

## Ethical Gender/Sex Measurement in Canadian Research

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**Abstract**

Current theory and research support the conclusion that gender, and the interdependent construct of sex are not binary phenomena. Yet, how well do the measurement practices of Canadian psychologists align with this consensus? Although there are many ways to address this critical question, we take three approaches: (1) To understand cultural norms, we survey the gender/sex options available for national and provincial government identification across Canada; (2) to understand researcher practices, we review the gender/sex demographic measures used in empirical papers published in 2020 in three Canadian Psychological Association journals; and (3) to understand the guidance researchers receive, we review the websites of Research Ethics Boards at Canadian Universities. Our results reveal that while most Canadian identification allows individuals to self-identify into three gender/sex categories (female, male, X), the vast majority of the psychological research that we surveyed relied on binary gender/sex classification and very few Research Ethics Board websites offered publicly available guidance that could help correct such errors. These common exclusionary measurement practices are disconnected from Canadian norms and violate the ethical principles of our field. Binary measures exclude people whose identities fall beyond the gender/sex binary, reinforce a colonized conception of gender/sex that is inconsistent with the ideals of reconciliation with the Indigenous Peoples of Canada, and convey an outdated and discriminatory attitude to all participants who complete psychological surveys. We recommend simple practices to resolve these ethical concerns, allowing researchers and administrators to take concrete steps towards respecting gender/sex diversity in Canada.

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**Public Significance Statement**

Canada formally recognizes and protects diverse gender identities. Yet, the majority of Canadian psychological research we surveyed use exclusionary, binary gender/sex measures, a practice that violates Canadian values, including efforts towards reconciliation with the Indigenous Peoples of Canada. Canadian Research Ethics Boards rarely provide publicly accessible recommendations for inclusive gender/sex measurement despite such practices aligning with the ethical codes that govern psychological science.

### **Ethical Gender/Sex Measurement in Canadian Research**

Ethical principles guide many aspects of our lives, and as psychological researchers, these principles inform our scientific practices. The formal ethical codes that govern psychological research conducted in Canada (CPA, 2017; TCPS-2, 2018), are bound to the cultural and societal dynamics of the country wherein that research takes place. As such, many of the specific “translations” from ethical principle to ethical action can change over time. Thus, practices that may have been ethically acceptable at one time, can later violate basic human rights when the laws and social values of a specific country or culture shift. In the present paper, we focus on one of these practices. Specifically, we focus on a common, yet often overlooked practice within psychological research that has important ethical implications: Demographic questions regarding gender and/or sex.

In psychology, *gender* typically refers to the sociocultural characteristics, including attitudes, feelings, and behavior, that are linked to sex categories (APA, 2021a). *Sex*, on the other hand, is considered to be the biologically-determined category to which people are assigned at birth (APA, 2021a), which in Canada, includes the categories of male, female, and intersex. Although conceptually distinct, these two constructs are typically entangled in reality (see Hyde et al., 2019). A baby is assigned a sex at birth by the visual categorization of external genitalia and then socialized to conform to a specific gender identity based on that visual assessment. Moreover, most researchers treat gender and sex similarly as an identity variable, both assumed to be derived from the sex category assigned at birth (Westbrook & Saperstein, 2015). To recognize the interdependent nature of gender and sex, especially at the level of demographic measurement, we follow other researchers and adopt the term *gender/sex* (van Anders, 2015; see also Hyde et al., 2019).

### **Canada Recognizes that Gender/Sex is a Spectrum**

The notion that gender/sex identities can be classified into binary opposites is an oversimplification of the cultural reality in Canada and around the globe. Both psychological theory and recent research supports an understanding of gender/sex that respects its diversity, seeing it more like a multifaceted spectrum than a binary (see Hyde et al., 2019, for a review; also Ainsworth, 2015; Eaton & Perry, 2001; Tate et al., 2013).<sup>1</sup> Activism, storylines in popular media, and human rights news stories have increased social awareness of gender/sex diversity around the world. Countries such as New Zealand, Australia, Germany, Argentina, Malta, and Nepal, formally recognize gender/sex diversity by including at least three gender/sex categories on passports and official documents. Canada has also made great strides in recognizing the diversity of gender/sex.

In 2016, the Canadian Human Rights Act was amended to protect people from discrimination on the basis of gender identity or expression (Bill C-16). This change rippled down to provincial human rights codes (e.g., Manitoba, Ontario), reinforcing the national standard that discrimination on the basis of gender identity or gender expression was now illegal. The passing of Bill C-16 also influenced the policies surrounding how people could identify themselves on legal documents. Formal recommendations were made to broaden the inclusivity of gender/sex identification (Statistics Canada, 2021). Subsequently, in 2019, Canada officially adopted an additional gender category, X, on passports.<sup>2</sup> In doing so, Canada not only formally recognized diverse gender/sex identities but also ceased the harmful practice of ignoring the existence of nonbinary gender/sex identities in Canadian society.

### **Measuring Gender/Sex in Canada**

Following the changes to the Canadian Human Rights Act and the recommendations for gender/sex inclusivity, the measurement of gender/sex information changed to align with federal identification policies. If Canada recognizes the existence of gender/sex identities beyond the traditional gender binary, then logically, any formal identification or assessment must include options beyond the gender binary. As such, the 2021 Canada Census contained two questions pertaining to gender/sex, one assessing sex assigned at birth and the other assessing gender (see Best et al., 2019). Although the sex question remains outdated, relying on binary options without recognition of intersex identities (see Blackless et al., 2000) and inappropriate terminology (i.e., “sex at birth”, see APA, 2021b), the gender identity question represents a substantial improvement over prior censuses in recognizing gender diversity. By allowing participants to respond to a third open-ended option (“please specify”), Statistics Canada used a gender/sex demographic measure in line with current recommendations for respecting gender diversity (e.g., Cameron & Stinson, 2019). Federal agencies, such as the Defence Research and Development Canada (DRDC), have adopted similar two-question approaches after careful consideration of the ethical implications and existing researched measures (Hachey, Fong, & Davis, 2018).

Not surprisingly, psychologists have been researching how to best measure gender/sex. Calls for ethical and respectful treatment of transgender and nonbinary gender identities by psychological organizations (e.g., APA, 2015), journal editors (e.g., Sorge, 2020), and funding agencies (e.g., Canadian Institutes of Health Research; CIHR, 2016) have both inspired and been inspired by the work of researchers investigating the full spectrum of gender/sex (see Hyde et al., 2019, for a review). Although the exact method of gender/sex inclusive measurement is linked to the goals of collecting that data, there is consensus that binary options alone are no longer acceptable (Cameron & Stinson, 2019; CIHR, 2016; Hyde et al., 2019). However, unethical

demographic measures of gender/sex are still prevalent. In a previous review of gender/sex measurement in empirical papers published in *Psychological Science*, most researchers used binary gender/sex measures, despite earlier calls for more ethical treatment of those with identities beyond the gender/sex binary (see Cameron & Stinson, 2019). We suspect that many researchers simply never considered changing their binary gender/sex measures once social awareness of gender diversity started to blossom. Furthermore, most of the researchers included in the Cameron and Stinson review resided in the USA, a country that did not formally recognize gender/sex identities beyond “male” and “female” until late 2021 when the first American passport with the gender “X” was issued (Price, 2021). In a country like Canada, where there is a somewhat longer history of inclusive treatment of gender/sex identities, we hope that researchers be more likely to use inclusive gender/sex demographic measures. Next, we outline the negative consequences of using exclusively binary gender/sex measures and thus, encourage anyone posing a gender/sex question, be it in research or in clinical intake forms, to use inclusive measures.

### **Reasons for Using Inclusive Gender/Sex Measures**

Using inclusive gender/sex demographic measures aligns with the current Canadian Human Rights Act, classifications on national identification (e.g., Canadian passport), and conforms to existing calls for respectful and ethical treatment towards individuals with transgender and/or nonbinary identities (e.g., APA, 2015; Cameron & Stinson, 2019). Perhaps most relevant to the psychological scientist, the use of fair practices towards individuals with identities beyond the gender/sex binary such as using inclusive gender/sex measures, aligns with the ethical and publishing guidelines of the American Psychological Association (APA, 2020), the code of ethics outlined by the Canadian Psychological Association (CPA, 2017), and the

research guidelines provided within the Tri-Council Policy Statement (TCPS-2, 2018). As such, all researchers using human participants should use inclusive gender/sex practices, including demographic measurement, and this is especially true for research that recruits samples from countries like Canada where the gender/sex spectrum is formally recognized.

As we have argued previously (Cameron & Stinson, 2019), the practice of using binary gender/sex measures has several negative consequences, not only for the participants who complete these discriminatory measures, but for the psychological researchers who use such tools. For example, this practice misrepresents our current understanding of gender/sex, violates the ethical principles of psychological research, conveys a discriminatory attitude, and can result in measurement errors in the data collected using such exclusionary measures. It is also worth revisiting some of these negative consequences here and updating these arguments for the Canadian context. First, Canadian psychological researchers who utilize such outdated gender/sex demographic measures will appear out of touch with the laws and ethical values of their own country. As discussed previously, Canada formally and legally recognizes diverse gender identities and any institution or practice within Canada that does not similarly recognize such diversity runs the risk of legal action or, at the very least, public embarrassment. There are many examples in the media of public forms that failed to provide an option beyond the traditional binary (e.g., Bergen, 2021). We suspect that individual researchers, the Research Ethics Boards (REBs) that approve their research, and the institutions that house these researchers would want to avoid similar public embarrassment. Yet, such embarrassment might be particularly strong for psychological researchers who should be informed about a topic that is so very crucial to the psychology of individuals and their identities.

Second, not allowing individuals to claim their identity violates the ethical principles psychological scientists strive to follow (APA, 2015; CPA, 2017; CIHR, 2016; TCPS-2, 2018). Some may argue that this ethical problem is overblown, as less than 10% of the population would potentially experience the negative impact of binary measures (as this is the prevalence of people with identities beyond the traditional gender/sex binary in North America; see Flores et al., 2016; GLAAD, 2017; Statistics Canada, 2020). However, ethical principles apply to all people and to all participants, and thus our ethical guidelines must be upheld even if just one participant has the potential to be negatively affected by exclusionary measurement practices. Moreover, psychological ethical principles guide us to protect the most vulnerable. As transgender people experience greater discrimination (Grant et al., 2011), and consequently, suffer more negative mental health outcomes (Bockting et al., 2013), we should be especially concerned with upholding our ethical standards for those with diverse gender/sex identities.

Third, and perhaps most relevant to the Canadian psychological researcher, binary gender/sex measures exclude all nonbinary identities, and thereby reinforce a colonized conception of gender/sex (Driskill, 2010). Thus, the use of binary gender/sex measures are inconsistent with the ideals of reconciliation with the Indigenous Peoples of Canada as outlined in the calls to action from the Truth and Reconciliation Commission of Canada (2015) and from the United Nations (2007). Because both reports emphasize the importance of respect for Indigenous Peoples and their cultural expressions, denying the existence of nonbinary identities violates a cultural expression within many Indigenous cultural traditions. The umbrella term *Two-Spirit* – first coined at an LGBTQ+ Indigenous gathering near Winnipeg in 1990 – represents a diverse array of sexual orientations, gender identities, and gender expressions from First Nations across North America that exist beyond colonial and heteronormative conceptions

of gender/sex and sexuality (Pruden & Salway, 2020; Wilson, 1996). Although there are over 130 Nation-specific terms used to describe nonbinary gender identities in the languages of the Indigenous Peoples of Canada, not all Indigenous cultures include or value two spirit identities (Driskill, 2010; Pruden & Salway, 2020). Yet Two-Spirit identities are an integral part of many Indigenous cultures in Canada, and psychologists' measurement practices should acknowledge this fact. Thus, measuring and recognizing nonbinary gender identities, including Two-Spirit identities, is an essential component of respecting the Indigenous Peoples of Canada.

### **Present Research**

Although respecting individuals with identities beyond the gender/sex binary in Canadian research includes a range of practices (see APA, 2015; 2020; CIHR, 2016), we argue that using inclusive gender/sex measures is a crucial and important first step in this process (see also Cameron & Stinson, 2019). Gender/sex demographic measures are present in the majority of psychological studies and like any survey question, they represent an “interaction” between the researcher and the participant. These apparently innocuous questions can communicate to participants the researcher's attitudes and prejudices and degree of respect, or disrespect, for individuals with identities beyond the gender/sex binary. Thus, in the current research we survey gender/sex measurement practices in Canadian psychology research to determine where Canadian psychologists stand on the path to respecting individuals with identities beyond the gender/sex binary.

In Study 1, we begin by reviewing gender/sex classifications on legal identification at the national and provincial/territorial level in Canada, to document Canadian norms for gender/sex measurement. In Study 2, we survey the gender/sex measurement that is used in empirical papers published in 2020 in the three Canadian Psychological Association journals: *Canadian*

*Psychology*, *Canadian Journal of Behavioural Science*, and *Canadian Journal of Experimental Psychology*. Our primary goal in this second study was to ascertain the prevalence of inclusive gender/sex demographics measures in Canadian research, and thus, provide a window into how well researchers uphold the country's values for inclusive treatment of diverse gender/sex identities. To further contextualize our results in Study 2 and to provide additional context for Canadian gender/sex measurement, in Study 3 we assess whether Canadian REBs have explicit and public policies regarding the use of inclusive gender/sex measures.

### **Study 1: Identification Documents Across Canada**

How can Canadians identify their genders/sex in official, government sanctioned identification? To address this question, we surveyed the gender/sex options available for national and provincial/territorial identification documents across Canada.

#### **Method**

One coder performed an internet search for national and provincially/territorially regulated government identification. Once located, the coder recorded the gender/sex measure used for each piece of official identification (see the Open Science Framework [OSF] online materials for full codes; Cameron & Stinson, May 18, 2022). At the national level, the gender/sex measure for passports, permanent resident cards, and Indian status cards was recorded. At the provincial and territorial level, the coder recorded the gender/sex measure for driver's license, birth certificates, and health cards. A second coder then verified all information collected; agreement between coders was 100%. We then classified gender/sex measures as providing only the *binary* options of women/female and man/male, as including an *inclusive* gender/sex category that allowed individuals with identities beyond the gender/sex binary to accurately report their gender, and/or allowing a *non-disclosure* option.

## Results and Discussion

Our search yielded 41 official identification documents (ID).<sup>3</sup> As indicated in Table 1, all three national identification documents included an inclusive option (i.e., X). At the provincial level, the majority of IDs included an inclusive option for reporting gender/sex (74%), and of those, 25% also allowed individuals to decline to provide their gender/sex entirely.

**Table 1**

Gender/Sex Options on National and Provincial/Territorial Identification Documents Across Canada

	Binary options only	Inclusive gender/sex option	Non-disclosure option
National	0	3	0
Provincial Total	10	28	7
Alberta	1	2	0
British Columbia	0	3	0
Manitoba	0	3	1
New Brunswick	0	3	0
Newfoundland and Labrador	0	3	0
Northwest Territories	1	2	0
Nova Scotia	0	3	3
Nunavut	2	1	0
Ontario	0	2	1
Prince Edward Island	1	2	1
Quebec	3	0	0
Saskatchewan	0	3	1
Yukon	2	1	0

*Note.* Ontario's health card does not include a gender/sex identification and thus, is not included in the total count.

Although less than a quarter of the IDs we assessed failed to include an inclusive option when measuring gender/sex, we expect this minority will shrink even further in the near future as national norms exert pressure on provincial practices. Indeed, some provincial websites

explicitly mentioned that they were in the process of adopting an inclusive gender/sex option. Even in Quebec, the sole province that does not currently offer an inclusive gender option on any ID documents, the Quebec Supreme Court has ruled that a third option must be made available on birth certificates. Thus, all official identification documents will likely adopt an inclusive gender/sex category in the relatively near future.

### **Study 2: Gender/Sex Demographic Assessment in Psychology Research**

In our survey of IDs across Canada, most Canadians can select a gender/sex identity beyond the binary options of “male” and “female.” Do researchers publishing in Canadian journals afford their participants the same opportunity to self-identify? To address this question, we reviewed the use of gender/sex demographic measures used in empirical papers published in 2020 in *Canadian Psychology*, *Canadian Journal of Behavioural Science*, and *Canadian Journal of Experimental Psychology*. Although not an exhaustive list of Canadian publications for psychological research, nor an exhaustive list of where Canadian psychology researchers publish, our assessment should illuminate the prevalence of inclusive gender/sex measures.

### **Method**

One coder collected all empirical papers using human participants published in 2020 for the three selected journals. A second coder then verified these selections, agreeing 100% on article selection. In total, 53 empirical articles (36 in English; 17 in French) were collected, reporting data for 36,866 participants.<sup>4</sup> Following the coding procedure from Cameron and Stinson (2019), four coders, three of whom were fluent in French, independently recorded the type of gender/sex measure reported (in the published article or supplemental materials). We then categorized these measures as either *binary/othering* or *inclusive*. Binary gender/sex measures include only two options (e.g., male vs. female) or include a third option of “prefer not

to say” that still does not allow individuals with identities beyond the gender/sex binary to self-identify. “Othering” measures include binary gender/sex options and a third option, “other,” that is still not inclusive because the added category implies that only the two named genders are anticipated, and thus, valued (see also Cameron & Stinson, 2019). Inclusive gender/sex measures include those that allow for diverse gender/sex identities. These might be open-ended measures (e.g., “What is your gender? [fill in the blank]), or measures that include a list of multiple diverse gender/sex identities. Coders further recorded whether gender/sex demographics were reported in the article and whether they were used as an analytic variable (e.g., covariate, factor; see the full coding scheme in Cameron & Stinson, May 18, 2022).

Overall, coders agreed 93.3% of the time (ranged from 81% to 100% across all codes), and all disagreements were resolved by a third coder who was fluent in the publication language. When the gender/sex measure used in the research was not reported in the publicly available materials, we contacted the authors via email and requested the missing information (see the OSF online materials for the email wording). The response rate was 60%.

## **Results and Discussion**

Very few researchers described their gender/sex demographic measurement in sufficient detail in their published article or accompanying supplemental file (6%,  $n = 3$ ). This is troubling given that 40% ( $n = 21$ ) of all 53 papers used gender/sex as a covariate or factor in their analyses and failing to describe the measure used in these analyses makes the results difficult to interpret. For example, were participants with nonbinary gender identities able to self-identify and were they subsequently included or excluded from the analyses? The majority of researchers did report some information about binary gender/sex sample prevalence rates (86%,  $n = 46$ ). Only a very small minority reported sample prevalence rates for nonbinary identities (4%,  $n = 2$ ) or

undisclosed gender/sex prevalence rates (8%,  $n = 4$ ). However, even this information is not adequate for readers to evaluate the representativeness or generalizability of the study results or to adequately interpret any results involving gender.

Given the low rate of reporting gender/sex measurement in publicly available materials and a response rate to our email requests of 60%, we were not able to code the type of gender/sex measure used in all empirical papers published in these three CPA journals in 2020. However, we were able to collect the gender/sex measure information for 33 of the empirical articles that were published in these journals in 2020 (21 in English; 12 in French), representing 23,869 participants. Within these 33 empirical papers, the majority were coded from email responses (91%,  $n = 30$ ) and the remaining three were coded directly from the publicly available material (article or supplemental file). Out of these 33 papers, seven did not measure gender/sex (21%) and two of these seven recruited only one gender/sex (see Table 2; see Supplemental Table 1 in the OSF online materials for division by article language). Out of the remaining 26 articles, 77% used a gender/sex measure that was binary/othering ( $n = 20$ ), including one study where researchers assigned participants to binary gender/sex categories based on the participants' appearance (an ethically and scientifically questionable practice; APA, 2015). Only six articles utilized an inclusive gender/sex demographic measure (23%). Thus, less than a quarter of empirical research that we sampled and were able to code reported using an inclusive measure of gender/sex that aligns with the legal classification systems for gender/sex in Canada and with the ethical guidelines endorsed by psychological institutions. Further, our results did not substantially change when we excluded research conducted outside of Canada (see Supplemental Table 2 in the OSF online materials).

**Table 2**

Gender/sex measures in articles published in 2020 in *Canadian Psychology*, *Canadian Journal of Behavioural Science*, and *Canadian Journal of Experimental Psychology*

	<i>Canadian Psychology</i>	<i>CJBS</i>	<i>CJEP</i>	Total
Total Empirical Articles	4	34	15	53
Coded Empirical Articles	2	20	11	33
Gender/sex Measure				
Binary/Othering	0	16*	4	20
Inclusive	0	4	2	6
Not measured/ recruited by gender/sex	2	0	5	7
Source of Measurement Info				
Article or Supplemental file	2	1	0	3
Response from author(s)	0	19	11	30

*Note.* CJBS = *Canadian Journal of Behavioural Science*; CJEP = *Canadian Journal of Experimental Psychology*. \*This count includes one paper where the authors coded gender/sex by visual inspection of participants.

Overall, our results from Study 2 were remarkably consistent with a previous review of the gender/sex measurement practices in empirical articles published in *Psychological Science* from 2016 to 2018 (Cameron & Stinson, 2019). In both samples, researchers rarely described their gender/sex demographic measures in publicly available materials (article or supplemental file) and rarely reported gender/sex identities beyond the traditional binary options. Over 75% of empirical papers in both samples relied on binary gender/sex measures. The consistency of these practices is somewhat surprising given that Canada has taken many strides towards more inclusive gender/sex policies at the governmental level in the past five years, as we showed in Study 1, whereas the United States has only recently begun to take similar steps. Yet, despite these legal changes in Canada, research published in the top Canadian psychological journals

still reports using outdated and unethical practices of discriminatory demographic measurement of gender/sex.

One limitation to the current research is the relatively lower response rate to our email queries regarding gender/sex measures. Although 85% of authors publishing in *Psychological Science* responded to our query in Cameron and Stinson (2019), only 60% of authors publishing in the three Canadian Psychology Association journals were responsive. This difference may be the result of limited researcher capacity and/or availability during the current global pandemic or other factors that distinguish the two sets of authors. Regardless, the lower response rate from researchers in the present sample means we cannot speak to the gender/sex measurement practices in the 20 articles for which we were unable to access the required information. Further, as few researchers report the date of data collection, we cannot determine how many articles published in the 2020 journals reflect current research practices on recently collected data or older practices from data collected prior to the changes in the Canadian Human Rights Act.

### **Study 3: Guidance from Research Ethics Boards**

To meet institutional and funding requirements, all psychological research needs to be vetted by REBs across Canada. Thus, ethical adherence is not the sole purview of researchers; it is also the responsibility of the administrators who approve and permit such research to be conducted. Our data in Study 2 suggest that researchers are either uninformed about or negligent in adhering to the ethical standards for respecting gender/sex diversity as outlined in the Canadian Human Rights Act (2016), calls to action from the American Psychological Association (2015), and the Tri-Council Policy Statement (TCPS-2, 2018). Therefore, we wondered what role REBs might play in perpetuating, or hopefully halting, researchers' harmful measurement practices. To achieve this objective, we reviewed REBs' websites for universities

across Canada to ascertain whether there were any publicly available policies on gender/sex measurement, and if available, to review the content of such policies.

## **Method**

One coder located the websites for REBs in Canadian universities conducting psychological research, and all subsequent information was verified by a second coder (agreement was 100%). Coders first located the URLs for each REB responsible for psychological research of the 15 research-intensive universities in Canada (U15), and then used university directory websites for psychology programs (e.g., <http://www.canadian-universities.net/Universities/Programs/Psychology.html>) to add an additional 46 Canadian universities. Coders then recorded whether there were explicit policies regarding demographic measures of gender/sex and whether there was further recommended resources for considering gender/sex diversity and inclusion. REBs websites were then coded as having inclusive gender/sex measurement policies or not. If a gender/sex measure was recommended, we then coded for whether the recommended measure was open-ended (e.g., “I identify my gender as \_\_\_\_\_ (please specify)”; Cameron & Stinson, 2019), multi-option with an open-ended field (e.g., “Gender: Woman, Man, I identify my gender as \_\_\_\_\_ (please specify)”; Cameron & Stinson, 2019), or multi-option with only closed ended fields (e.g., “Which best describes your current gender identity? Male, Female, Indigenous or other cultural gender minority identity (e.g., two-spirit), Something else (e.g., gender fluid, non-binary)”; Bauer et al., 2017). Lastly, we coded for whether recommended measures separated sex (typically phrased as “sex assigned at birth”) from gender identity. See the OSF online materials for the full coding scheme.

## **Results and Discussion**

Across the 61 REBs surveyed, only eight (13%) provided specific guidelines for inclusive gender/sex measurement (see Table 3). An additional eight (13%) included a statement encouraging researchers to think about gender/sex diversity and inclusion in their research, often with links to resources, but with no clear guidelines about demographic measurement. When a gender/sex measure was recommended it was equally likely to be multi-option with only closed-ended fields ( $n = 4$ ) or multi-option with an open-ended field ( $n = 4$ ). When REBs provided clear guidelines on inclusive gender/sex measurement, they typically suggested measures for sex and gender separately ( $n = 5$ ; 63% of REBs with guidelines). Although universities belonging to the U15 appeared to be more likely to have inclusive gender/sex measurement guidelines on their REB websites (20%) compared to the universities that did not belong to the U15 (11%), this contrast was not statistically significant,  $Z = 0.91$ ,  $p = .362$ .

**Table 3**

Research Ethics Boards with Specific Guidelines for Inclusive Gender/Sex Measures in Canada

	Inclusive Gender/Sex Measure Guidelines	Encouragement to consider gender/sex equity	Multi-option with open ended	Multi-option closed ended	Sex and Gender separately
U15	3	5	1	2	2
Remaining Universities	5	3	3	2	3
Total	8	8	4	4	5

*Note.* N = 61; U15, n = 15; Remaining Universities, n = 46

In sum, a small minority of REBs had explicit and publicly available inclusive gender/sex measurement guidelines. An equal number encouraged researchers to consider gender/sex diversity and inclusion through sharing additional resource links, though many of these resources

detailed broader issues than just demographic measurement. Together, only 26% of REBs encouraged their researchers to consider gender/sex diversity and inclusion, despite numerous ethical calls among researchers, psychological associations, and associations dedicated to human rights (APA, 2015; Cameron & Stinson, 2019) and requirements for inclusive gender/sex treatment in research by national funding agencies (e.g., CIHR, 2016).

It is possible that REBs have inclusive policies for gender/sex measurement that are not posted on their websites, but which still guide their advice to researchers. However, this possibility seems unlikely given the results of Study 2, where we observed that published research – the majority of which was presumably approved by Canadian REBs – failed to use inclusive measures. Further, even if REBs do have internal standards for inclusive gender/sex measurement, omitting those policies from their public websites is problematic for at least two reasons. First, most researchers turn to their REB website for guidance in matters like these, and our survey suggests they will fail to find the (apparently much-needed as per Study 2) guidance on the vast majority of REB websites. Second, if REBs do have internal standards in this area, the lack of public transparency means that the responsibility for enforcing inclusive gender-measurement practices fall onto individual reviewers. Yet individual reviewers may have varied and possibly exclusionary ideologies about gender/sex or they may simply be unaware of gender/sex diversity issues. Thus, it is possible that even in a situation where a university and its REB strive to adhere to ethical standards concerning gender/sex measurement and related research practices, these intentions may not be reflected in that university's actual research practices in the absence of explicit, publicly available policies. Perhaps, then, it is not so surprising that our Study 2 revealed that most researchers still rely on binary gender/sex measures. Clearly, if our field strives to adhere to ethical standards in our treatment of

gender/sex diversity, then researchers need more explicit direction and guidance from REBs regarding inclusive gender/sex measurement.

### **General Discussion**

Canadians can legally identify beyond the traditional binary gender/sex options at a national level and for most regional identification. Yet, current psychological research practices for measuring demographic gender/sex diverge from the ethical code for both Canadians and psychological researchers by relying upon only binary options. In looking at the empirical articles published in the three journals hosted within the Canadian Psychological Association and instructional websites for research ethics boards across Canada, we found few used or recommended the use of inclusive gender/sex demographic measures. Our findings illuminate a disconnect between Canadian researchers and the legal identifications of Canadians. Unfortunately, the practice of using binary gender/sex measures has several negative consequences, as we've discussed earlier. At the very least, psychological researchers who utilize binary gender/sex demographic measures appear uninformed and out of touch with the laws and ethical values of Canada. More concerning, this practice further excludes all nonbinary identities, and in doing so, reinforces a colonized conception of gender/sex that is inconsistent with the ideals of reconciliation with the Indigenous Peoples of Canada. These harms not only influence the individuals with identities beyond the gender/sex binary, but they also appear biased and discriminatory to all participants who are aware of gender/sex diversity.

### **Recommendations for Research and Practice**

In line with existing recommendations for inclusive gender/sex practices (APA, 2015; Cameron & Stinson, 2019), we recommend that anyone conducting research with human participants should use demographic measures that recognize and respect the diversity of

gender/sex. Although we would make this recommendation to any researcher conducting research in any location, we most strongly encourage those studying Canadians to align their practices with the inclusive identification practices of Canada.

As we have outlined in our previous work, we recommend using an open-ended measure (“I identify my gender as \_\_\_\_\_”; Cameron & Stinson, 2019). To allay concerns that the use of such open-ended measures would overburden researchers who must then code options, we created and shared code (SPSS and R) for quantifying participants’ responses in a previous publication (Cameron & Stinson, 2019). Researchers are welcome to edit and modify these codes to accommodate a variety of possible identities.

In some cases, closed-ended measures may be preferred. For example, researchers might sample from populations that could be relatively unfamiliar with the term “gender.” In such instances, providing a closed-ended measure with specific options may offer important context for participants. Within that close-ended list, we strongly recommend that researchers include an open-ended option that provides participants the opportunity to self-identify while also avoiding “othering” any identities that are not included in the close-ended list. For example, researchers can add “I identify my gender as \_\_\_\_\_” (as in Cameron & Stinson, 2019) or “please specify \_\_\_\_\_” (as used in the Canadian Census 2021) to their closed-ended list. Moreover, we encourage researchers to be mindful in selecting the list items to reflect appropriate terminology (see APA, 2021b).

To ensure that researchers use inclusive measures, we further recommend that all university REBs institute formal and visible policies regarding the use of inclusive gender/sex measures. In doing so, REBs can provide clear guidance to researchers (novices and veterans alike) and ensure consistent application of these ethical requirements across reviewers and

applications. We encourage REBs to adopt the open-ended question that we recommended above. Although none of the surveyed REBs that currently provided guidance in this area (i.e., 8 of the 61 that we surveyed) provided an open-ended question, half did recommend closed-ended multi-option questions with an open-ended option and these options were worded with respect by avoiding the term “other”.

Although we anticipate some healthy debate on the ideal gender/sex demographic measure, we urge researchers and REBs to make this essential move towards gender/sex inclusivity now. We have shared our preferred inclusive gender/sex demographic measure above (Cameron & Stinson, 2019) but researchers may want to explore other options (e.g., Bauer et al., 2017; Tate et al., 2013). This may be especially true for researchers focusing on multiple facets of gender (see Egan & Perry, 2001) or recruiting members of specific gender identity groups (e.g., transgender people; Bauer et al., 2017). If members of REBs fear overly restricting the scope of researchers’ freedoms and study objectives, they can easily elect to provide researchers with options of possible inclusive gender/sex demographic measures. Indeed, many of the REBs that had visible recommendations for inclusive gender/sex measures provided a few acceptable options from which researchers could choose. Some also provided links to external resources and some to published papers (e.g., Tate et al., 2013).

Researchers and research administrators should also bear in mind that inclusive gender/sex demographic measurement is only one initial step towards building a more inclusive psychological science (APA, 2015; Cameron & Stinson, 2019). Other important steps include reporting any gender/sex measures used, reporting the prevalence of nonbinary gender/sex identities in recruited samples (even when that prevalence is zero), and clarifying how participants who fall into this category are treated in any analyses involving gender/sex. When

gender/sex is measured only as a demographic variable and is not used in any analyses, we do not anticipate any reasonable justification for the exclusion (i.e., erasure) of individuals with identities outside the binary. For researchers who rely on gender/sex as a factor or covariate, the decision about whether to include or exclude participants whose identities fall beyond the gender/sex binary will largely depend on the research question being tested, the type of analyses being conducted, and the prevalence of such identities in the sample. In such cases, researchers would benefit from additional resources such as the Gender and Sex in Methods and Measurement Research Equity Toolkits (Lowik et al., 2022) in addition to the numerous online resources discussed in published resources, such as the teaching and learning guide for gender-inclusive measurement (Stinson & Cameron, 2020).

### **Conclusion**

Canadian psychological researchers should strive to be at the forefront of gender/sex inclusivity in science, yet our survey of research practices reveals that most researchers' gender/sex demographic measurement practices are actually falling behind Canadian cultural norms. Despite the majority of legal Canadian identification permitting gender/sex identities beyond the traditional gender binary (Study 1), most research published in the three Canadian Psychological Association journals used binary gender/sex demographic measures (Study 2). Further, the majority of Canadian university REBs' websites are silent on the use of inclusive gender/sex measures, despite the fact that using such measures is in line with the Canadian Human Rights Act (2016), the Tri-Council Policy Statement (TCPS-2, 2018) on ethics and specific calls from major funding agencies (e.g., CIHR, 2016). This summary should serve as a wake-up call to anyone still using binary gender/sex measures, and to REBs across the country. The solution to rectifying this problem is simple: Use one of the recommended gender/sex

measures that allow for identities beyond the binary, ideally using an open-ended format to avoid unnecessary constraint or valuation of certain identities over others. In doing so, not only will psychologists adhere to critical standards and Canadian values, but such practices will communicate respect to all participants by demonstrating that we are invested in keeping pace with a rapidly changing Canadian culture.

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### Footnotes

<sup>1</sup> Some people may perceive that the term “spectrum” is more readily applied to gender than to sex. However, many experts argue that sex is also a spectrum, on the basis that sex is multifaceted, assigned based on chromosomes, external and internal reproductive organs, hormone profiles, and secondary sex characteristics, which can and do express in a range of combinations. Most general education on this subject does not yet take this complexity into account, leading to the general cultural view that these facets typically align into a dimorphic system (the relatively rare exceptions are then categorized under the umbrella term of “intersex”). However, in reality, even among those assigned as female and male at birth, the expression of these biological sex facets is not dimorphic, suggesting that sex is not as simple as our cultural ideologies lead us to believe (see Hyde et al., 2018). Yet these cultural understandings are shifting.

<sup>2</sup> Although Canadian passports could not display a gender classification of X prior to June 2019, Canadians could apply to get an insert added to their passport to have X as their gender identifier as of Aug 31, 2017.

<sup>3</sup> Ontario’s health card does not include a gender/sex identification and thus, is not included in the coding here.

<sup>4</sup> The majority of the 53 empirical articles were authored by researchers with Canadian affiliations (79%;  $n = 42$ ) and the majority of participants were recruited from Canada (77%,  $n = 41$ ). Similarly, the majority of the 33 empirical articles that we were able to code for gender/sex measurement were authored by researchers with Canadian affiliations (81%;  $n = 27$ ) and recruited participants from Canada (79%;  $n = 26$ ). As such, we refer to this set of empirical papers as Canadian psychological research because most researchers and participants were from

Canada, the journals sampled are Canadian, and as the flagship journals of the Canadian Psychological Association they contribute to the culture of Canadian psychology. Note that for three articles of the full set of 53 empirical articles and two articles of the set of 33 articles with sufficient detail to permit gender/sex measure coding, we could not decipher the source of participants and thus, could not code for this within these papers.