

**Supplementary Online Appendix**

# Unobserved Heterogeneity between Individuals in Group-Focused Enmity

**Maria-Therese Friehs**

FernUniversität in Hagen, Germany  
maria-therese.friehs@fernuni-hagen.de

**Judith Masselmann**

Osnabrück University, Germany  
jmasselmann@uni-osnabrueck.de

**Maike Trautner**

Westfälische Wilhelms-Universität Münster, Germany  
maike.trautner@uni-muenster.de

**Patrick Ferdinand Kotzur**

Durham University, United Kingdom  
patrick.f.kotzur@durham.ac.uk

**Peter Schmidt**

Centre for International Development and Environment (ZEU), Justus-Liebig-University Gießen & University  
of Mainz, Germany  
peter.schmidt@sowi.uni-giessen.de

## Overview of Covariate Measures

### *Overview of Indicators Assessing Covariates*

Construct	Indicator code	Indicator Content	Scale <sup>1</sup>
Level of Education	zu01q10	Which is your highest school or university degree?	1 – no degree 2 – degree after 8 years of schooling 3/4 – degree after 9 years of schooling 5/6 – degree after 10 years of schooling 7 - A-Level 8 – Completed university studies 9 - Other
Age Living in the former Eastern or Western part of Germany	gebjq10	Please tell me in which year you were born. East-West	Open answer [This variable was coded from the registry of telephone numbers.]
Political Orientation	po01q10	Many people use the labels “left” and “right” to describe different political attitudes. If you think of your own political orientation, would you consider yourself ...?	1 – left 2 – rather left 3 – central 4 – rather right 5 – right
Construct	Indicator code	Indicator Content	Scale <sup>1</sup>

Right-Wing Authoritarianism	au01q10	Crimes should be punished harder.
	au02q10	To keep law and order, we should take strong action against misfits and slackers in society.
	au03q10	Some of the most important qualities someone could have are obedience and respect against one's superior.
	au04q10	We should be thankful for leaders that tell us what to do.
Social-Dominance Orientation	do01q10	Some groups that are at the bottom of our society should also stay at the bottom.
	do02q10	There are groups that are worth less than others.
	do03q10	Some groups of the population are more useful than others.

---

*Note.* Data source: Gruppenbezogene Menschenfeindlichkeits-Survey 2011 (Heitmeyer et al. 2013). <sup>1</sup> If not declared otherwise, the answering scale ranged from 1 – completely agree to 4 – agree not at all.

**Unobserved Heterogeneity Between Individuals in Group-Focused Enmity**

Proposal responding to the Call for Proposals

*Group-Focused Enmity – Conceptual, Longitudinal and Cross-National Perspectives Based on Pre-Registered Studies*

of the International Journal of Conflict and Violence

Word count: Abstract: 188 words; Full text: 2029 words

The manuscript contains two tables in the Appendix

### **Abstract**

With the proposed research project, we aim at shedding light on an issue which has long been overlooked in social psychology and related research domains: The question of unobserved heterogeneity in group-focused enmity (GFE). Most GFE research uses variable-centred approaches like multivariate regression and factor analysis, which imply that the results apply uniformly to all participants in the sample. Nonetheless, initial evidence exists from research in Islamophobia and GFE that different latent classes (i.e., subsamples) can be identified, which might vary in terms of the mean values of GFE and its components, but also in terms of its factor-analytical composition. Consequently, we will apply person-centred analytical approaches to investigate unobserved heterogeneity between individuals in cross-sectional survey data (using factor mixture models) and longitudinal GFE trajectories (using growth mixture models). We also aim at explaining differences between latent classes through the use of theoretically founded covariates, namely age, level of education, living in the formerly Eastern or Western part of Germany, political orientation, right-wing authoritarianism, and social dominance orientation. Knowledge on unobserved heterogeneity in GFE may stimulate future research and assist in practical applications such as personalised prejudice interventions.

## **Unobserved Heterogeneity Between Individuals in Group-Focused Enmity**

### **1. Theoretical Background**

Although prejudice against different ethnic, religious, or national groups has often been researched and discussed as separate phenomena (Zick et al. 2008), there is strong empirical support for the substantial inter-relatedness of attitudes against different groups (Allport 1954): Individuals who reject one group also tend to reject other groups. In addition, there is empirical evidence supporting the idea that different types of prejudice originate from some common causes and lead to similar consequences (Meeusen et al. 2018, Zick et al. 2008). This phenomenon known as Group-Focused Enmity (GFE) allows to be theoretically and statistically expressed as an overarching factor of generalised outgroup antipathy (Bergh and Akrami 2016; Heitmeyer 2002; Zick et al. 2008). GFE has been researched broadly in cross-sectional large-scale surveys and panels (e.g., Heitmeyer 2002), focussing – beyond others – on the syndrome’s modelling, components, stability, and (components’) trajectories over time (Davidov et al. 2011; Zick et al. 2008).

One important feature of previous research on GFE is that the research questions and analyses usually assumed the sample to be homogeneous (i.e., the findings were expected to apply uniformly to all individuals in the sample; Lubke and Muthén 2005). This variable-centred perspective bears the risk of overlooking possible unobserved heterogeneity between individuals, or in other words, the option that distinct unknown classes of individuals with qualitatively different expressions of GFE exist within one sample (i.e., a person-centred research perspective). These classes might be distinct because they might combine GFE components (i.e., various outgroup-specific prejudice) in different ways (leading to unequal measurement models, i.e. measurement non-invariance, between classes) or because they might show different average levels of GFE, which in turn may be differentially related to

relevant outcomes. As such, methodologically, person-centred approaches extend and complement the established variable-centred GFE focus (e.g., factor-analytical or regression-based research) by considering not only information concerning the inter-relatedness, but also the mean structure on different GFE components, and by not assuming linear relations between variables (Meeusen et al. 2018).

Unobserved heterogeneity has been a rather unattended issue in the field of GFE and general prejudice research (for a current exception, see Adelman and Verkuyten 2020, and Dangubic, Verkuyten, and Stark 2020, on islamophobia; Meeusen et al. 2018, on GFE). Whereas Meeusen and colleagues (2018) presented evidence of five different GFE patterns in a large-scale cross-sectional Belgium survey, Davidov and colleagues (2011) found substantial variation in the individual trajectories of some GFE components over the course of four years. Both findings imply that individuals showed different (longitudinal) profiles in GFE and indicate that the further investigation of unobserved heterogeneity is a promising and fruitful endeavour for future GFE research.

## **2. Research Project Outline and Expectations**

This research proposal addresses the mentioned research gap by outlining a two-study project to investigate unobserved heterogeneity in German GFE survey data. Our research goals are: (I) to examine whether unobserved heterogeneity can be found in cross-sectional GFE data and longitudinal GFE trajectories; if so, (II) to identify the adequate number of latent classes (i.e., subsamples) to account for this unobserved heterogeneity; (III) to describe how the expressions of GFE and its component differ between latent classes; and (IV) to explore whether these latent classes can be characterised by covariates founded in previous GFE research. Moreover, (V) we will discuss the extent to which the findings from the cross-sectional and the longitudinal analyses agree or conflict.

We expect to find unobserved heterogeneity between respondents in both cross-sectional GFE scores (see Study 1) and longitudinal GFE trajectories (see Study 2). However, given the scarce preliminary studies in this field as well as the expressed explorative and context-dependent nature of person-centred research methods (Adelman and Verkuyten 2020; Lubke and Muthén 2005), we cannot make any predictions concerning the number of latent classes, their characteristics with regard to GFE and its components, or the similarities and differences between the cross-sectional and longitudinal findings. For the further characterisation of these latent classes on the basis of theoretically founded covariates, we will focus on the following constructs and their expected relations with GFE:

- a. Previous research has shown that the demographic information age, level of education, living in the formerly Eastern or Western part of Germany, and the political orientation predict trajectories in GFE components, whereby higher age, low level of education, living in the formerly Eastern part of Germany, and having a right-wing political orientation predicted higher average GFE levels (Davidov et al. 2011). Therefore, the present research seeks to examine whether these variables also predict qualitative differences in GFE (i.e., belonging to a latent GFE class representing different characteristics).
- b. Additionally, the individual characteristics right-wing authoritarianism (RWA; Altemeyer, 1981) and social dominance orientation (SDO, Sidanius and Pratto 1999) have been found to be both positively related to GFE (Zick et al. 2008). Consequently, the present research will investigate if these constructs also serve to explain unobserved heterogeneity in GFE.

## 2.1 Study 1



Study 1 will investigate the extent to which cross-sectional large scale GFE survey data show unobserved heterogeneity as well as its characteristics and covariates using the German “Gruppenbezogene Menschenfeindlichkeits-Survey 2011” (Heitmeyer et al. 2013). To this end, we will conduct factor mixture modelling (FMM). FMM models data as (traditional) continuous latent variables (i.e., factor analysis), but simultaneously allows for categorical differences (i.e., latent class membership) in these latent variables as well as their measurement models (Lubke and Muthén 2005). The survey assessed a broad variety of GFE components (i.e., anti-refugee attitudes, antisemitism, antiziganism, devaluation of disabled people, devaluation of homeless people, devaluation of long-term unemployed, devaluation of newcomers, homophobia, islamophobia, racism, sexism, xenophobia; each component measured by two items; Heitmeyer et al. 2013). The representative survey includes 2000 German-speaking participants at the age of 16 years and above living in private households in Germany. The eligible GFE components and corresponding indicators as well as the covariates are displayed in Table 1 in the appendix.

Our analytical procedure will include the following steps, computed in Mplus using a robust maximum likelihood (MLR) estimator which is robust to non-normality and non-independence of the data (Muthén and Muthén 1998 – 2017):

- a. For each GFE component, we will compute mean values from two items. In case a component was measured by more than two items, we will use the two items with the highest factor loading as identified in confirmatory factor analyses (CFA; Zick et al. 2008). These components’ mean values will serve as indicators for the GFE factor. Though it is statistically possible to model the components as factors (i.e., a second-order factor-analytical model of GFE as presented by Zick et al. 2008), we

- will refrain from doing so in order to reduce model complexity, which might result in non-convergence of the FMM (Lubke and Muthén 2005).
- b. Using all listed components, we will model a GFE factor in a CFA. We will examine the solution for adequate model fit (defined as  $RMSEA \leq 0.08$ ,  $SRMR \leq 0.10$  and  $CFI \geq 0.95$ ; Schermelleh-Engel, Moosbrugger, and Müller 2003) and acceptable parameter performance (i.e., standardised factor loadings  $\geq 0.5$ ; Brown 2015). In case the model including all components shows unacceptable model fit, we will adapt the measurement model using the information provided in modification indices and standardized residuals for covariances (Brown 2015). Adaptations might include the exclusion of components with low standardized factor loadings of the GFE factor, or the introduction of residual covariances between components (Zick et al. 2008).
  - c. An adequately fitting CFA measurement model of GFE will be examined in terms of significant factor variance, which forms the precondition for performing FMM, as it indicates substantial variation (i.e., unobserved heterogeneity) in the GFE factor. Subsequently, this variation shall be explained by categorical, person-centred approaches: The GFE measurement model will be submitted to a variety of FMM analyses with increasing numbers of latent classes and differing levels of measurement invariance. To determine the optimal number of latent classes, we will apply the following criteria: Successful convergence, parsimony and interpretability of the latent class results, no less than 1% of total sample count in a latent class, low BIC, a significant BLRT test, high entropy (near 1), and high posterior probabilities (near 1; Jung and Wickrama 2008; Lubke and Muthén 2005). To determine the optimal level of measurement invariance, we will focus on

- differences in BIC and results of the MLR-adapted Satorra-Bentler  $\chi^2$  difference test. Between-class-differences in the resulting model will be described in terms of in GFE measurement model as well as the average GFE and components' scores.
- d. Finally, in order to further describe emerging latent classes as qualitative differences in GFE, we will examine whether the covariates listed above predict latent class membership. To this end, we will use the R3STEP procedure (Asparouhov and Muthén, 2014), which is based on logistical regressions.

To summarise, this study will explore the extent of unobserved heterogeneity in cross-sectional GFE data as well as qualitative (e.g., in terms of differences in GFE measurement models) and quantitative (e.g., regarding the average scores in GFE and its components) differences between latent GFE classes. Additionally, these latent classes will be described with regard to theoretically founded covariates of GFE.

## **2.2 Study 2**

Study 2 will provide an additional perspective by investigating unobserved heterogeneity in longitudinal GFE data. Therefore, we will analyse three waves of the GESIS Panel "Attitudes towards Ethnic Minority Groups" (Wagner, Schmidt, and Kauff 2016) which were collected between October 2016 and December 2017 (average interval between waves: 6 months). The panel contains attitudes measures towards Muslims, refugees, Sinti and Roma, and foreigners (each measured with two items; for an overview of the indicators and covariates, see Table 2 in the appendix) measured in a probability-based sample of about 3300 German-speaking individuals between 18-70 years.

In Study 2, we aim to describe whether and how developmental trajectories of GFE over time might vary between individuals, and how this is related to theoretically founded covariates of GFE. To do so, we will conduct the following analysis steps:

- a. Following the same reasoning as outlined in Study 1, for each GFE component, we will compute mean values of the two items. These components' mean values will serve as indicators for the GFE factor.
- b. Subsequently, we will conduct CFA of the GFE measurement model with all components for each measurement wave, employing the model fit criteria defined above. In case the measurement model shows non-acceptable fit, we will apply the same strategies as outlined above to improve model fit. The fitting measurement model will be subjected to an examination of (partial) scalar longitudinal measurement invariance, which is precondition to the meaningful interpretation of GFE trajectories (Davidov et al. 2014).
- c. In the following, we will fit a latent mean model, and subsequently test whether there is substantial change over time in the data. We do this by adding a linear slope factor model (Bollen & Curran 2006) and checking whether its inclusion improves model fit significantly on the base of an MLR-adapted Satorra-Bentler  $\chi^2$  difference test. We may explore different slope factor shapes depending on the model fit to the data. This solution will be examined for significant variance in the latent intercept and slope factors, which are the precondition for examining unobserved heterogeneity.
- d. The best fitting model will be entered into a series of Growth Mixture Model (GMM; Muthén and Muthén 2000) of increasing number of latent classes. Criteria for identifying the optimal number of classes are the same as in study 1. The trajectories of the different classes will be explored.

- e. To additionally examine the influence of theoretically funded covariates, we will test for mean-value differences in these covariates between the different latent classes using the regression-analytical R3STEP procedure as outlined above.

### **3. Relevance**

With the present research proposal, we hope to contribute to a complete and comprehensive understanding of GFE by not only GFE's average level or interrelation with other constructs, but by examining how individuals may vary quantitatively and qualitatively in GFE. This information is highly valuable for basic and applied social psychology, as it allows for the identification of different sub-samples with specific characteristics. This knowledge will increase our conceptual understanding and form the foundation for more personalised, customised interventions against prejudice.

## References

- Adelman, Levi, and Maykel Verkuyten. 2020. Prejudice and the Acceptance of Muslim Minority Practices – A Person-Centered Approach. *Social Psychology*, 51:1-6. <https://doi.org/10.1027/1864-9335/a000380>
- Asparouhov, Timohir, and Bengt O. Muthén. 2014. Auxiliary Variables in Mixture Modeling: Three-Step Approaches using Mplus. *Structural Equation Modeling: A Multidisciplinary Journal*, 21: 329-341. <https://doi.org/10.1080/10705511.2014.915181>
- Allport, Gordon W. 1954. *The Nature of Prejudice*. London: Pearson.
- Altemeyer, Bob. 1981. *Right-Wing Authoritarianism*. Winnipeg, Manitoba, Canada: University of Manitoba Press.
- Bergh, Robin., and Nazar Akrami. 2016. Generalized Prejudice: Old Wisdom and New Perspectives. In *Cambridge Handbook of the Psychology of Prejudice*, eds. Chris G. Sibley, and Fiona K. Barlow, 438–460. Cambridge, England: Cambridge University Press.
- Bollen, Kenneth A., and Patrick J. Curran. 2006. *Latent Curve Models – A Structural Equation Perspective*. Hoboken, New Jersey: John Wiley & Sons Inc.
- Brown, Timothy. A. 2015. *Confirmatory Factor Analysis for Applied Research*. New York: Guilford Press.
- Dangubic, M., Maykel Verkuyten, and Tobias Stark. 2020. Understanding (In)Tolerance of Muslim Minority Practices: A Latent Profile Analysis. *Journal of Ethnic and Migration Studies*. <https://doi.org/10.1080/1369183X.2020.1808450>
- Davidov, Eldad, Stefan Thörner, Peter Schmidt, Stefanie Gosen, and Carina Wolf. 2011. Level and Change of Group-Focused Enmity in Germany: Unconditional and Conditional Latent Growth Curve Models with Four Panel Waves. *Advances in Statistical Analysis*, 95: 481-500. <https://doi.org/10.1007/s10182-011-0174-1>
- Davidov, Eldad., Bart Meuleman, Jan Cieciuch, Peter Schmidt, and Jaak Billiet. 2014. Measurement Equivalence in Cross-National Research. *Annual Review of Sociology*, 40: 55-75. <https://doi.org/10.1146/annurev-soc-071913-043137>
- Heitmeyer, Wilhelm. 2002. Gruppenbezogene Menschenfeindlichkeit: Die theoretische Konzeption und erste empirische Ergebnisse [Group Focused Enmity. Theoretical Conception And First Empirical Results]. In *Deutsche Zustände [German Conditions]*, ed. Wilhelm Heitmeyer, 15–34. Frankfurt: Suhrkamp.

- Heitmeyer, Wilhelm, Steffen Kühnel, Peter Schmidt, Ulrich Wagner, and Jürgen Mansel. 2013. *Gruppenbezogene Menschenfeindlichkeit 2011 [Group-Focused Enmity 2011]*. GESIS Datenarchiv, ZA5576 Datenfile Version 1.0.0. Köln: GESIS. <https://doi.org/10.4232/1.11807>
- Jung, Tony, and K. A. S. Wickrama. 2008. An Introduction to Latent Class Growth Analysis and Growth Mixture Modelling. *Social and Personality Psychology Compass*, 2: 301-317. <https://doi.org/10.1111/j.1751-9004.2007.00054.x>
- Lubke, Gitta H. and Bengt O. Muthén. 2005. Investigating Population Heterogeneity with Factor Mixture Models. *Psychological Methods*, 10:21-39. <https://doi.org/10.1037/1082-989X.10.1.21>
- Meeusen, Cecil, Bart Meuleman, Koen Abts, and Robin Bergh. 2018. Comparing a Variable-Centered and a Person-Centered Approach to the Structure of Prejudice. *Social Psychological and Personality Science*, 9: 645-655. <https://doi.org/10.1177/1948550617720273>
- Muthén, Linda K., and Bengt O. & Muthén. 1998 – 2017. *Mplus User's Guide (8<sup>th</sup> ed.)*. Los Angeles, CA: Muthén & Muthén.
- Muthén, Bengt O., and Linda K. Muthén. 2000. Integrating Person-Centered and Variable-Centered ANalyses: Growth-Mixture Modeling with Latent Trajectory Classes. *Alcoholism: Clinical and Experimental Research*, 24: 882-891. <https://doi.org/10.1111/j.1530-0277.2000.tb02070.x>
- Schermelleh-Engel, Karin, Helfried Moosbrugger, and Hans Müller. 2003. Evaluating the Fit of Structural Equation Models: Tests of Significance and Descriptive Goodness-of-Fit Measures. *Methods of Psychological Research Online*, 8: 23-74.
- Sidanius, Jim, and Felicia Pratto. 1999. *Social Dominance Theory*. Cambridge, UK: Cambridge University Press.
- Wagner, Ulrich, Peter Schmidt, and Mathias Kauff. 2016. *Attitudes Towards Ethnic Minority Groups*. GESIS Panel Study Description Related to ZA5664 and ZA5665. Köln: GESIS.
- Zick, Andreas, Carina Wolf, Beate Küpper, Eldad Davidov, Peter Schmidt, and Wilhelm Heitmeyer. 2008. The Syndrome of Group-Focused Enmity: The Interrelation of Prejudices Tested with Multiple Cross-Sectional and Panel Data. *Journal of Social Issues*, 64: 363-383. <https://doi.org/10.1111/j.1540-4560.2008.00566.x>

## Appendix

Table 1

### *Eligible Items to Assess GFE Components in Study 1*

GFE Component	Item code	Item Content	Scale <sup>1</sup>
Anti-Refugee Attitudes	ay01q10	When examining the applications for asylum, the state should be generous.	
	ay02q10	Most asylum seekers are not really afraid to be persecuted in their home countries.	
Antisemitism	as01q10	Jews have too much influence in Germany.	
	as02q10	Because of their behaviour, Jews are complicit in their persecution.	
	as03q10	Many Jews today seek to take advantage of the Third Reich's history.	
	as05q10	I am angry that the Germans are still today blamed for the crimes against the Jews.	
Antiziganism	vr01q10	I would have a problem with Sinti and Romani being present in my area.	
	vr02q10	Sinti and Romani should be banned from the city centres.	
	vr03q10	Sinti and Romani tend to be criminal.	



Table 1 (continued)

GFE Component	Item code	Item Content	Scale <sup>1</sup>
Devaluation of Disabled People	he03bq10	In Germany, we make too much effort for disabled people.	
	he04bq10	I think many demands of disabled people are excessive.	
	he05bq10	Disabled people receive too many benefits.	
Devaluation of Homeless People	he01oq10	Begging homeless people should be removed from pedestrian zones.	
	he02oq10	Homeless people in cities are unpleasant.	
	he03oq10	Most homeless people are unwilling to work.	
Devaluation of Long-Time Unemployed	lz01q10	Most long-time unemployed people are not really interested in finding work.	
	lz02q10	Those who don't find employment after long-time unemployment are themselves responsible for their situation.	
	lz03q10	I think it's outrageous when long-time unemployed people enjoy their lives at the expense of the society.	
	dlz01q10	Long-time unemployed people should be forced to do charitable labour.	
	dlzo2q10	Long-time unemployed people should only receive money from the state if they are willing to take any work.	

Table 1 (continued)

GFE Component	Item code	Item Content	Scale <sup>1</sup>
Devaluation of Newcomers	ev03q10	Those who are new somewhere should be satisfied with less at the beginning.	
	ev04q10	Those who have always lived in one place should have more rights than those who came later.	
Homophobia	he01hq10	Same-sex marriages should be allowed.	
	he02hq10	It is disgusting when homosexuals kiss in public.	
	he03hq10	Homosexuality is immoral.	
Islamophobia	he03mq10	The many mosques in Germany demonstrate that Islam plans to increase its power.	
	he05mq10	Because of the many Muslims, I sometimes feel like a stranger in my own country.	
	he10mq10	The Muslim culture fits into our Western world.	
	he12mq10	Muslims should be forbidden to immigrate to Germany.	
	hw15mw10	I am more suspicious of people of Muslim faith.	
Racism	he16mq10	Islamic and Western European values can be combined.	
	ra01q10	Resettlers should be treated better than foreigners, because they have a German origin.	
	ra03q10	It is right that White people rule the world.	

Table 1 (continued)

GFE Component	Item code	Item Content	Scale <sup>1</sup>
Sexism	sx01q10	The discrimination of women in Germany is still a problem.	
	sx02q10	The current employment politics discriminate against women.	
	sx03q10	Women should focus again more on their role as wives and mothers.	
	sx04q10	It should be more important for a wife to assist her husband in his career than to make her own career.	
Xenophobia	ff03dq10	Most of the foreigners living in Germany are a burden to the social system.	
	ff04dq10	There are too many foreigners in Germany.	
	ff08dq10	If the jobs become scarce, we should send the foreigners living in Germany back to their home countries.	

Table 1 (continued)

GFE Component	Item code	Item Content	Scale <sup>1</sup>
Covariate: Level of Education	zu01q10	Which is your highest school or university degree?	1 – no degree 2 – degree after 8 years of schooling 3/4 – degree after 9 years of schooling 5/6 – degree after 10 years of schooling 7 - A-Level 8 – Completed university studies 9 - Other
Covariate: Age	gebjq10	Please tell me in which year you were born.	Open answer
Covariate: Living in the former Eastern or Western part of Germany		East-West	[This variable was coded from the registry of telephone numbers.]

Table 1 (continued)

GFE Component	Item code	Item Content	Scale <sup>1</sup>
Covariate: Political Orientation	po01q10	Many people use the labels “left” and “right” to describe	1 – left
		different political attitudes. If you think of your own political	2 – rather left
		orientation, would you consider yourself ...?	3 – central
			4 – rather right
			5 – right
Covariate: Right-Wing Authoritarianism	au01q10	Crimes should be punished harder.	
	au02q10	To keep law and order, we should take strong action against misfits and slackers in society.	
	au03q10	Some of the most important qualities someone could have are obedience and respect against one’s superior.	
	au04q10	We should be thankful for leaders that tell us what to do.	
Covariate: Social-Dominance Orientation	do01q10	Some groups that are at the bottom of our society should also stay at the bottom.	
	do02q10	There are groups that are worth less than others.	
	do03q10	Some groups of the population are more useful than others.	
	do03q10	Some groups of the population are more useful than others.	

*Note.* Data source: Gruppenbezogene Menschenfeindlichkeits-Survey 2011 (Heitmeyer et al. 2013). <sup>1</sup> If not declared otherwise, the answering scale ranged from 1 – completely agree to 4 – agree not at all.

Table 2

*Eligible Items to Assess GFE Components in Study 2*

GFE Component	Item code	Item Content	Scale
Attitudes Towards Refugees	bd147a	How would you describe your feelings towards refugees in general?	1 – very negative to 5 – very positive
	bd143a	How would you assess refugees in Germany overall?	1 – very negative to 5 – very positive
Attitudes Towards Foreigners	bd146a	How would you describe your feelings towards foreigners in general?	1 – very negative to 5 – very positive
	bd142a	How would you assess foreigners in Germany overall?	1 – very negative to 5 – very positive
Attitudes Towards Muslims	bd145a	How would you describe your feelings towards Muslims in general?	1 – very negative to 5 – very positive
	bd141a	How would you assess Muslims in Germany overall?	1 – very negative to 5 – very positive
Attitudes Towards Sinti and Romani	bd148a	How would you describe your feelings towards Sinti and Romani in general?	1 – very negative to 5 – very positive
	bd144a	How would you assess Sinti and Romani in Germany overall?	1 – very negative to 5 – very positive

Table 2 (continued)

GFE Component	Item code	Item Content	Scale
Covariate: Level of Education	d082b	What is your highest general degree of education?	1 – Student 2 – Left school without degree 3 – Lower secondary school 4 – Secondary school 5 – Secondary school GDR, 8 <sup>th</sup> or 9 <sup>th</sup> grade 6 – Secondary school GDR, 10 <sup>th</sup> grade 7 – Advanced technical college certificate 8 – General qualification for university entrance 9 – Other degree

Table 2 (continued)

GFE Component	Item code	Item Content	Scale
Covariate: Age	d056a	When were you born?	[Open answer]
Covariate: Living in Formerly Eastern or Western Part of Germany	d021b	In which federal state do you live?	1 – West 2 – East incl. West-Berlin
Covariate: Political Orientation	c010a	In politics one sometimes speaks about “left” and “right”. Where on the scale from 0 to 10 would you rate yourself?	0 – left to 10 - right
Covariate: Right-Wing Authoritarianism	bd218a	We should take strong action against misfits and slackers in society.	1 – I fully disagree to 4 – I totally agree.
	bd219a	Well-established behaviour should not be questioned.	1 – I fully disagree to 4 – I totally agree.
	bd220a	We need strong leaders to live securely in our society.	1 – I fully disagree to 4 – I totally agree.



Table 2 (continued)

GFE Component	Item code	Item Content	Scale
Covariate: Social Dominance Orientation	bd221a	It is good if some population groups have more opportunities in life than others.	1 – I fully disagree to 4 – I totally agree.
	bd222a	It is useful for society if some groups in the population are superior to others.	1 – I fully disagree to 4 – I totally agree.
	bd223a	All population groups should be treated equally.	1 – I fully disagree to 4 – I totally agree.
	bd224a	All population groups should have the same amount of influence in society.	1 – I fully disagree to 4 – I totally agree.

*Note.* Data source: Gruppenbezogene GESIS Panel (Wagner et al. 2016).

**Unobserved Heterogeneity Between Individuals in Group-Focused Enmity**

Proposal responding to the Call for Proposals

*Group-Focused Enmity – Conceptual, Longitudinal and Cross-National Perspectives Based on Pre-Registered Studies*

of the International Journal of Conflict and Violence

Word count: Abstract: 214 words; Full text: 2167 words

The proposal contains one table in the Appendix.

### Abstract

With the proposed research project, we aim at shedding light on an issue which has long been overlooked in social psychology and related research domains in general, as well as in group-focused enmity (GFE) research in particular: The question of unobserved heterogeneity between individuals. Most GFE research uses variable-centred approaches like multivariate regression and factor analysis, which implicitly assume that the results apply uniformly to all participants in the sample. Nonetheless, initial evidence exists from research on Islamophobia and GFE that different latent classes (i.e., unobserved subsamples with different characteristics) can be identified within one dataset. These subsamples might vary in terms of the mean values of GFE and its target-specific prejudice components, but also in terms of the factor-analytical composition of GFE. Consequently, we will apply factor mixture modelling as a person-centred analytical approach to investigate unobserved heterogeneity between individuals with regard to the endorsement of GFE and its components, as well as the structure of GFE, using the data of the German GFE survey 2011. We aim at exploring the number of latent classes and explaining differences between these latent classes through the use of theoretically founded covariates, namely age, level of education, living in the formerly Eastern or Western part of Germany, political orientation, right-wing authoritarianism, and social dominance orientation.

## Unobserved Heterogeneity Between Individuals in Group-Focused Enmity

### 1. Theoretical Background

Although **target-specific** prejudice against different ethnic, religious, or national groups has often been researched and discussed as separate phenomena (Zick et al. 2008), there is strong empirical support for the substantial inter-relatedness of **prejudice** against different groups (Allport 1954): Individuals who reject one group also tend to reject other groups. In addition, there is empirical evidence supporting the idea that different types of prejudice originate from some common causes and lead to similar consequences (Meeusen et al. 2018, Zick et al. 2008). Group-Focused Enmity (GFE) **has been introduced** as an overarching construct of generalised (**i.e., not target-specific**) antipathy **against outgroups** (Bergh and Akrami 2016; Heitmeyer 2002; Zick et al. 2008), **which assists in explaining the two previously presented phenomena of interrelatedness of target-specific prejudice**. GFE has been researched broadly in cross-sectional large-scale surveys and panels (e.g., Heitmeyer 2002), focussing – beyond others – on the syndrome’s **structure, target-specific prejudice components, its stability, and (target-specific prejudice components’)** trajectories over time (Davidov et al. 2011; Zick et al. 2008).

One important feature of previous research on GFE is that the **applied** research questions and **analysis methods** usually (**implicitly**) assumed the sample to be homogeneous (i.e., the findings were expected to apply uniformly to all individuals in the sample; Lubke and Muthén 2005). This variable-centred perspective bears the risk of overlooking **potentially existing** unobserved heterogeneity between individuals, or in other words, the option that distinct unknown **latent** classes of individuals exist within one sample **showing quantitative and qualitative differences in GFE**. Such research questions are the focus of person-centred research **perspectives**). **Heterogeneity between individuals** might be **caused through variations**

in the target-specific prejudice' interrelation between latent classes (leading to unequal measurement models, i.e. measurement non-invariance, between latent classes) or through different average levels of GFE and target-specific prejudice between latent classes. These differences may in turn cause variations in relevant outcomes. Consequently, from a methodological perspective, person-centred approaches extend and complement the established variable-centred GFE focus by considering not only information concerning the inter-relatedness, but also the mean structure on different GFE components, and by not assuming linear relations between variables (Meeusen et al. 2018).

Unobserved heterogeneity has been a rather unattended issue in the field of GFE and general prejudice research, though some recent works started investigating this topic (Adelman and Verkuyten 2020, and Dangubic, Verkuyten, and Stark 2020, on islamophobia; Meeusen et al. 2018, on GFE). All studies found substantial unobserved heterogeneity in Dutch and Belgian samples regarding target-specific prejudice (i.e., islamophobia) as well as GFE, though they varied in the number and characteristics of the identified latent classes as well as in the applied analytical procedure. These findings indicate that the further investigation of unobserved heterogeneity in other research contexts (i.e., Germany) and using more informative methods (i.e., factor mixture modelling) is a promising and fruitful endeavour for future GFE research.

## 2. Research Project Outline and Expectations

This research proposal addresses the mentioned research gap by outlining a project to investigate unobserved heterogeneity in German GFE survey data. Our research goals are: (I) to examine whether unobserved heterogeneity can be found in GFE; if so, (II) to identify the adequate number of latent classes (i.e., subsamples) to account for this unobserved heterogeneity; (III) to describe how the average levels of GFE and its target-specific prejudice

components as well as the GFE measurement models differ between latent classes; and (IV) to explore whether these latent classes can be characterised by covariates found in previous GFE research. Moreover, (V) compared to previously published works on unobserved heterogeneity in GFE and target specific-prejudice (Adelman and Verkuyten 2020; Dangubic et al. 2020; Meeusen et al. 2018), we will apply more advanced statistical models to investigate the unobserved heterogeneity (i.e., factor mixture modelling [FMM], Lubke and Muthén 2005). FMM are advantageous compared to the previously presented latent class and latent profile analysis because they allow for variance in GFE within the latent classes, i.e., survey participants assigned to one latent class are not assumed to have the same average GFE and target-specific prejudice component levels).

Based on previous findings (Adelman and Verkuyten 2020; Dangubic et al. 2020; Meeusen et al. 2018), we expect to find unobserved heterogeneity between respondents, which is expressed in a significant variance parameter in the GFE factor model as well as the number of latent classes being more than one (Expectation E1). FMM are an explicitly explorative and context-dependent method of person-centred research (Adelman and Verkuyten 2020; Lubke and Muthén 2005), which is why we cannot present any firm hypotheses regarding the number of latent GFE classes or their characteristics. Nonetheless, previous research has unanimously found two latent classes expressing generally high or low prejudice levels across all facets of GFE or islamophobia (Adelman and Verkuyten 2020; Dangubic et al. 2020; Meeusen et al. 2018). Consequently, we expect to replicate these two latent classes of respondents with generally high or low GFE levels, respectively, in our data (E2). What is more, Meeusen et al. (2018) found that GFE was based on differential patterns of ethnic and symbolic prejudice in their Belgian sample. Ethnic prejudice was directed at target groups which were perceived as foreign or ethnically different (i.e., immigrants, North Africans,

Eastern Europeans, and Roma in Meeusen et al. 2018), while symbolic prejudice was targeted at groups being perceived as deviating from moral, religious or other social norms (i.e., homosexuals, Jews, the other linguistic Belgian group in Meeusen et al. 2018). These differences were also expressed in the patterns of unobserved heterogeneity, meaning that two latent classes summarized participants with elevated levels on either ethnic or symbolic prejudice and low levels on the respective other prejudice. Consequently, we expect to find latent classes with differing levels on target-specific prejudices' components relating either to ethnic or symbolic prejudice (E3). To summarize, we intent to replicate the findings of previous works in a new research context (i.e., Germany) using more liberal and suitable assumptions than previously presented research methods (e.g., LPA), as FMM does not hold the local independence assumption that within a latent class or profile, indicators are not correlated, which is a strong assumption given the fact that target-specific prejudice are often correlated.

For the further characterisation of these latent classes on the basis of theoretically founded covariates, we will focus on the following constructs and their expected relations with GFE:

- a. Previous research has shown that the demographic information age, level of education, and the political orientation predict differential GFE latent class membership (Meeusen et al. 2018). This was also shown by Davidov et al. (2011) regarding differences in trajectories in GFE's target-specific prejudice' components, who also presented living in the formerly Eastern or Western part of Germany as a relevant predictor of antipathy. In accordance with previous findings, we assume higher age, lower level of education, living in the Eastern part of Germany, and

having a comparatively right-wing political orientation to be associated with higher average GFE levels and thereby to differentiate latent classes in GFE (E4).

- b. Additionally, the individual characteristics right-wing authoritarianism (RWA; Altemeyer, 1981) and social dominance orientation (SDO, Sidanius and Pratto 1999) have been found to be both positively related to GFE levels (Zick et al. 2008) and to differentiate between latent classes in GFE (Meeusen et al. 2018) and islamophobia (Adelman and Verkuyten 2020). Consequently, we expect RWA and SDO to significantly predict latent class membership in our data (E5). Based on the dual process motivational model (Duckitt and Sibley 2010), we additionally expect RWA levels to be especially elevated in latent classes characterised by high symbolic prejudices levels, while SDO levels should be especially high in latent classes with high ethnic prejudices levels (E6).

### 3. Analysis Overview

We will use the German “Gruppenbezogene Menschenfeindlichkeits-Survey 2011” (GMF survey, Heitmeyer et al. 2013) to investigate the extent to which cross-sectional large scale GFE survey data show unobserved heterogeneity as well as its characteristics and covariates. To this end, we will conduct factor mixture modelling (FMM). FMM models data as (traditional) continuous latent variables (i.e., factor analysis), but simultaneously allows for categorical differences (i.e., latent class membership) in these latent variables as well as their measurement models (Lubke and Muthén 2005). The GMF survey was administered to 2000 German-speaking participants at the age of 16 years and above living in private households in Germany. It assessed a broad variety of target-specific prejudice as components of GFE: Anti-refugee attitudes, antisemitism, antiziganism, devaluation of disabled people, devaluation of homeless people, devaluation of long-term unemployed, devaluation of newcomers,



homophobia, islamophobia, racism, sexism, and xenophobia (each component measured by at least two items; Heitmeyer et al. 2013). The eligible GFE components and corresponding indicators as well as the covariates are displayed in Table 1 in the appendix. We currently assume ethnic prejudice to be represented by anti-refugee attitudes, antiziganism, antisemitism, devaluation of newcomers, islamophobia, racism, and xenophobia, while symbolic prejudice is reflected in devaluation of disabled people, devaluation of homeless people, devaluation of long-term unemployed, homophobia, and sexism. However, this classification is preliminary and non-empirically, and might be changed in the resulting manuscript based on the selected prejudice indicators and the results of factor-analytical methods.

For our analyses, we will use Mplus using a robust maximum likelihood (MLR) estimator which is robust to non-normality and non-independence of the data (Muthén and Muthén 1998 – 2017). Our analytical procedure will include the following steps:

- a. For each target-specific prejudice as GFE component, we will compute mean values from two items. In case a target-specific prejudice was measured by more than two items, we will use the two items with the highest factor loading as identified in confirmatory factor analyses (CFA; Zick et al. 2008). These prejudice mean values will serve as indicators for the GFE factor. Though it is statistically possible to model the components as factors (i.e., a second-order factor-analytical model of GFE as presented by Zick et al. 2008), we will refrain from doing so in order to reduce model complexity, which might result in non-convergence of the FMM (Lubke and Muthén 2005).
- b. Using all listed target-specific prejudice components, we will model a GFE factor in a CFA. We will examine the solution for adequate model fit (defined as RMSEA  $\leq$

- 0.08, SRMR  $\leq$  0.10 and CFI  $\geq$  0.95; Schermelleh-Engel et al. 2003) and acceptable parameter performance (i.e., standardised factor loadings  $\geq$  0.5; Brown, 2015). In case the model including all components shows unacceptable model fit, we will adapt the measurement model using the information provided in standardized residuals for covariances and modification indices (Brown 2015). Adaptations might include the exclusion of components with low standardized factor loadings of the GFE factor, or the introduction of theoretically plausible residual covariances between components (Zick et al. 2008).
- c. An adequately fitting CFA measurement model of GFE will be examined in terms of significant GFE factor variance, which forms the precondition for performing FMM, as it indicates substantial variation (i.e., unobserved heterogeneity) in the GFE factor.
  - d. Subsequently, this variation shall be explained by categorical, person-centred approaches: The GFE measurement model will be submitted to a variety of FMM analyses with increasing numbers of latent classes and differing levels of measurement invariance. To determine the optimal number of latent classes, we will apply the following criteria: Successful convergence, parsimony and interpretability of the latent class results, no less than 1% of total sample count in a latent class, low BIC, a significant BLRT test, high entropy (near 1), and high posterior probabilities (near 1; Jung and Wickrama 2008; Lubke and Muthén 2005). To determine the optimal level of measurement invariance, we will focus on differences in BIC and results of the MLR-adapted Satorra-Bentler  $\chi^2$  difference test. Differences between the resulting latent classes will be described in terms of in

GFE measurement model as well as the average GFE level and target-specific prejudice scores.

- e. Finally, in order to further describe emerging latent class differences in GFE, we will examine whether the covariates listed above predict latent class membership. To this end, we will use the R3STEP procedure (Asparouhov and Muthén, 2014), which is based on logistical regressions.

#### 4. Relevance

Our study will explore the extent of unobserved heterogeneity in GFE data as well as qualitative (e.g., in terms of differences in the GFE measurement model) and quantitative (e.g., regarding the average scores in GFE and its target-specific prejudice components) differences between latent GFE classes. The latent classes will also be described with regard to theoretically founded covariates of GFE. Applying FMM, our analytical approach extends previously published research (Adelman and Verkuyten 2020; Dangubic et al. 2020; Meeusen et al. 2018) by applying more sophisticated methods which allow for the examination of differences in the measurement model (i.e., measurement (non-)invariance between latent classes; Lubke and Muthén 2005).

With the present research proposal, we hope to contribute to a more complete and comprehensive understanding of GFE by focussing not only on GFE's average level or interrelation with other constructs, but by examining how individuals may vary quantitatively and qualitatively in GFE.

## References

- Adelman, Levi, and Maykel Verkuyten. 2020. Prejudice and the Acceptance of Muslim Minority Practices – A Person-Centered Approach. *Social Psychology*, 51:1-6. <https://doi.org/10.1027/1864-9335/a000380>
- Asparouhov, Timohir, and Bengt O. Muthén. 2014. Auxiliary Variables in Mixture Modeling: Three-Step Approaches using Mplus. *Structural Equation Modeling: A Multidisciplinary Journal*, 21: 329-341. <https://doi.org/10.1080/10705511.2014.915181>
- Allport, Gordon W. 1954. *The Nature of Prejudice*. London: Pearson.
- Altemeyer, Bob. 1981. *Right-Wing Authoritarianism*. Winnipeg, Manitoba, Canada: University of Manitoba Press.
- Bergh, Robin., and Nazar Akrami. 2016. Generalized Prejudice: Old Wisdom and New Perspectives. In *Cambridge Handbook of the Psychology of Prejudice*, eds. Chris G. Sibley, and Fiona K. Barlow, 438–460. Cambridge, England: Cambridge University Press.
- Brown, Timothy. A. 2015. *Confirmatory Factor Analysis for Applied Research*. New York: Guilford Press.
- Dangubic, M., Maykel Verkuyten, and Tobias Stark. 2020. Understanding (In)Tolerance of Muslim Minority Practices: A Latent Profile Analysis. *Journal of Ethnic and Migration Studies*. <https://doi.org/10.1080/1369183X.2020.1808450>
- Davidov, Eldad, Stefan Thörner, Peter Schmidt, Stefanie Gosen, and Carina Wolf. 2011. Level and Change of Group-Focused Enmity in Germany: Unconditional and Conditional Latent Growth Curve Models with Four Panel Waves. *Advances in Statistical Analysis*, 95: 481-500. <https://doi.org/10.1007/s10182-011-0174-1>
- Duckitt, John, and Chris G. Sibley. 2010. Personality, Ideology, Prejudice, and Politics: A Dual-Process Motivational Model. *Journal of Personality*, 78:1861-1894. <https://doi.org/10.1111/j.1467-6494.2010.00672.x>
- Heitmeyer, Wilhelm. 2002. Gruppenbezogene Menschenfeindlichkeit: Die theoretische Konzeption und erste empirische Ergebnisse [Group Focused Enmity. Theoretical Conception And First Empirical Results]. In *Deutsche Zustände [German Conditions]*, ed. Wilhelm Heitmeyer, 15–34. Frankfurt: Suhrkamp.
- Heitmeyer, Wilhelm, Steffen Kühnel, Peter Schmidt, Ulrich Wagner, and Jürgen Mansel. 2013. *Gruppenbezogene Menschenfeindlichkeit 2011 [Group-Focused Enmity 2011]*. GESIS

Datenarchiv, ZA5576 Datenfile Version 1.0.0. Köln: GESIS.  
<https://doi.org/10.4232/1.11807>

Jung, Tony, and K. A. S. Wickrama. 2008. An Introduction to Latent Class Growth Analysis and Growth Mixture Modelling. *Social and Personality Psychology Compass*, 2: 301-317.  
<https://doi.org/10.1111/j.1751-9004.2007.00054.x>

Lubke, Gitta H. and Bengt O. Muthén. 2005. Investigating Population Heterogeneity with Factor Mixture Models. *Psychological Methods*, 10:21-39. <https://doi.org/10.1037/1082-989X.10.1.21>

Meeusen, Cecil, Bart Meuleman, Koen Abts, and Robin Bergh. 2018. Comparing a Variable-Centered and a Person-Centered Approach to the Structure of Prejudice. *Social Psychological and Personality Science*, 9: 645-655. <https://doi.org/10.1177/1948550617720273>

Muthén, Linda K., and Bengt O. Muthén. 1998 – 2017. *Mplus User's Guide (8<sup>th</sup> ed.)*. Los Angeles, CA: Muthén & Muthén.

Schermelleh-Engel, Karin, Helfried Moosbrugger, and Hans Müller. 2003. Evaluating the Fit of Structural Equation Models: Tests of Significance and Descriptive Goodness-of-Fit Measures. *Methods of Psychological Research Online*, 8: 23-74.

Sidanius, Jim, and Felicia Pratto. 1999. *Social Dominance Theory*. Cambridge, UK: Cambridge University Press.

Zick, Andreas, Carina Wolf, Beate Küpper, Eldad Davidov, Peter Schmidt, and Wilhelm Heitmeyer. 2008. The Syndrome of Group-Focused Enmity: The Interrelation of Prejudices Tested with Multiple Cross-Sectional and Panel Data. *Journal of Social Issues*, 64: 363-383. <https://doi.org/10.1111/j.1540-4560.2008.00566.x>

## Appendix

Table 1

*Eligible Items to Assess GFE Components in Study 1*

GFE Component	Item code	Item Content	Scale <sup>1</sup>
Anti-Refugee Attitudes	ay01q10	When examining the applications for asylum, the state should be generous.	
	ay02q10	Most asylum seekers are not really afraid to be persecuted in their home countries.	
Antisemitism	as01q10	Jews have too much influence in Germany.	
	as02q10	Because of their behaviour, Jews are complicit in their persecution.	
	as03q10	Many Jews today seek to take advantage of the Third Reich's history.	
	as05q10	I am angry that the Germans as still today blamed for the crimes against the Jews.	
Antiziganism	vr01q10	I would have a problem with Sinti and Romani being present in my area.	
	vr02q10	Sinti and Romani should be banned from the city centres.	
	vr03q10	Sinti and Romani tend to be criminal.	

Table 1 (continued)

GFE Component	Item code	Item Content	Scale <sup>1</sup>
Devaluation of Disabled People	he03bq10	In Germany, we make too much effort for disabled people.	
	he04bq10	I think many demands of disabled people are excessive.	
	he05bq10	Disabled people receive too many benefits.	
Devaluation of Homeless People	he01oq10	Begging homeless people should be removed from pedestrian zones.	
	he02oq10	Homeless people in cities are unpleasant.	
	he03oq10	Most homeless people are unwilling to work.	
Devaluation of Long-Time Unemployed	lz01q10	Most long-time unemployed people are not really interested in finding work.	
	lz02q10	Those who don't find employment after long-time unemployment are themselves responsible for their situation.	
	lz03q10	I think it's outrageous when long-time unemployed people enjoy their lives at the expense of the society.	
	dlz01q10	Long-time unemployed people should be forced to do charitable labour.	
	dlzo2q10	Long-time unemployed people should only receive money from the state if they are willing to take any work.	

Table 1 (continued)

GFE Component	Item code	Item Content	Scale <sup>1</sup>
Devaluation of Newcomers	ev03q10	Those who are new somewhere should be satisfied with less at the beginning.	
	ev04q10	Those who have always lived in one place should have more rights than those who came later.	
Homophobia	he01hq10	Same-sex marriages should be allowed.	
	he02hq10	It is disgusting when homosexuals kiss in public.	
	he03hq10	Homosexuality is immoral.	
Islamophobia	he03mq10	The many mosques in Germany demonstrate that Islam plans to increase its power.	
	he05mq10	Because of the many Muslims, I sometimes feel like a stranger in my own country.	
	he10mq10	The Muslim culture fits into our Western world.	
	he12mq10	Muslims should be forbidden to immigrate to Germany.	
	hw15mw10	I am more suspicious of people of Muslim faith.	
Racism	he16mq10	Islamic and Western European values can be combined.	
	ra01q10	Resettlers should be treated better than foreigners, because they have a German origin.	
	ra03q10	It is right that White people rule the world.	



Table 1 (continued)

GFE Component	Item code	Item Content	Scale <sup>1</sup>
Sexism	sx01q10	The discrimination of women in Germany is still a problem.	
	sx02q10	The current employment politics discriminate against women.	
	sx03q10	Women should focus again more on their role as wives and mothers.	
	sx04q10	It should be more important for a wife to assist her husband in his career than to make her own career.	
Xenophobia	ff03dq10	Most of the foreigners living in Germany are a burden to the social system.	
	ff04dq10	There are too many foreigners in Germany.	
	ff08dq10	If the jobs become scarce, we should send the foreigners living in Germany back to their home countries.	

Table 1 (continued)

GFE Component	Item code	Item Content	Scale <sup>1</sup>
Covariate: Level of Education	zu01q10	Which is your highest school or university degree?	1 – no degree 2 – degree after 8 years of schooling 3/4 – degree after 9 years of schooling 5/6 – degree after 10 years of schooling 7 - A-Level 8 – Completed university studies 9 - Other
Covariate: Age	gebjq10	Please tell me in which year you were born.	Open answer
Covariate: Living in the former Eastern or Western part of Germany		East-West	[This variable was coded from the registry of telephone numbers.]

Table 1 (continued)

GFE Component	Item code	Item Content	Scale <sup>1</sup>
Covariate: Political Orientation	po01q10	Many people use the labels “left” and “right” to describe different political attitudes. If you think of your own political orientation, would you consider yourself ...?	1 – left
			2 – rather left
			3 – central
			4 – rather right
			5 – right
Covariate: Right-Wing Authoritarianism	au01q10	Crimes should be punished harder.	
	au02q10	To keep law and order, we should take strong action against misfits and slackers in society.	
	au03q10	Some of the most important qualities someone could have are obedience and respect against one’s superior.	
	au04q10	We should be thankful for leaders that tell us what to do.	
Covariate: Social-Dominance Orientation	do01q10	Some groups that are at the bottom of our society should also stay at the bottom.	
	do02q10	There are groups that are worth less than others.	
	do03q10	Some groups of the population are more useful than others.	
	do03q10	Some groups of the population are more useful than others.	

*Note.* Data source: Gruppenbezogene Menschenfeindlichkeits-Survey 2011 (Heitmeyer et al. 2013). <sup>1</sup> If not declared otherwise, the answering scale ranged from 1 – completely agree to 4 – agree not at all.