0	4	4	4	4
Washington	4	4	0	0	4	4	4	4

*The newly renovated airports in South Africa were visited.

The total number of facilities visited in the USA amounted to 120, while in South Africa the number was 128.

The unit of analysis had two components. The first component was urinals. Urinals are found in facilities designed only for men and are intended for urinating. The second component was toilets. Toilets are designed for urinating and defecating, and are found in facilities designated for men and women. All ablution facilities designed for use by Easterners and Middle Easterners were counted as toilets, not as urinals, irrespective of whether they were located in male or female areas. For the purpose of this paper, toilets (even those designed for children, people in wheelchairs and Eastern or Middle Eastern people) and urinals constitute the unit of analysis. I will refer to these units where people can urinate as a "unit". It is to be noted that no toilets designed for or by specifically Eastern or Middle Eastern people were found in the USA.

At all the sites visited, the largest portion of the ablution facilities was assigned to either men or women. Only a few were gender non-specific, and were designed for families or people in wheelchairs. In categorizing units available for men or women, the following strategy was followed: All units situated behind a sign indicating a particular gender were categorized as designated to that particular gender. Those indicated as being for use by people in wheelchairs or by families were not situated in an area designated to a specific gender. These were ignored in this survey, as both genders would have had equal access to the units.

Data analysis

The aim was to assess whether there were any differences in the number of facilities allocated to each gender group. This was done for the country as a whole as well as per city. In both cases, t-tests were used. The

Statistical Package for Social Scientists (SPSS Statistics 21) software was used to calculate the values. In all cases, the effect size of the differences was calculated manually, using the formula $t^2/t^2 + (N_1 + N_2 - 2)$ to calculate eta squared. Eta squared values of .01 were interpreted as a small effect, values of .06 as moderate and values of .14 and more as large (Cohen 1988).

FINDINGS

The findings fall into two parts, a discussion on the success of gathering data and the statistical analysis (including the descriptive statistics).

Success of gathering data

As indicated in Table 1, the intention was to visit four facilities for each gender group at all locations. This objective was achieved in New York (Shops on Columbus Circle, Macy's, and John F. Kennedy Airport); Atlanta (Lennox Square, North Georgia Premium Outlets, and Hartsfield-Jackson Airport); Miami (Dolphin Mall, Miami International Mall, and Miami International Airport); Orlando (two Orlando Premium Outlets and Orlando International Airport); Washington (L'Enfant Plaza, Ballston Common Mall, and Dulles International Airport). The following locations were visited in South Africa: Cape Town (Victoria and Alfred Waterfront, Canal Walk Shopping Centre, Cape Town International Airport, and Cape Town Train Station); Johannesburg (Sandton City Centre, Rosebank Mall, Oliver R. Tambo International Airport, and Park Train Station); Pretoria (Menlyn Centre, Brooklyn Mall, Lanseria International Airport and Pretoria Station); Durban (Pavilion, Gateway Shopping Centre, King Shaka International Airport, and Durban

Station). As planned, four facilities (per gender) were visited at each of the 62 locations (N=248).

Statistical analyses

The empirical results are set out under two headings, nationwide statistics and statistics per city. Descriptive statistics are provided in the text under both headings.

Nationwide statistics

In the USA, the number of units available to males at the 60 sites inspected was 521 and the number of units available to women was 564. The mean was 8.83 (standard deviation = 5.06) for men and 9.40 (standard deviation = 5.20) for women. There was no significant difference between the number of units available for men and for women, with $t(119) = .605$, $p = .547$ (equal variance assumed). The magnitude of the difference in means (mean difference = .569, 95% CI: -1.26 to 2.435) was statistically and practically not significant.

In South Africa, the number of units available to males at the 64 sites inspected was 642, while the number of units available to women was 444. The mean was 10.03 (standard deviation = 5.50) for men and 6.94 (standard deviation = 3.35) for women. There was a significant difference between the number of units available to men and to women, with $t(104.15) = 3.84$, $p < .000$ (equal variance not assumed). The magnitude of the difference in means (mean difference = 3.09, 95% CI: - 4.68 to -1.49) was moderate to large (eta squared = .10). Cohen (1988) proposes that eta squared values of .01 should be interpreted as small, values of .06 as moderate and values of .14 and more as large.

City statistics

In South African cities, 16 sites for males and 16 sites for females were

visited. These results are reflected in Table 2. In the last column of Table 2, it can be seen that in most cases the difference in allocation was meaningful from the practical point of view.

Table 2

Difference in the number of units allocated to men and women

City	N	Male	Female	t-test	M Diff	95% CI	Eta ²
Cape Town	32	M=10.19 SD=6.02	M=6.50 SD=1.86	t(30)=2.33 p=.026	3.68	.46 to 6.91	.13
Johannesburg	32	M=12.94 SD=6.21	M=9.13 SD=3.67	t(30)=2.11 p=.043	3.81	.12 to 7.49	.12
Durban	32	M=8.82 SD=3.79	M=7.00 SD=3.68	t(30)=1.37 p=.181	3.81	-.89 to 4.51	-
Pretoria	32	M=8.19 SD=4.83	M=5.13 SD=2.80	t(24) ⁿ = 2.19 p=.036	3.06	.180 to 5.94	.13
New York	24	M=10.00 SD=6.21	M=12.50 SD=5.26	t(22)=1.04 p=.308	2.50	-2.48 to 7.48	-
Atlanta	24	M=11.00 SD=8.13	M=12.25 SD=7.36	t(22)=.395 p=.697	1.25	-5.31 to 7.81	-
Miami	24	M=9.00 SD=3.16	M=8.25 SD=2.05	t(22)=-.689 p=.498	-.750	-3.01 to 1.50	-
Orlando	24	M=7.00 SD=2.33	M=7.42 SD=4.34	t(22)=.293 p=.722	.471	-2.53 to 3.36	-
Washington	24	M=7.25 SD=2.42	M=6.58 SD=2.54	t(22)=.854 p=.517	.517	-2.76 to 1.43	-
All USA	120	M=8.83 SD=5.06	M=9.40 SD=5.20	t(119)=.605 p=.547	.569	-1.26 to 2.43	-
All South Africa	128	M=10.03 SD=5.50	M=6.94 SD=3.35	t(104) ⁿ = 3.84 p< .000	3.09	-1.49 to -4.68	.10
Total	248	M=9.64 SD=5.30	M=8.13 SD=4.50	t(246) = -2.11 p= .035	-1.32	-2.55 to -.093	.02

N=Number of Sites, M Diff=Mean Differences, 95% CI=Confidence Interval, M=Mean, SD=Standard Deviation, n=Equal Variance Not Assumed.

To explain Table 2 better, the results for Cape Town will be analysed as an example. In Cape Town, the number of units available to males was 163 and

the number available to women was 104. The details of the data collected in Cape Town are reflected in Table

Table 3

Ablution facilities in Cape Town

	Site	Male	Female	Percentage	
Cape Town International Airport	1	T3 +U3=P6	T3=P3	3/6=50	
	2	T5+U5=P10	T6=P6	6/8=75	
	3	T4+U3+W1=P8	T4+C1=P5	5/8=63	
	4	T3+U3+W1=P7	T4+C1=P5	5/7=71	
	Total	P=31	P=19	19/31=61	
Cape Town Train Station	1	T12+U18+M1=P31	T8=P8	8/31=26	
	2	T2+U3+W1+M1=P7	T5+W1+M1=P7	7/7=100	
	3	T2+U3+W1+M1=P7	T5+W1+M1=P7	7/7=100	
	4	T2+U3+W1+M1=P7	T5+W1+M1=P7	7/7=100	
	Total	P=52	P=29	29/52=56	
Victoria & Alfred Waterfront Centre	1	T2+U7+W1=P10	T9+W1=P10	10/10=100	
	2	T6+U5=P11	T8=P8	8/11=73	
	3	T5+U8+M1=P14	T6+M2=P8	8/14=57	
	4	T3+U8+W1+M1=P13	T6+W1+M1=P8	8/13=63	
	Total	P=48	P=34	34/48=71	
Canal Walk Shopping Centre	1	T3+U3=P6	T3=P3	3/6=50	
	2	T4+U4=P8	T6=P6	6/9=67	
	3	T2+U6+M1=P9	T6=P6	6/9=67	
	4	T2+U5+M1+C1=P9	T6+C1=P7	7/9=78	
	Total	P=32	P=22	22/32=68	
	TOTAL	16	P=163	P=104	104/163=64

T=Toilet, U=Urinal, W=Wheelchair, M=Facility for Easterners/Middle Easterners, C=Family friendly facilities, P=Units.

Table 3 shows that in the first facility visited at the Cape Town International Airport there were three toilets and three urinals for men (accounting for six units) and three toilets for women (three units). The total number of units provided for men at the Cape Town International Airport was 31, as opposed to the 19 provided for females. At this facility women had access to 61% fewer units than those for men. Table 2 shows clearly that the picture is very similar at all the Cape Town facilities, where, in total, 163 facilities were found to have been

allocated to men, but only 104 to women. In Cape Town, women had, on average, access to 64% of the facilities to which men have access. The mean per site was 10.19 (standard deviation = 6.02) for men and 6.50 (standard deviation = 1.86) for women (Table 2). An independent sample t-test was conducted to compare the number of urinary facilities available for men and women. The results are listed in Table 2. There was a significant difference between the number of units available for men and those for women, with $t(30) = 2.33$,

$p = .026$ (equal variance assumed). The magnitude of the difference in means (mean difference = 3.68, 95% CI: .467 to 6.91) was moderate to large ($\eta^2 = .13$).

In Johannesburg, the number of units available to men was 207, while the number available to women was 146. There was a significant difference between the number of units available for males and females, while the magnitude of the difference was moderate to large (see Table 2). The picture is very much the same for Pretoria. The number of units available to males in Pretoria was 131 while the number available to females was 82. There was a significant difference between the number of units available for men and those for women, with the magnitude of the difference in means being moderate to large. For Durban the picture is somewhat different. Although the number of units available to men (141) in Durban was more than the number of units available to women (112), there was no significant difference ($p=.181$) in the number of units available (see Table 2). The effect size (.05) was small to moderate.

DISCUSSION AND CONCLUSION

In Section 3.3 of this article, an indication of the requirements for an effective measure of this article was provided. Let us first consider reliability. Counting units seems to be a reliable measure of discrimination. When it comes to test-retest reliability, the likelihood that the count taken during this survey (2010) would differ from counts taken in the near future (2011) is slight, as constructing new ablution facilities or modifying them generally takes a long time. Further, many of these facilities, particularly those in South Africa, were

constructed as recently as 2010. Reliability also refers to the level of consensus between raters, and, using this measure and the guidelines set out in counting units in Section 4.1, inter-rater reliability should be very high. If another researcher visited the same venues, and applied the same methodology, they would find similar results.

In assessing the validity of the measure, there would have to be some subjective judgments. When considering external validity, and asking whether the results could be applied to other cities (other airports, and other shopping centers) and other countries, the answer may be that they are generalizable only to West Coast cities in the USA and larger cities in South Africa. However, as population distributions are generally 50/50 per gender, and as unitary segregation happens in many countries, using the measure in other contexts may be useful. If unequal numbers of facilities was provided in a 50/50 male female setting, which should equate to discrimination, irrespective of the setting.

Four types of internal validity were discussed in Section 3.3. Considering the proportion of facilities available to each gender grouping, depending on the availability of the gender composition of the population in that environment, has an intuitive appeal as a measure of the equitable distribution of facilities and gender discrimination. This suggests face validity. Counting the number of facilities available for urination hardly provides a comprehensive measure of the state of the gender discrimination domain, but it does provide a very reliable and appealing measure. As stated earlier, the intention in introducing the measure was not to provide a

comprehensive measure, but rather to supply additional and tangible information. This suggests limited content validity (the content being the gender discrimination domain). If construct validity refers to the extent to which an instrument measures what it intends to measure, this measure may do just that, as it clearly differentiates between males and females and the level of access they have to basic services. It thus measures the gender distribution of facilities and gender discrimination. The last type of validity, namely criterion validity, refers to the level at which the results for a certain measure correlate with an outcome, which is the case with this measure.

When limited facilities are available to a specific group and if that group endures discomfort and even embarrassment because of this differentiation, this constitutes tangible (as compared with perceived) discrimination. In section 1, four such consequences were discussed. Thus, the queues we often observe in front of ablution facilities designated to women (in contrast to facilities designed for men) are concrete evidence of the poor and discriminatory allocation of ablution facilities. In summary, it seems that the counting of opportunities to urinate can be a valid measure of gender-based discrimination, despite the fact that the measure is not generally labeled as such.

When it comes to the data presented, South African women seem to be at a real disadvantage compared to men. For every 100 units available to men in urban areas, women have access to only 69. This just does not make any sense in a country where 50% of the population is female and where all are regarded as equal before the law. This situation is even worse when

considering that women use ablution facilities for more than one reason, and that culture-specific taboos and practices exist, which implies that they often need to spend more time in these facilities. Women's needs should thus be considered when designing these facilities.

This places a responsibility on men, as most toilets are imagined (designed), provided and managed by males (Greed, 2009), and males are quite often ignorant of women's requirements (Penner, 2009). To compound matters, these men often hail from an engineering rather than a medical or social policy background. Women's issues thus tend to be marginalised in the planning subculture of cities.

This is not, however, a matter of design alone, as the inappropriate allocation of ablution facilities also infringes on women's legal rights, their psychological wellbeing, and their physical health.

When visiting the theatre next time, ask the manager why, during the interval (a planned event), women should stand in a queue when visiting the ablution facility, whilst men do not experience the same inconvenience. This is a valid question that applies to most public events.

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