Harmful Anti-Foreign Sentiments based on Concern for Competition Should be Recognized and Addressed*

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Abstract

Immigration and asylum-seeking are common topics of discussion in our globalized world, about which many Westerners hold opinions due to certain personal justifications. This paper replicates data analysis of the perceptions of non-immigrant German males towards refugees in municipalities where males overpopulate females. We apply secondary research regarding Canadian rates of immigration and gender imbalances in Alberta and raise concerns regarding the possibly generalizable nature of the findings in Germany. As this issue specifically affects minority groups experiencing prejudice, we place great emphasis on the weight of this discussion and call for future investigations of this field to inform policies and initiatives to address racism and hate crimes.

1 Introduction

In Canada, hate crimes based on race and ethnicity increased by 80% in 2020, with the highest number of incidents targeting black individuals, followed by east and southeast Asians, indigenous individuals, and the lowest number of victims being South Asian individuals (Moreau and Wang 2022). Seeing that Canada is one of the most diverse countries in the world, welcoming 405,999 permanent immigrants in 2021 ("2022 Annual Report to Parliament on Immigration" 2022) and 130,125 refugees in 2020 (MacroTrends, n.d.), these statistics concerning the increase of hate crimes pose a real and visceral threat to a large proportion of Canadian residents.

There are many factors that contribute to the increase in hate crimes in Canada. However, with the rise of far-right discourse in the United States, anti-immigrant and anti-refugee rhetoric is becoming more prevalent in Canada. These negative attitudes and actions towards immigrants, refugees, and marginalized individuals can be the result of various structural and personal factors, including increased competition in the job and housing markets, resource scarcity, misguided beliefs about crime rates, illness, welfare dependency, and fears of losing national identity. Despite this, one factor that has received little attention until recently is the impact of mate competition in dating and marriage markets on anti-refugee sentiments. A (2021) paper by Dancygier, Egami, Jamal, and Rischke published in the American Journal of Political Science delves into this potentially important and often-overlooked fusion of social science with ecology.

In studying the opinions of German males living in municipalities with excess male populations, they find that a portion of non-immigrant German men hold the belief that refugees pose a threat to their ability to pursue German women (Dancygier et al. 2021). The study population is primarily non-immigrant German males in highly male populated municipalities. The estimand which we intend to replicate is the effect of mate competition on anti-refugee sentiments. Their finding suggests that hate crimes increase where non-immigrant German men are disadvantaged in their local dating markets (Dancygier et al. 2021). Using

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ecological evidence and originally curated survey data, the paper concludes that competition in dating and marriage markets where men outnumber women increases anti-refugee sentiments and violence (Dancygier et al. 2021).

Our paper will follow a reproduction of Dancygier, Egami, Jamal, and Rischke's findings and apply a Canadian-facing lens to discuss its implications on local Canadian populations and increased anti-refugee/ immigrant sentiments and violence. Our paper seeks to replicate their two following research claims, (1) Non-immigrant German men who live in municipalities with excess male populations are more likely to perceive refugees as threats and (2) Non-immigrant German men who perceive mate competition are more likely to support violence as the only means to gain the attention of German politicians. Our reproduction was conducted using the statistical programming language R (R Core Team 2020). To further enable our analysis we employed the use of the following packages: readr (Wickham, Hester, and Bryan 2023), here (Müller 2020), readstata13 (Garbuszus and Jeworutzki 2021), MASS (Venables and Ripley 2002), sandwich (Zeileis 2006), lmtest (Zeileis and Hothorn 2002), dplyr (Wickham et al. 2022), tidyverse (Wickham et al. 2019), jtools (Long 2022), huxtable (Hugh-Jones 2022), list (Blair and Imai 2010), knitr (Xie 2014) and kableExtra (Zhu 2021).

We begin our paper with a discussion of the data source, the methodologies employed in the original paper and a review of the variables used for our reproduction. We will then conduct a reproduction of select results to verify their findings and improve upon their accessibility. Our paper will conclude with a discussion of our findings where we conduct a case study to apply our findings to Alberta, Canada's only Province with a greater population of males, a discussion of ethical biases, limitations and a push for future research.

2 Data

2.1 Source

The paper used for replication is from the American Journal of Political Science which follows a discussion on the correlation of perceived mate competition and its contributions to anti-refugee sentiments and higher crime rates in Germany (Dancygier et al. 2021). Our reproduction seeks to address two findings made from the original paper and apply a Canadian facing lens.

Their two claims are as follows: (1) Are non-immigrant German men who live in municipalities with excess male populations more likely to perceive refugees as threats? (2) Are non-immigrant German men who perceive mate competition more likely to support violence as the only means to gain the attention of German politicians?

2.2 Methodology

This paper will replicate the survey data that was originally collected for the (2021) paper by Dancygier, Egami, Jamal, and Rischkes, as previously mentioned. Using the online survey platform "Respondi", they conduct four waves of surveys which spanned from September 2016 to December 2017 (Dancygier et al. 2021). The researchers suggest that the anonymity provided by the online survey platform resulted in respondents answering more truthfully. (Dancygier et al. 2021). To mitigate potential biases, the researchers employed list experiments in Waves 1 and 2, and in Wave 2, they randomly assigned 50% of the sample to either a control or treatment group. The treatment group was exposed to statements concerning their agreement with using violence against refugees as a means to get the attention of German politicians. However, no evidence was found to suggest that respondents were concealing their support for hate crimes when comparing the means of the control and treatment groups (Dancygier et al. 2021).

2.3 Features

The original survey data assessed participants on 53 variables, being representative of gender, age and state. The range of recorded age data from the survey occurs from 19-89 years old. Age was then categorized by group which is as follows: 18-29, 30-39, 30-49, 50-59, and 60 and older. Both male and female participants took part in the survey, but females were only involved in the second and fourth waves of surveys. The survey was distributed across 16 German states. Our reproduction, however, included removing variables that were not utilized in our final reproduction analysis and included only the necessary Waves 2 and 4. As a part of our reproduction, we also simplified the names of variables to make them easier to work with. From the original survey data, each variable correlates with a survey question asked to participants. To discuss the variables used in our reproduction we have grouped them in the following way and have listed each variable below.

Socio-demographics

- Age Group
- Gender
- State
- German Citizen
- Marital Status
- Relationship status, single
- Religious Affiliation
- Education
- Occupation
- Income
- Household Size
- Subjective Social Status
- Excess males: The proportion of males to females by states by dividing the number of women by men aged 14 and 44 for each municipality
- Politics: left and right-leaning
- Politics: affiliated parties

Mate Competition: using a scale (1-4) to indicate agreement or disagreement

- The influx of male refugees make it difficult for non-immigrant German men to find female partners
- Job Competition: using a scale of agree or disagree
- The inflow of young make refugees make it more difficult for young non-immigrant German men to find work/ jobs

Life Satisfaction: scale of 0-10

- Satisfaction with life

Encountering Refugees

- How many KM is the closest refugee reception center from your home

- How many refugees do you believe have settled in your municipality in the last year

- In the last month, how many refugees have you encountered in the following locations

Attitudes Toward Refugees (national and local scale): using a scale of agree or disagree

- Violence is sometimes the only means that citizens have to get the attention of German politicians

- Attitudes towards Muslims

- Hostility against refugees is justified

- Politicians should condemn attacks against refugees

- Racist violence is defensible if it leads to fewer refugees settling in a town

- Attacks against refugee homes are sometimes necessary to make garner the attention of politicians

- Refugees are integrating well into Germany

- German refugees should be entitled to German citizenship

- The number of refugees should be reduced

- Refugees are receiving more than non-immigrant Germans

- Refugees should give up their culture to adopt that of Germany

- Refugees are good for the economy

- Refugees increase crime

- Increased refugees increase the risk of terrorism

- Will additional refugees in your town increase the influence of Islam (local)

- Will additional refugees in your town be a challenge for local schools (local)

- Will additional refugees in your town increase competition for housing (local)

- Will additional refugees in your town change the way of life in your town (local)

Operational category

- Experiment lists

- Treatment lists

- Outcome lists

- Waves: out of 4

3   Results

Data from the 4th Wave of surveys were used to show correlation between someone answering that they perceive refugees as a threat to finding a romantic partner and that person's gender, age, and their municipality's gender ratio. We reconstructed the portion of the survey data used for this analysis in Figure 1, changing the presentation to a comparative bar chart where we can directly, visually compare different categories' response patterns along a consistent y-axis.

Dancygier et al. (2021) provides groupings for the varying elements that we wanted to distinguish and compare. The three age/gender groups compared are 1) All (men and women of all ages), 2) Men between ages of 18-44, and 3) Men of "mating age" (30-40), making them of an age that is most commonly seen as the range that people seek to find a partner and "settle down." There were also 3 different groupings for categorizing a municipality's gender ratio which are referred to as "Terciles." Gender ratio was calculated by dividing the male population by the female population of a given municipality (Dancygier et al. 2021).

Table 1: Dividing respondents into three terciles by their municipality's gender ratio

Tercile	Municipality's Male to Female Ratio
1st Tercile	Less than 1.04
2nd Tercile	More than 1.04, Less than 1.12
3rd Tercile	More than 1.12

Within the survey data, each response had a value for that respondents' municipality's gender ratio. Table 1 shows the exact value of ratio used to divide groupings into 1st, 2nd, and 3rd Terciles.

Returning to Figure 1, we immediately notice that the highest rate of perceiving refugees as threats, over 46%, is found in mating-aged men living in municipalities with relatively high male-to-female ratio (at least 1.12 men per 1 woman). Second is men ages 18-44 in the same tercile of municipalities at around 37%. This is in stark contrast to the All group which includes men and women of all ages, where the proportion is lowest in the 1st tercile at around 17%, and highest at the 3rd tercile with 23%. There is one exception of Men 30-40 in the 1st tercile, but otherwise, Men are consistently more likely to perceive refugees as threats to mating than the general population. This jumps greatly the higher the male-to-female ratio is in their own town; the rate in Men 30-40 is almost triple more in the 3rd tercile than the 1st, and about 1.8 times more than the 2nd.

In analyzing Figure 1, we can recognize that the combination of a person being a man, especially between the ages of 30-40, and living in a municipality that has about 9 men per 8 women does seem to predict a higher rate of that person believing that refugees are negatively affecting their chance at finding a romantic partner. To confirm, it is not necessarily true that these respondents are living in an area with disproportionately more refugee men, but men in general. Yet, there being more men at all in their town leads to them displacing blame on refugees when presented with a question regarding the topic.

Nearly half of mating–aged men living in excess male areas perceive refugees as a threat to finding a partner

Figure 1: Proportion of respondents who see refugees as a mating threat by age group and tercile

Table 2: Statements used for surveying respondents

Type	Statement
Only means	When it comes to the refugee problem, violence is sometimes the only means that citizens have to get the attention of German politicians.
Message	Attacks against refugee homes are sometimes necessary to make it clear to politicians that we have a refugee problem.
Justified	Hostility against refugees is sometimes justified, even when it ends up in violence.
Prevent	Xenophobic acts of violence are defensible if they result in fewer refugees settling in town.
Condemn	Politicians should condemn attacks against refugees more forcefully. (For this statement, the results were reversed such that we are looking at respondents who Disagreed or Strongly Disagreed)

Shifting to the topic of hate crime and anti-refugee sentiments, another aspect of the survey asked the respondent to share whether they agreed or disagreed with varying statements that conveyed pro-hate crime or anti-refugee opinions. The exact statements the respondents were given can be seen in Table 2. For discussion, the statements have been shortened to "Only Means", "Message", "Justified", "Prevent", and "Condemn". The data set recorded whether respondents agreed with these statements. The last, Condemn, as seen in Table 2, is clearly an anti-hate crime statement. Thus, answers for this question were weight inversely, such that the data measures who disagreed with it.

The visualization of what proportion of respondents agreed with given statements in the 2nd wave of surveys can be seen in Figure 2. For unstated reasons, Dancygier et al. (2021) excluded "Prevent" in their analysis despite having the data available to plot and analyze response rate for the statement. As evident, we have included it. We excluded the measurement for the control group of respondents who answered the Only Means statement in a list-format (as discussed in Methodology). This was originally intended to notice whether respondents may hide their true feelings about supporting violence against refugees if asked outright compared to if they were to be presented with it more passively in a list. As Dancygier et al. (2021) found, there was no significant difference and this concern was proven to not have actually affected the regular survey data. Thus, we opted to only showcase the regular survey response rates.

Figure 2, shows that, for the first three statements (Only Means, Message, and Justified), between 17% and 20% of respondents agreed with the prompt. 1 in 5 respondents specifically agreed that "hostility against refugees" that "leads to violence" can be justified in certain cases. The highest rate of agreement, though comes to the inverse of Condemn. Over 25%, more than 1 in 4 respondents, disagreed that there was a need for public figures to condemn hate crimes. This may point to a chunk of respondents not necessarily agreeing or supporting hate crime but not perceiving it as a major issue, and thus not seeing it as something that needs to be condemned. The other stand-out is how relatively low the agreement rate is for Prevent, being barely over 13%, 4% lower than the second lowest, Message. This may be due to the fact that Prevent is the only statement that pointedly uses the term "Xenophobic" to identify the intention of these violent acts, while the other statements use general language that don't assign an intrinsic moral value in their description of the violent acts. A respondent may not see a problem with any of the other statements, read Prevent, and simply disagree that their opinion is xenophobic, and thus disagree with it. It may have yielded more similar results to the other statements if it had been reworded to "Acts of violence against refugees".

Analysis of Figure 1 confirms that there is a generally alarmingly high rate of support for hate-crime and

anti-refugee statements, though there may be nuance in certain respondents not seeing these hate crimes as a problem or being racially motivated. These results supported the creation of Table 3 discussed below.
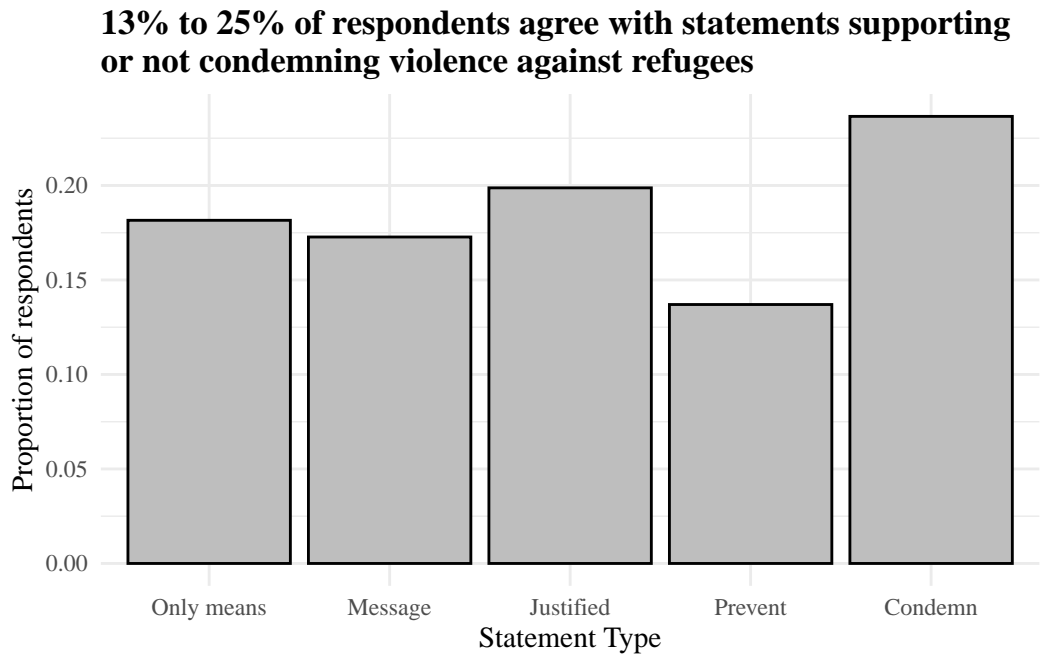
13% to 25% of respondents agree with statements supporting or not condemning violence against refugees

Figure 2: Proportion of respondents who agree with varying hate crime support statements

Finally, we reconstructed Dancygier et al. (2021)'s battery of linear models to predict respondents' sentiments toward refugee-directed hate crime. 6 Models were trained with increasing numbers of factors weighted using Ordinary Least Squares Table 3. The first model used solely mate competition (measured by proportion of excess males). Our models grew in complexity such that the second version was inclusive of job competition and life satisfaction. In the next four models, one at a time, sociodemographic factors, attitudes toward refugees (local first, then national), and last, additional factors (including perceptions of refugee settlements and political groups, and their affiliations) were added. Despite the addition of additional factors, across all models, the predictive weight of mate competition remains high. Job competition, on the other hand, was introduced in model 2 with larger weight than mate competition, but it rapidly fell off with the introduction of more factors. Life satisfaction's weight remains low across all inclusive models. Increasing R Squared indicates that model fit increases with additional factors in our model. These findings are consistent with Dancygier et al. (2021).

Table 3: Tabulated weights of linear regression models 1 through 6 using ordinary least squares. In parentheses are the standard errors. Asterisks denote ranges of p-values as described in the table footer.

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
mate competition	0.389 ***	0.234 ***	0.210 ***	0.183 ***	0.164 ***	0.138 ***
	(0.015)	(0.018)	(0.018)	(0.017)	(0.017)	(0.017)
job competition		0.243 ***	0.229 ***	0.075 ***	0.063 ***	0.054 **
		(0.018)	(0.018)	(0.019)	(0.019)	(0.018)
life satisfaction		-0.033 *	-0.031	-0.008	-0.004	-0.000
		(0.014)	(0.016)	(0.015)	(0.015)	(0.014)
sociodemographics			X	X	X	X
national attitudes toward refugees				X	X	X
local attitudes toward refugees					X	X
additional controls						X
N	3019	3019	3008	3008	3008	3008
R2	0.191	0.240	0.288	0.394	0.410	0.459

All continuous predictors are mean-centered and scaled by 1 standard deviation. *** p < 0.001; ** p < 0.01; * p < 0.05.

4 Discussion

4.1 Findings

In this paper, we have replicated the results found by Dancygier, Egami, Jamal, and Rischke. Their analysis sought to explore the correlation between perceived mate competition in municipalities with excess males and its contributions to anti-refugee sentiments and higher crime rates in Germany. Our paper has replicated two of their major findings.

(1) Non-immigrant German men who live in municipalities with excess male populations are more likely to perceive refugees as threats.

(2) Non-immigrant German men who perceive mate competition are more likely to support violence as the only means to gain the attention of German politicians.

By replicating their results, we hope to apply a Canadian-facing lens to gain insights into Canadian dating markets, the geographical distribution of males and females and their potential impacts on anti-refugee sentiments.

4.2 Canadian Relevance: Case Study on Alberta's population ratios, dating markets and anti-refugee sentiments

To investigate the relevance of Dancygier, Egami, Jamal, and Rischke's discoveries in a Canadian context, we will now explore Canada's only Province with a higher ratio of males than females.

Alberta is a Province in Canada with a total population of 4,543,111 individuals. It is the only Canadian Province that is more heavily populated by males, with a male population of 2,282,040 compared to 2,261,071 females (Jeudy 2022). Thus having a ratio of approximately 1.01, which is comparable to that of the 1st tercile in Figure 1. This means that there are about 11,000 more men than women residing in this Province. Part of the population gap can be explained by age. Alberta has a primarily young population and we typically see that as populations age they exhibit a higher female population (Wakefield 2017). Its trades centric economy also attracts young male migrants from across Canada (Wakefield 2017).

Concerning the original paper, Alberta's population growth can be largely attributed to international immigration which has typically brought equal numbers of males and females (Wakefield 2017). However, according to the 2021 census, 101, 650 more males are single (not married or living common law and never married) than women (Government of Canada 2023). Due to Alberta's young population, highly concentrated with men of working age, a comparison can be made to the term 'mating-aged' used in the original paper to describe males facing higher tensions of dating competition. We thus believe that similar conditions for dating and marriage markets can be made between Alberta and the German municipalities of that the 1st Tercile from Figure 1.

While population demographics are comparable between that of Alberta and the 1st tercile of German municipalities in the original paper, it is difficult to suggest that potential competition in Albertan dating and marriage markets correlates to anti-refugee sentiments and violence. However, in addressing Albertan immigrant and refugee statistics we will aim to illustrate how these patterns found in Germany can manifest in the context of Alberta. Based on the 2021-2022 Annual Population Report, Alberta welcomed 12,603 immigrants and 21,434 non-permanent residents, which include refugees ("Population Statistics" 2023).

While previous accounts have suggested that immigration has brought an equal number of males and females, it is safe to assume that Alberta is a growing population, subject to a population with a higher concentration of males (Wakefield 2017). According to a 2018 paper, at the time 6 in 10 Canadians disagreed when asked if immigration levels were too high, with 35% believing that Canada accepts too many immigrants (Perreaux 2018). However, sentiments appear less than positive in Alberta, with Albertans expressing harsher attitudes

towards immigrants and refugees (Perreaux 2018). 48% of Albertans at the time agreed that refugee claims are not filed from real refugees, with 62% stating that immigrants do not adopt Canadian values, about 10% higher than the national average of 51% (Perreaux 2018). The Globe and Mail suggest that part of Alberta's higher anti-refugee attitudes can be attributed to its economy and fears of competition.Dancygier, Egami, Jamal, and Rischke find that in areas where men significantly outnumber women, there are higher levels of anti-refugee hate crimes (Dancygier et al. 2021).

Based on these statistics, we believe that Alberta may experience a similar effect of anti-refugee sentiments in part as a result of increased immigrants/ refugees and competition in a young male-dominated population. However, as stated in their original paper, we call for further research to be conducted on this effect to better understand its implications on non-German countries.

4.3 Ethical Implications

In their paper, Dancygier, Egami, Jamal, and Rischke examine the ethical implication of using experimental methodologies to investigate their research topic. By using descriptive data in the form of surveys they are able to investigate the opinions of non-immigrant German males and their perception of mate competition and its translation to anti-refugee violence. By avoiding experimental trials, they were able to explore their topic without provoking anti-refugee sentiment (Dancygier et al. 2021). While conducting experimental trials on this topic of research is considered unethical, surveys and questionnaires may have a tendency to give respondents the impression that their opinions are commonly shared or even accurate. By being presented with a platform to express their perception of mate competition and if they agree that violence towards refugees is the only way to garner the attention of German politicians, respondents may feel that their opinions are incorrectly justified. This then has the potential to translate to violence towards German refugees.

4.4 Accounting for Bias

Ethical implications and biases arise naturally when collecting quantitative and qualitative data. In their paper, Dancygier, Egami, Jamal, and Rischke use online survey platforms to assess if Germans living in areas with greater populations of men who experience turmoil in the mating market are more likely to perceive competition between themselves and refugees, moreover, does this ideology predict hate crime support (Dancygier et al. 2021). The authors attempted to address ethical concerns and statistical biases by utilizing control groups and replicating their study with different samples and polling firms. However, one potential bias that is challenging to control for is the presence of sampling bias (Dancygier et al. 2021). Sampling bias occurs when participants in a study are not representative of the estimand or the ideal population of interest. One method to control for this bias is simple random sampling, where participants are chosen by chance. Meaning that every individual in the population has an equal chance of being selected. However, in their study, they were unable to utilize simple random sampling. Instead attempted to make their survey results representative by conducting four waves of surveys meant to be representative of age, gender and geographical region (Dancygier et al. 2021). Despite their effort, their survey results may not be entirely representative as individuals who have a strong interest in the subject matter are more likely to participate, meaning they do not reflect the views of all non-immigrant German males (Dancygier et al. 2021).

4.5 Limitations

Being a reproduction, much of our analysis was limited to the original survey circumstances captured in (Dancygier et al. 2021). Despite the survey being long, it can not be considered to be comprehensive. This prevented us from exploring other relationships in the data. For example, in this German context, it would have been interesting to look into sentiments toward the treatment of communities experiencing genocide

during the history of World War II. Our connection of findings to the Albertan context was also limited by this cultural and geographical separation from our data.

Due to the heteronormative nature of this study's data, our analysis was also not able to be fully representative of the German population as (Dancygier et al. 2021)'s authors described. While this is not to be surprised from an ecological context of mating behaviour, perhaps gay men would have been found to experience anti-refugee sentiment as well as an extension of the mate competition argument.

There were also limitations associated with missing and limited data in our set. For example, in our analysis depicted in Figure 1, fewer than 300 observations were represented in the oldest age group, which these authors doubted was enough for a meaningful evaluation.

4.6   Future Research

As suggested in their original paper, Dancygier, Egami, Jamal, and Rischke call for future research to investigate how their findings apply to less ethnically distinct groups, with less aggressive media attention and under non-heteronormative roles (Dancygier et al. 2021). They further call for tests in ethnonational countries and in regions where females overpopulate males to see if their findings apply to women (Dancygier et al. 2021). As Global migration and refuge continue to increase, we anticipate that this field of study will become increasingly significant. It is thus crucial to expand on their findings to assess how they apply in varying nations. This is in hopes to create policy changes and account for preventative measures to avoid increased anti-refugee sentiments and hate crimes caused by sex-driven competition. We further hope for this field of research to be applied under less heteronormative circumstances and work to account for queer-identifying individuals.

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