

ENGAGE - USING CONTACT INTERVENTIONS TO PROMOTE ENGAGEMENT



Meta-analytical and secondary data analysis evidence on the connection of intergroup contact and anti-Gypsyism in Europe

Boglárka Nyúl, Márton Hadarics, Patricia Ciordas, Anna Kende

ELTE Eötvös Loránd University, Budapest

Executive summary

- Both a meta-analysis and the secondary data analysis, based on Eurobarometer and European Social Survey data, confirmed that **intergroup contact is associated with more positive attitudes** towards the Roma.
- Contact with Roma people is related to lower anti-Gypsyism, **especially positive contact**.
- Lower contact with Roma people is strongly related to **more prejudiced feelings** towards them.
- The connection is **stronger in countries with deeper anti-Roma public sentiments**, but the positive effect of intergroup contact is not influenced by cultural values.

How to cite this report: Nyúl, B., Hadarics M., Ciordas P., & Kende, A. (2022). Meta-analytical and secondary data analysis evidence on the connection of intergroup contact and anti-Gypsyism in Europe. Available at: <https://polrom.eu/wp-content/uploads/2022/10/d3.2-meta-analysis-report-2.pdf>

Aims and Objectives

One of the most widely researched prejudice-reduction methods is **positive intergroup contact**. In this part of the project, we examine with a meta-analytical approach and by analysing data from a large international survey whether contact with Roma people works as with other minority groups and whether different types of contact relate differently to prejudice.

Meta-analysis is a research method enabling the analysis of different research outcomes while considering the specific features of the analysed datasets. In our meta-analysis, we re-examined the relationship between contact and anti-Gypsyism in a more detailed manner, examining different types of contact and prejudices towards Roma.

The main objective of the secondary data analysis was twofold. First, we aimed to test the general validity of the intergroup contact hypothesis (Allport, 1954) in the case of the Roma - majority population intergroup relation across Europe, based on multinational survey data. Furthermore, we also aimed to test whether certain cultural characteristics influence the effectiveness of intergroup contact in reducing anti-Gypsyism.

Regarding the second objective, the moderating role of two main cultural characteristics were tested: the role of **cultural values** (Schwartz, 2006) and the country-level embeddedness of **anti-Gypsyism**. Research shows that while egalitarian cultural values tend to reduce intergroup prejudice, conservative values are more likely to enhance it (Davidov et al., 2014). Furthermore, there is also empirical evidence indicating that intergroup contact reduces anti-immigrant prejudice to a larger extent in more egalitarian cultures (Kende et al., 2018).

Country-level prevalence of anti-Gypsyism might also influence the effectiveness of intergroup contact, because most people tend to maintain social views that are widely shared within their ingroups, which tendency is often referred to as a 'desire for shared reality' (Higgins, 2019). Nonetheless, people tend to maintain negative views about the Roma purely because these are normative in their country. In that case, intergroup contact might more easily overwrite these negative views in such countries compared to others, where, due to the lack of prevalent negative views, there is nothing to be overwritten by contact.

Methods

We used the Comprehensive Meta-Analysis program for the analysis, relying on correlation coefficient and sample size as effect size indications. We used random effect models to calculate the summary effect and confidence intervals (Lipsey & Wilson, 2001; Raudenbush, 2009). See the description of the method in Appendix 1.

Although we ran all analyses on the combination of different types of attitude measures, we also distinguished between them based on the different attitude components: (a) comprehensive prejudice measure if it included cognitive, affective,

and behavioural intentions; (b) affective; and (c) behavioural. We ran the meta-analysis of the connection between the variables with all measures combined but checked whether the results changed when tested against only one attitude component. We also distinguished our data based on the type of contact that was measured: (a) quantity of contact or (b) positive quality contact, and we ran all analyses separately for these two types of contact. Results related to the specific analyses are presented in appendix 3.

Studies conducted in the same research labs are relatively high, limiting the effects' diversity. This is somewhat compensated by the fact that the total number of respondents and the average number of respondents per effect included in the meta-analysis is clearly higher, and the samples are more diverse than the typical psychological studies included in a similar meta-analysis.

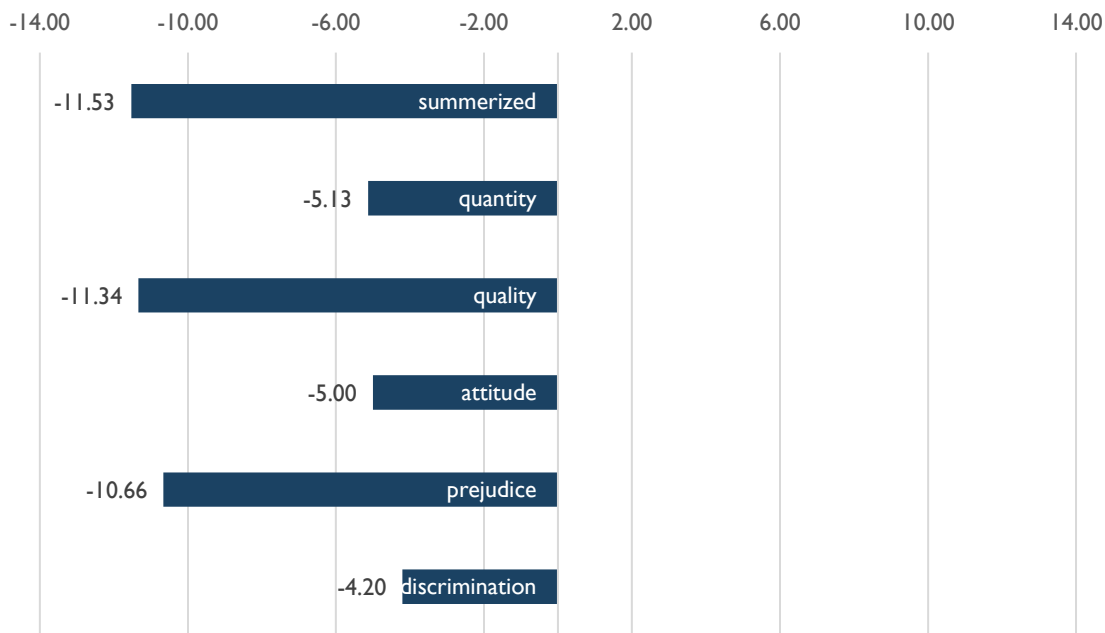
For the secondary data analysis, we applied data from the 2019 *“Special Eurobarometer 91.4: Discrimination in the European Union”* dataset, which contains variables related to both personal contacts with Roma people (having Roma friends/acquaintances), and personal attitudes towards the Roma (social distance items measuring into the direction of positive attitudes).

Country-level cultural values were taken from the 9th round of the European Social Survey (2019). Country-level mean scores were computed for the four main value orientations defined by Schwartz: *Conservation, Openness, Self-Enhancement, and Self-Transcendence*. These country-level scores were merged with the individual-level Eurobarometer data.

To test our assumptions, multilevel models were set up to predict individual-level attitudes towards the Roma. The predictors were intergroup contact, demographics (gender, age, education level, size of residency, political orientation), and cross-level interaction term between intergroup contact and the above-mentioned cultural characteristics.

Data and results

Based on 199 effect sizes from 18 countries, we found a connection between contact and anti-Gypsyism in the way that those who have more contact with Roma people have lower anti-Gypsyism ($z = -11.53$ $p < 0.001$ see Appendix 3). Also, breaking down the data to the type of contact, we found that both higher quantity contact ($z = -5.13$ $p < 0.001$, e.g. meeting with a Roma person on the bus) and quality contact ($z = -11.34$ $p < 0.001$, e.g. friendship) is related to lower anti-Gypsyism. Also, this relation is stronger between quality contact and anti-Gypsyism than quantity contact. Examining the type of anti-Gypsyism we found that lower contact is related to higher (a) comprehensive types of prejudice ($z = -5.00$ $p < 0.001$), (b) affective ($z = -10.66$ $p < 0.001$), and (c) behavioural prejudice ($z = -4.20$ $p < 0.001$, see Appendix 3).

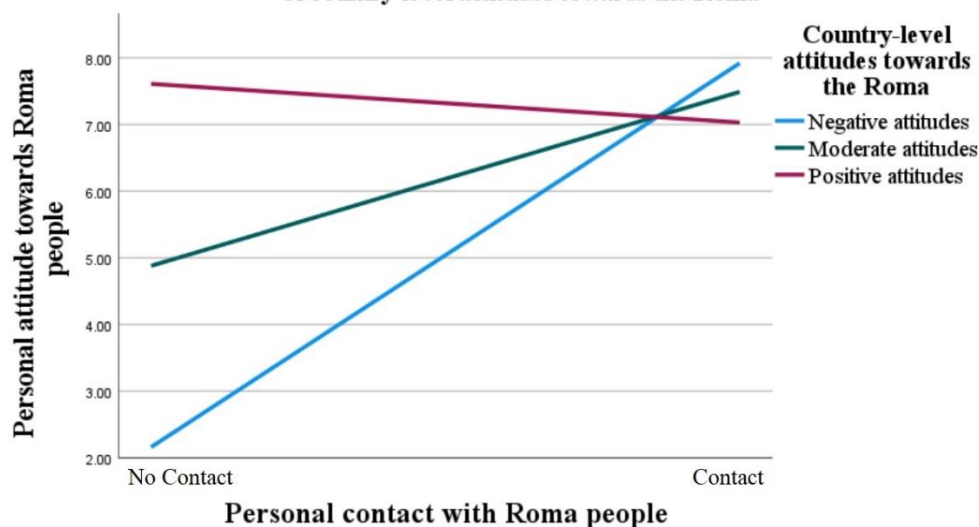


Note. Relationship between anti-Roma attitudes and contact with Roma people (Z-values)

The main results of our secondary data analysis show that intergroup contact predicts a more positive personal attitude towards the Roma ($\beta = .18$; $p < .001$), as expected (Appendix 5). The cross-level interactions indicate that cultural values do not moderate the relationship between contact and attitudes towards the Roma (conservation: $\beta = -.26$; $p = .366$; openness: $\beta = -.44$; $p = .150$; self-enhancement: $\beta = -.16$; $p = .670$; self-transcendence: $\beta = -.29$; $p = .458$). Nonetheless, the significant negative interaction between contact and country-level Roma attitude ($\beta = -.66$; $p = .022$) indicates that contact has a stronger effect on attitudes towards the Roma in countries with more negative aggregated views about the Roma.

Subsequent simple slope analyses confirmed this latter result, since the relationship between intergroup contact and Roma-attitudes turned out to be significant only at a low level (-1 SD) of country-level Roma-attitudes ($b = 2.88$; $p < .001$), but not at a high level (+1 SD) of it ($b = -.29$; $p = .340$).

The relationship between personal attitudes towards the Roma and contact at different levels of country-level attitudes towards the Roma



Conclusions

We conducted our meta-analysis in 17 European countries where Roma people are a significant minority. Even though Roma are one of the most significant minorities in Europe, during our search, we found that the topic is severely underresearched and we mostly found studies conducted by the same laboratories. This emphasises the importance of our project.

Based on our meta-analytical results, we found that **contact with Roma people is indeed related to lower anti-Gypsyism**. However, this relationship is more robust in case of quality contact and case of affective prejudice.

Our secondary data analysis, based on Eurobarometer and European Social Survey data, indicates that the **beneficial effect of intergroup contact on attitudes towards the Roma partly depends on cultural characteristics**.

While we could not confirm that either egalitarian or conservative cultural values influence the effectiveness of intergroup contact, we found that the prevalence of anti-Roma sentiments in a given country can have such an effect. More concretely, our results indicate that close contact with Roma people prevents individual-level prejudice to a greater extent in countries with a deeper embeddedness of anti-Roma sentiments.

This means that in countries where anti-Roma prejudice is not an integral part of cultural attitudes, it does not matter whether someone has close contacts with Roma people or not, everyone tends to show rather positive attitudes towards the Roma. Nonetheless, in countries with more prevalent anti-Roma prejudice, initiating and/or maintaining close contacts with Roma people has the potential to overwrite culturally indoctrinated anti-Roma sentiments.

It is possible that citizens of more prejudiced countries develop their negative attitudes to create a shared construction of reality with their ingroup members, but

personal contact with Roma people prevents this process. Consequently, in these countries, there might be a larger gap in terms of Roma-attitudes between people with Roma friends or acquaintances compared to others without such contacts.

References

- Allport, G. W. (1954). *The nature of prejudice*. Cambridge, MA: Madison-Wesley.
- Becker, J. C., Wright, S. C., Lubensky, M. E., & Zhou, S. (2013). Whether cross-group contact undermines collective action depends on what advantage group members say (or don't say). *Personality and Social Psychology Bulletin*, 39, 442-455.
- Borenstein, M., Hedges, L. V., Higgins, J. P. T., & Rothstein, H. R. (2009). *Introduction to meta-analysis*. Chichester, UK: Wiley.
- Davidov, E., Meulemann, B., Schwartz, S. H., & Schmidt, P. (2014). Individual values, cultural embeddedness, and anti-immigration sentiments: Explaining differences in the effect of values on attitudes toward immigration across Europe. *KZfSS Kölner Zeitschrift für Soziologie und Sozialpsychologie*, 66, 263-285.
- Dixon, J., Levine, M., Reicher, S., & Durrheim, K. (2012). Beyond prejudice: Relational inequality, collective action, and social change revisited. *Behavioral and Brain Sciences*, 35, 451.
- Higgins, E. T. (2019). *Shared reality: What makes us strong and tears us apart*. Oxford University Press.
- Kende, J., Phalet, K., Van den Noortgate, W., Kara, A., & Fischer, R. (2018). Equality revisited: A cultural meta-analysis of intergroup contact and prejudice. *Social Psychological and Personality Science*, 9, 887-895.
- Lipsey, M. W., & Wilson, D. B. (2001). *Practical meta-analysis*. Thousand Oaks, CA: Sage.
- Peugh, J. L. (2010). A practical guide to multilevel modeling. *Journal of School Psychology*, 48, 85-112.
- Raudenbush, S. W. (2009). In H. Cooper, L. V. Hedges, & J. C. Valentine (Eds.), *The handbook of research synthesis and meta-analysis* (2nd ed.). New York, NY: Russell Sage Foundation.

- Rosenthal, R. (1979). The "file drawer problem" and tolerance for null results. *Psychological Bulletin*, 86(3), 638-641. doi:10.1037//0033-2909.86.3.638
- Schwartz, S. H. (2006). Basic human values: Theory, measurement and applications. *Revue Française de Sociologie*, 47, 249-288.

References used in the meta-analysis

- Andraščíková, S. & Lasticova, B. (2019) Possibilities of indirect contact in reducing prejudice against stigmatized minorities: Testing the interventions in the school context [Unpublished Dissertation Thesis, Faculty of Education, University in Trnava]. Manuscript in press.
- Angelusz, R. (2000). A cigányellenesség és a pluralizmus ignoranciája [anti-roma prejudice and pluralistic ignorance]. R. Angelusz, A láthatóság görbe tükréi. Társadalomoptikai tanulmányok [The cloudy mirrors of visibility: Socio-political essays], 241-268.
- Asimakopoulou, E. (2018). School integration of Roma children: Exploration of prejudice and stereotypical threat of teachers and pupils
- Belan, D. (2022) The Roma, Hungarian and Muslim Minority through the Eyes of the Slovak Majority: Coherence of the Contact Theory and the Intergroup Threat Theory [Unpublished Dissertation Thesis, Faculty of Social and Economic Sciences, Comenius University in Bratislava]. Manuscript in preparation.
- Bracic, A. (2020) Breaking the exclusion cycle: How to promote cooperation between majority and minority ethnic groups. <https://doi.org/10.1093/oso/9780190050672.001.0001>
- Cernat, V. (2011). Extended Contact Effects: Is Exposure to Positive Outgroup Exemplars Sufficient or Is Interaction With Ingroup Members Necessary?. *The Journal of Social Psychology*, 151(6), 737-753
- Dorđević, J. M. (2015) The role of contact in reducing social distance of youth from the Balkans towards minority groups, *Primenjena psihologija*, 8(4), 415-432
- Dvořáková, P. & Graf, S. (2015) The role of empathy in the secondary transfer effect of contact with people with disabilities on attitudes towards the Roma. [Unpublished Master's Thesis, Masaryk University in Brno]. Manuscript in preparation.
- ENGAGE experiment (2022). Unpublished data.
- Eurobarometer, S. (2008) Discrimination in the European Union: Perceptions, Experiences and Attitudes. Directorate-General for Communication, Special Eurobarometer, 296.

- Eurobarometer, S. (2015) Discrimination in the EU in 2015. Directorate-General for Communication, Special Eurobarometer, 437.
- Eurobarometer, S. (2019) Discrimination in the EU. Directorate-General for Communication, Special Eurobarometer, 493.
- Findor, A., Láštíková, B., Hruška, M., Popper, M., & Váradi, L. (2020) The impact of response instruction and target group on the BIAS map. <https://doi.org/10.3389/fpsyg.2020.566725>
- Gómez-Berrocal, C. & Moya, M. (1999). El prejuicio hacia los gitanos: características diferenciales. *International Journal of Social Psychology*, (14)1, 15-40. <https://doi.org/10.1174/021347499760260055>
- Gómez-Berrocal, C. & Navas, M. (2000). Predictores del prejuicio sutil hacia los gitanos. *International Journal of Social Psychology*, (15)1, 3-30. <https://doi.org/10.1174/021347400760259848>
- Gregor A. (2005) MENNI VAGY NEM MENNI? Módosítja-e a romákkal kapcsolatos attitűd és az eljövetelel szándék, valamint ezeknek a kapcsolata a delibéráció eredményeinek interpretálását?. *Magyar Agóra*.
- Groyecka, A., Witkowska, M., Wróbel, M., Klamut, O., & Skrodzka, M. (2019). Challenge your stereotypes! Human Library and its impact on prejudice in Poland. *J Community Appl Soc Psychol*.2019;29:311-322. <https://doi.org/10.1002/casp.2402>
- Hrdinová, A & Olhová, S. (2021) Vicarious contact as a mean of reducing prejudice against minorities [Unpublished Bachelor's Thesis, Ostrava University in Ostrava]
- Institute of Sociology, Academy of Sciences of the Czech republic (2013) Centre for Public Opinion Research. Naše společnost 2013 - duben (Our society 2013-April) Data Archive.
- Ives, B., Obenchain, K., & Oikonomidou, E. (2010). Cultural Attitudes of Romanian Youth. *International Journal of Education*, Vol. 2, No. 1: E4
- Ives, B., Obenchain, K.M., & Oikonomidou, E. (2012) Ethnic Attitudes of Hungarian Students in Romania, *Educational Studies: A Journal of the American Educational Studies Association*, 48:4, 331-346, DOI: 10.1080/00131946.2012.694826
- Kamberi, E., Martinovic, B., & Verkuyten, M. (2017). Intergroup contact and minority group empowerment: The perspective of Roma and non-Roma adolescents in Macedonia. *Journal of Community & Applied Social Psychology*, 27(5), 424-434. doi:10.1002/casp.2320
- Kende A. (2016) Muszlimellenesség kutatás hallgatói mintán. Nem publikált, adatbázis.
- Kende A. (2017) Muszlimellenesség kutatás hallgatói mintán. Nem publikált, adatbázis.
- Kende A. Et al. (2021) Unpublished database.

- Kende, A., Hadarics, M., & Lášticová, B. (2017). Anti-Roma attitudes as expressions of dominant social norms in Eastern Europe. *International Journal of Intercultural Relations*, 60, 12-27. <https://doi.org/10.1016/j.ijintrel.2017.06.002>
- Kende, A., Nyúl, B., Hadarics, M., Wessenauer, V., & Hunyadi, B. (2018). Romaellenesség és antiszemitizmus Magyarországon: Projektzáró tanulmány.
- Kende, A., Tropp, L., & Lantos, N. A. (2017). Testing a contact intervention based on intergroup friendship between Roma and non-Roma Hungarians: reducing bias through institutional support in a non-supportive societal context. *Journal of Applied Social Psychology*, 47(1), 47-55. <https://doi.org/10.1111/jasp.12422>
- Keresztes-Takács, O., Lendvai, L., & Kende, A. (2016). Romaellenes előítéletek Magyarországon: Politikai orientációtól, nemzeti identitástól és demográfiai változóktól független nyílt elutasítás. *Magyar Pszichológiai Szemle*, 71(4), 609-627. <https://doi.org/10.1556/0016.2016.71.4.2>
- Kočíšová, M. & Lasticova, B. (2015) Imagined Contact as an Intervention Tool for Prejudice Reduction against Minorities? [Unpublished Master's Thesis, Faculty of Social and Economic Sciences, Comenius University in Bratislava].
- Lantos A. N., Baráth Á., Nyúl B., Kende A. (2016) Csoportfolyamatok hatása a csoportközi viszonyokra. PhD research, unpublished database.
- Lasticova, B., Findor, A., Hruška, M., Popper, M. (2018) Interventions for Reducing Prejudice against Stigmatized Minorities: Developing measures and experimental testing of the contact hypothesis under field conditions. Manuscript in preparation.
- Monaci, M. G., & Trentin, R. (2008). Gli alunni rom/sinti nella scuola media: Effetti del contatto sull'atteggiamento etnico nelle classi multiculturali. *Giornale Italiano di Psicologia*, 35(4), 933-960. doi: 10.1421/28424
- O–TÁRKI Társadalomtudományi Adatbank–Katalogus–Kutatas–Info. (2008./06.). Elérés 2022. szeptember 19., forrás https://adatbanktest.tarki.hu/cgi-bin/katalogus/tarkifo_hun.pl?sorszam=TDATA-H02
- O–TÁRKI Társadalomtudományi Adatbank–Katalogus–Kutatas–Info. (2008./05.). Elérés 2022. szeptember 19., forrás https://adatbanktest.tarki.hu/cgi-bin/katalogus/tarkifo_hun.pl?sorszam=TDATA-H02
- O–TÁRKI Társadalomtudományi Adatbank–Katalogus–Kutatas–Info. (2011). Elérés 2022. szeptember 19., forrás https://adatbanktest.tarki.hu/cgi-bin/katalogus/tarkifo_hun.pl?sorszam=TDATA-H02
- O–TÁRKI Társadalomtudományi Adatbank–Katalogus–Kutatas–Info. (2011). Elérés 2022. szeptember 19., forrás https://adatbanktest.tarki.hu/cgi-bin/katalogus/tarkifo_hun.pl?sorszam=TDATA-H02
- Pantelaki, N. (2016). School promiscuity as a factor of eliminating stereotypes and prejudice: The case of Roma children

- Pántya, J., Farkas, R., & Sziklai, A. (2022). Unpublished data.
- Pavličková, M. & Lasticova, B.(2017) Imagined Intergroup Contact and Common Ingroup Identity [Unpublished Master's Thesis, Faculty of Social and Economic Sciences, Comenius University in Bratislava].
- Petríková, I. & Popper, M. (2018) Reducing Prejudices toward Roma by Means of Interactive Techniques Focused on Real Stories of Young People Representing Different Minorities. [Unpublished Master's Thesis, Faculty of Social and Economic Sciences, Comenius University in Bratislava].
- Political Capital (2017) Resistance to anti-Gypsyism in Hungary, Italy, Romania and Spain.
- Syridou, G. (2019). University students' stereotypes on six cultural groups living in the area of Thrace, Greece
- Szekeres H. (2022) Unpublished data in Hungary, Spain, and Greece.
- TÁRKI Esélyegyenlőség 2002. A közoktatásban dolgozó pedagógusok álláspontja az integrált oktatással és az iskolai esélyegyenlőséggel kapcsolatban
- Trentin, R., Monaci, M. G., De Lumè, F. & Zanon, O. (2006) Scholastic integration of gypsies in Italy: Teachers' attitudes and experience. *School Psychology International*, (1)27, 79-103
- Urbiola A., Torres (2022) Unpublished data in Spain.
- Valenta, M. & Graf, S. (2015) Vliv označení nečlenské skupiny podstatnými a přídavnými jmény v pozitivním, negativním a ambivalentním kontextu
- Váradi, L. (2014). *Youths trapped in prejudice: Hungarian adolescents' attitudes towards the Roma*. Springer Science & Business.
- Vašíčková, B (2006) Attitudes of the majority population in Ostrava and in rural areas of the Ostrava region toward Roma people [Unpublished Bachelor's Thesis, Masaryk University in Brno].
- Vidova, V. & Petrik, J. (2019) Relation between Direct Contact and Intergroup Attitudes in Adolescents [Unpublished Bachelor's Thesis, Faculty of Social and Economic Sciences, Comenius University in Bratislava].
- Visintin, E. P., Green, E. G., Pereira, A., & Miteva, P. (2017). How positive and negative contact relate to attitudes towards Roma: Comparing majority and high-status minority perspectives. *Journal of Community & Applied Social Psychology*, 27(3), 240-252. <https://doi.org/10.1002/casp.2309>
- Voca S. (2022) Unpublished data in Kosovo.
- Žeželj, I., Jakšić, I., & Jošić, S. (2015) How contact shapes implicit and explicit preferences: attitudes toward Roma children in inclusive and non-inclusive environment. <https://doi.org/10.1111/jasp.12293>

- Zeželj, I., Milošević-Đorđević, J., Van Niekerk, J., & Pavlović, Z. (2020) How to address the caveat of avoiding direct contact: Reducing prejudice towards gay and lesbian people in five Balkan countries. <https://doi.org/10.1080/00224545.2019.1611531>
- Zimova, D. & Popper, M. (2017) Reducing Prejudices toward Roma by Means of Indirect Contact
- Zingora, T., & Graf, S. (2019) Marry who you love: Intergroup contact with gay people and another stigmatized minority is related to voting on the restriction of gay rights through threat. <https://doi.org/10.1111/jasp.12627>

This research was funded by the European Union's Rights, Equality and Citizenship (REC) Programme (2014-2020) (Grant. No. 963122 – ENGAGE – REC-AG-2020 / REC-RDIS-DISC-AG-2020). This report's content represents the authors' views only and is their sole responsibility. The European Commission does not accept any responsibility for use that may be made of the information it contains.



Appendix

Appendix 1. Method of the meta-analysis

This model considers the variation between studies because of different designs, participants, and measurements, and it does not require the assumption of true effect size. To establish the heterogeneity of the effect size, we used Q statistics. A significant Q value indicated heterogeneity; that is, the variability of the studies was greater than it may be expected from the sampling error only on the subject level (Lipsey & Wilson, 2001). We used the visual examination of the funnel plot to identify publication bias (Borenstein, Hedges, Higgins, & Rothstein 2009). However, we did not expect a publication bias, considering that most unpublished work we identified was not prepared for publication (research papers or theses) or were very recent. The classic fail-safe N suggests the confidence of the effect. This number shows how many studies should be included for the identified significant relationship to become nonsignificant. The result is robust if the fail-safe N is above $5k+10$ (k = number of studies in the meta-analysis; Rosenthal, 1979).

We identified the relevant researches by personal contacts and by online search in the relevant databases, using the equivalents of the following keywords in every local languages: (a) Romaphobia, anti-Roma/gypsy attitude, anti-Roma/gypsy stereotype, anti-Roma/gypsy prejudice, anti-Roma/gypsy discrimination, antigypsyism, AND (b) Intergroup contact, intergroup friendship, intergroup relations, contact. However, there were 3 countries where we did not find any research examining the connection between contact and anti-Roma attitudes.

Appendix 2.

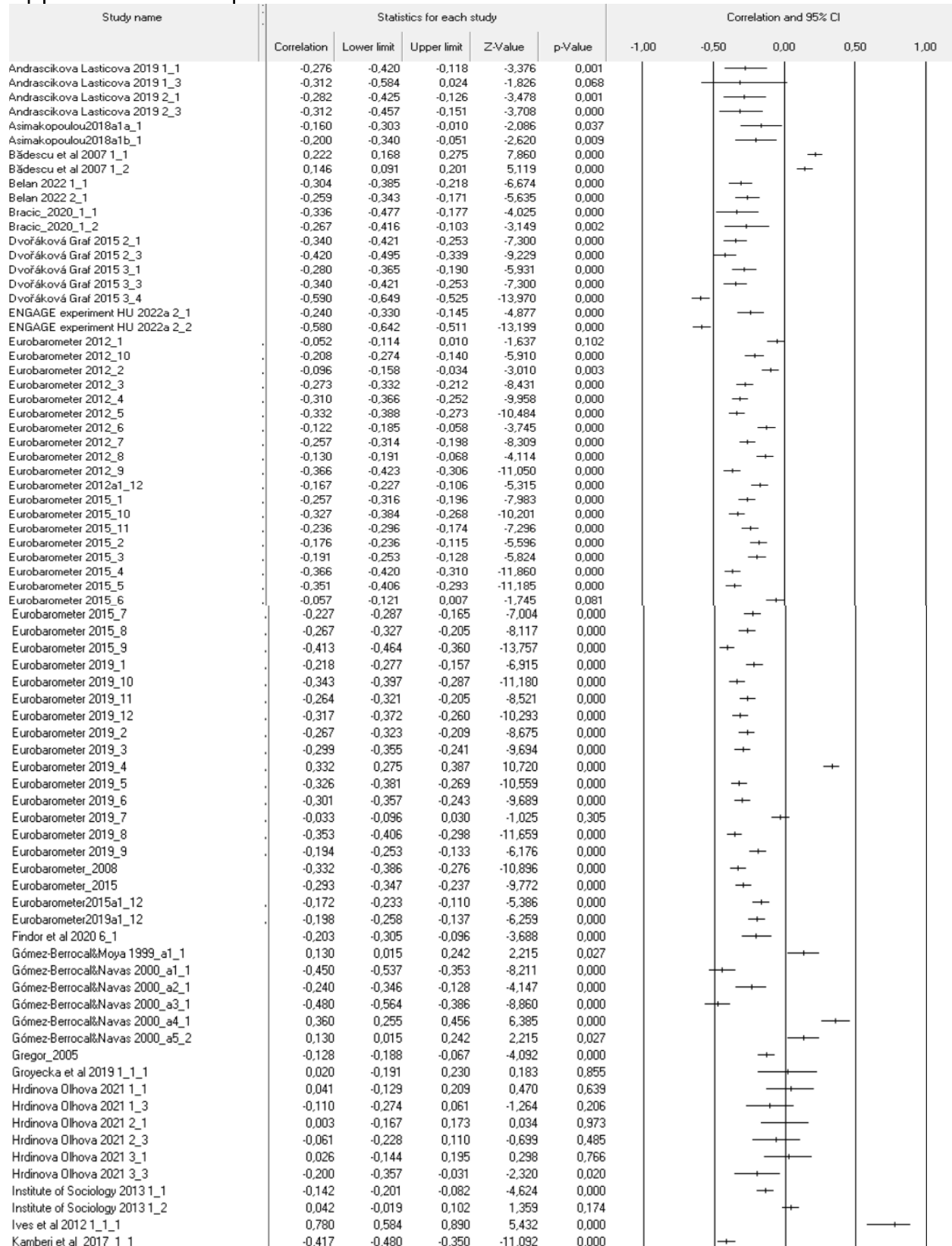
List of countries where data was collected:

Albania
Bosnia-Herzegovina
Bulgaria
Croatia
Czech Republic
France
Greece
Hungary
Italy
Kosovo
Macedonia
Montenegro
Moldova
Poland
Portugal
Romania
Serbia
Slovakia
Slovenia
Spain
Turkey

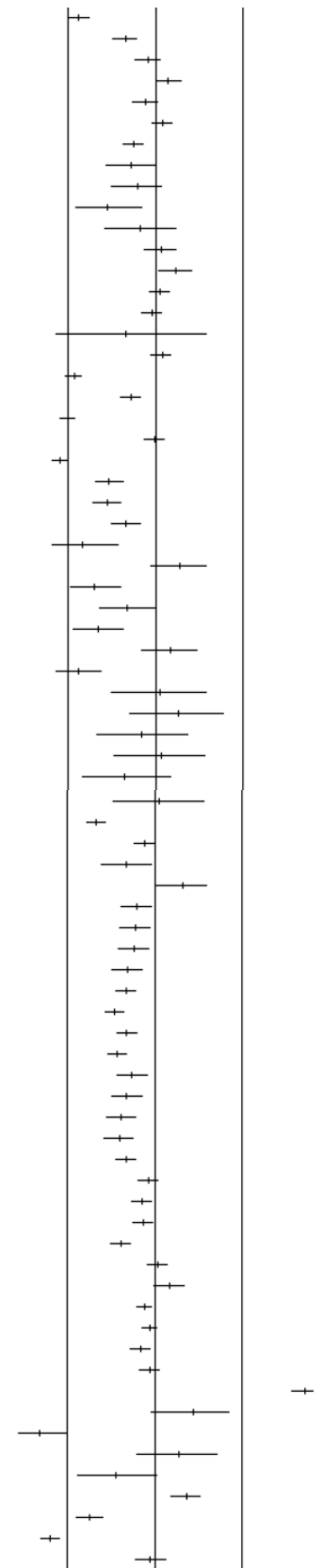
Appendix 3. Summarised results of the meta-analysis

	Model	N Studies	Point estimate	Lower limit	Upper Limit	Z-value	P-value	Q-value	df(Q)	P-value	I-squared	Tau-squared	Standard error
Summerized	Fixed	198	-0,18	-0,19	-0,18	-59,28	<0,001	4232,93	197	<0,001	95,35	<0,001	0,20
	Random effects	198	-0,17	-0,20	-0,14	-11,53	<0,001						
Quantity of contact	Fixed	73	-0,08	-0,09	-0,07	-14,33	<0,001	815,09	72	<0,001	91,17	<0,001	0,15
	Random effects	73	-0,10	-0,14	-0,06	-5,13	<0,001						
Quality of contact	Fixed	125	-0,23	-0,23	-0,22	-61,72	<0,001	2916,48	124	<0,001	95,75	<0,001	0,20
	Random effects	125	-0,21	-0,24	-0,17	-11,34	<0,001						
Comprehensive types of prejudice	Fixed	55	-0,11	-0,12	-0,10	-10,56	<0,001	882,69	54	<0,001	93,88	<0,001	0,17
	Random	55	-0,12	-0,17	-0,07	-4,99	<0,001						
Affective	Fixed	89	-0,23	-0,24	-0,23	-54,95	<0,001	1868,68	88	<0,001	95,29	<0,001	0,18
	Random	89	-0,22	-0,26	-0,18	-10,65	<0,001						
Behavioural	Fixed	54	-0,15	-0,16	-0,13	-21,49	<0,001	1135,963	53	<0,001	95,33	<0,001	0,23
	Random	54	-0,14	-0,20	-0,75	-4,20	<0,001						

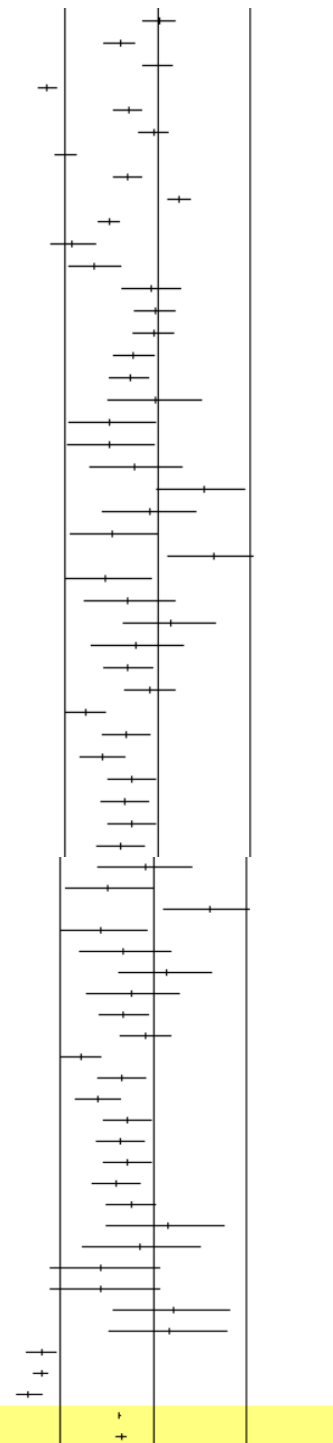
Appendix 4. Funnel plot of the results



Kamberi et al_2017_1_2	-0.440	-0.501	-0.375	-11.796	0,000
Kende et al_2017_1_1	-0.170	-0.241	-0.097	-4.526	0,000
Kende et al_2017_1_2	-0.040	-0.114	0,034	-1.055	0,291
Kende, Hadarics, Lastikova_2017a	0,075	0,001	0,148	1,981	0,048
Kende, Hadarics, Lastikova_2017b	-0.059	-0.133	0,015	-1.557	0,119
Kende, Nyúl, Hadarics, Wessenauer,	0,042	-0,020	0,104	1,328	0,184
Kende, Nyúl, Hadarics, Wessenauer,	-0.123	-0.184	-0.062	-3.905	0,000
Kende, Tropp, Lantos_2017_Study1	-0.140	-0.284	0,010	-1.832	0,067
Kende, Tropp, Lantos_2017_Study1b	-0.105	-0.251	0,045	-1.370	0,171
Kende, Tropp, Lantos_2017_Study2	-0.272	-0.454	-0.069	-2.603	0,009
Kende, Tropp, Lantos_2017_Study2b	-0.084	-0.286	0,125	-0.785	0,432
Kende_2016a	0,031	-0,064	0,126	0,637	0,524
Kende_2016b	0,119	0,022	0,214	2,391	0,017
Keresztes-Takacs, Lendvai, Kende_2016a	0,029	-0,033	0,091	0,918	0,358
Keresztes-Takacs, Lendvai, Kende_2016b	-0.019	-0.081	0,043	-0.602	0,548
Kocisova Lasticova 2015 6_1	-0.166	-0.567	0,298	-0.691	0,490
Lantos, Baráth, Nyúl, Kende_2016a	0,038	-0,024	0,100	1,205	0,228
Lantos, Baráth, Nyúl, Kende_2016b	-0.464	-0.511	-0.414	-15.919	0,000
Lantos, Baráth, Nyúl, Kende_2016c	-0.142	-0.202	-0.081	-4.530	0,000
Lantos, Baráth, Nyúl, Kende_2016d	-0.500	-0.545	-0.452	-17.405	0,000
Lantos, Baráth, Nyúl, Kende_2016e	-0.001	-0.063	0,061	-0.032	0,975
Lantos, Baráth, Nyúl, Kende_2016f	-0.545	-0.587	-0.500	-19.368	0,000
Lasticova et al 2018 1_1	-0.264	-0.345	-0.179	-5.918	0,000
Lasticova et al 2018 2_1	-0.273	-0.354	-0.188	-6.130	0,000
Lasticova et al 2018 3_1	-0.168	-0.254	-0.080	-3.712	0,000
Monaci&Trentin2008a1_1	-0.420	-0.593	-0.210	-3.746	0,000
Pányta et al. 2022a 1a_1	0,140	-0,025	0,297	1,667	0,095
Pányta et al. 2022a 1a_2	-0.350	-0.486	-0.197	-4.324	0,000
Pányta et al. 2022a 1b_1	-0.160	-0.316	0,004	-1.910	0,056
Pányta et al. 2022a 1b_2	-0.330	-0.469	-0.175	-4.056	0,000
Pányta et al. 2022a 1c_1	0,090	-0,075	0,250	1,068	0,286
Pányta et al. 2022a 1c_2	-0.440	-0.563	-0.297	-5.588	0,000
Pavlickova Lasticova 2017 1_1	0,023	-0,254	0,297	0,159	0,873
Pavlickova Lasticova 2017 2_1	0,132	-0,149	0,393	0,920	0,358
Petrikova Popper 2018 1_1	-0.076	-0.332	0,191	-0.554	0,579
Petrikova Popper 2018 1_3	0,032	-0,233	0,292	0,233	0,816
Petrikova Popper 2018 2_1	-0.177	-0.420	0,090	-1.302	0,193
Petrikova Popper 2018 2_3	0,025	-0,239	0,286	0,182	0,856
PoliticalCapital_2017a	-0.335	-0.390	-0.278	-10.791	0,000
PoliticalCapital_2017b	-0.056	-0.119	0,007	-1.737	0,082
Syridou2019a1a_1	-0.160	-0.303	-0.010	-2.092	0,036
Syridou2019a1b_1	0,160	0,010	0,303	2,092	0,036
Szekeres et al_a_1_1	-0.099	-0.189	-0.007	-2.119	0,034
Szekeres et al_a_1_2	-0.109	-0.199	-0.018	-2.334	0,020
Szekeres et al_a_3_1	-0.118	-0.207	-0.027	-2.529	0,011
Szekeres et al_a_3_2	-0.154	-0.242	-0.063	-3.311	0,001
Szekeres et al_b_1_1	-0.161	-0.219	-0.101	-5.243	0,000
Szekeres et al_b_1_2	-0.228	-0.285	-0.170	-7.492	0,000
Szekeres et al_b_3_1	-0.158	-0.217	-0.098	-5.143	0,000
Szekeres et al_b_3_2	-0.211	-0.268	-0.152	-6.915	0,000
Szekeres et al_c_1_1	-0.129	-0.217	-0.039	-2.794	0,005
Szekeres et al_c_1_2	-0.159	-0.246	-0.069	-3.454	0,001
Szekeres et al_c_3_1	-0.191	-0.277	-0.102	-4.165	0,000
Szekeres et al_c_3_2	-0.201	-0.287	-0.112	-4.389	0,000
TARKI_TDATAH01_2008a	-0.162	-0.221	-0.101	-5.186	0,000
TARKI_TDATAH02_2008b	-0.035	-0.096	0,027	-1.111	0,267
TARKI_TDATAH58_2011a	-0.072	-0.133	-0.010	-2.293	0,022
TARKI_TDATAH58_2011b	-0.061	-0.122	0,001	-1.942	0,052
TARKI_TDATAH60_2011a	-0.191	-0.250	-0.131	-6.146	0,000
TARKI_TDATAH60_2011b	0,021	-0,041	0,082	0,667	0,504
TDATA_F70p_2002	0,087	-0,005	0,178	1,844	0,065
TDATA_F70s_2002_1	-0.056	-0.100	-0.011	-2.454	0,014
TDATA_F70s_2002_2	-0.025	-0.070	0,020	-1.095	0,274
TDATA_H02_2008_1	-0.079	-0.140	-0.017	-2.512	0,012
TDATA_H02_2008_2	-0.025	-0.087	0,037	-0.793	0,427
Trentin et al_2006_1_1	0,860	0,782	0,912	10,427	0,000
Trentin et al_2006_2_a_1	0,224	-0,015	0,439	1,837	0,066
Trentin et al_2006_2_b_1	-0.660	-0.776	-0.500	-6.392	0,000
Trentin et al_2006_3_a_1	0,141	-0,101	0,367	1,144	0,252
Trentin et al_2006_3_b_1	-0.220	-0.436	0,019	-1.803	0,071
Uriola&Torres 2022_a1_1	0,183	0,095	0,268	4,038	0,000
Uriola&Torres 2022_a1_2	-0.369	-0.444	-0.289	-8.449	0,000
Uriola&Torres 2022_a1_3	-0.595	-0.650	-0.534	-14.953	0,000
Uriola&Torres 2022_a1_4	-0.023	-0.112	0,067	-0.502	0,616



Urbiola&Torres 2022_a1_5	0.012	-0,078	0,101	0,262	0,793	
Urbiola&Torres 2022_a1_6	-0,202	-0,286	-0,114	-4,469	0,000	
Valenta Graf 2015 1_1	0,006	-0,076	0,088	0,144	0,886	
Valenta Graf 2015 1_6	-0,595	-0,645	-0,540	-16,406	0,000	
Valenta Graf 2015 1_9	-0,155	-0,234	-0,074	-3,740	0,000	
Valenta Graf 2015 2_1	-0,019	-0,101	0,063	-0,455	0,649	
Valenta Graf 2015 2_6	-0,496	-0,555	-0,432	-13,022	0,000	
Valenta Graf 2015 2_9	-0,161	-0,240	-0,080	-3,888	0,000	
Váradí et al_2020_1_1	0,120	0,055	0,184	3,593	0,000	
Varadi_2014	-0,261	-0,319	-0,201	-8,235	0,000	
Vašíčková 2006 1_1	-0,460	-0,574	-0,328	-6,231	0,000	
Vidova Petrik 2019 1_1	-0,341	-0,475	-0,192	-4,321	0,000	
Vidova Petrik 2019 1_2	-0,031	-0,190	0,129	-0,377	0,706	
Voca et al_a1	-0,010	-0,123	0,103	-0,173	0,863	
Voca et al_a2	-0,020	-0,133	0,093	-0,346	0,729	
Voca et al_a3	-0,130	-0,239	-0,017	-2,261	0,024	
Voca et al_a4	-0,150	-0,258	-0,038	-2,613	0,009	
Zezeľ et al_2015_1_1	-0,010	-0,263	0,245	-0,076	0,940	
Zezeľ et al_2015_1_2	-0,256	-0,479	-0,002	-1,977	0,048	
Zezeľ et al_2015_1_3	-0,262	-0,484	-0,009	-2,025	0,043	
Zezeľ et al_2015_1_4	-0,121	-0,364	0,137	-0,918	0,359	
Zezeľ et al_2015_2_1	0,252	-0,002	0,475	1,944	0,052	
Zezeľ et al_2015_2_2	-0,044	-0,295	0,212	-0,332	0,740	
Zezeľ et al_2015_2_3	-0,247	-0,471	0,007	-1,904	0,057	
Zezeľ et al_2015_2_4	0,306	0,056	0,520	2,387	0,017	
Zezeľ et al_2015_3_1	-0,280	-0,498	-0,028	-2,172	0,030	
Zezeľ et al_2015_3_2	-0,158	-0,396	0,100	-1,203	0,229	
Zezeľ et al_2015_3_3	0,075	-0,182	0,323	0,567	0,571	
Zezeľ et al_2015_3_4	-0,114	-0,358	0,144	-0,864	0,387	
Zezeľ et al_2020_1_1_1	-0,160	-0,291	-0,023	-2,282	0,022	
Zezeľ et al_2020_1_2_1	-0,040	-0,177	0,098	-0,566	0,571	
Zezeľ et al_2020_2_1_1	-0,390	-0,498	-0,270	-5,996	0,000	
Zezeľ et al_2020_2_2_1	-0,170	-0,297	-0,037	-2,500	0,012	
Zezeľ et al_2020_3_1_1	-0,300	-0,418	-0,172	-4,453	0,000	
Zezeľ et al_2020_3_2_1	-0,140	-0,270	-0,005	-2,028	0,043	
Zezeľ et al_2020_4_1_1	-0,173	-0,301	-0,039	-2,520	0,012	
Zezeľ et al_2020_4_2_1	-0,139	-0,269	-0,004	-2,018	0,044	
Zezeľ et al_2020_5_1_1	-0,200	-0,327	-0,065	-2,896	0,004	
Zezeľ et al_2015_2_2	-0,044	-0,295	0,212	-0,332	0,740	
Zezeľ et al_2015_2_3	-0,247	-0,471	0,007	-1,904	0,057	
Zezeľ et al_2015_2_4	0,306	0,056	0,520	2,387	0,017	
Zezeľ et al_2015_3_1	-0,280	-0,498	-0,028	-2,172	0,030	
Zezeľ et al_2015_3_2	-0,158	-0,396	0,100	-1,203	0,229	
Zezeľ et al_2015_3_3	0,075	-0,182	0,323	0,567	0,571	
Zezeľ et al_2015_3_4	-0,114	-0,358	0,144	-0,864	0,387	
Zezeľ et al_2020_1_1_1	-0,160	-0,291	-0,023	-2,282	0,022	
Zezeľ et al_2020_1_2_1	-0,040	-0,177	0,098	-0,566	0,571	
Zezeľ et al_2020_2_1_1	-0,390	-0,498	-0,270	-5,996	0,000	
Zezeľ et al_2020_2_2_1	-0,170	-0,297	-0,037	-2,500	0,012	
Zezeľ et al_2020_3_1_1	-0,300	-0,418	-0,172	-4,453	0,000	
Zezeľ et al_2020_3_2_1	-0,140	-0,270	-0,005	-2,028	0,043	
Zezeľ et al_2020_4_1_1	-0,173	-0,301	-0,039	-2,520	0,012	
Zezeľ et al_2020_4_2_1	-0,139	-0,269	-0,004	-2,018	0,044	
Zezeľ et al_2020_5_1_1	-0,200	-0,327	-0,065	-2,896	0,004	
Zezeľ et al_2020_5_2_1	-0,120	-0,252	0,017	-1,722	0,085	
Zimova Popper 2017 1_1	0,076	-0,250	0,386	0,450	0,652	
Zimova Popper 2017 1_3	-0,072	-0,383	0,254	-0,427	0,670	
Zimova Popper 2017 2_1	-0,278	-0,549	0,046	-1,689	0,091	
Zimova Popper 2017 2_3	-0,283	-0,553	0,040	-1,721	0,085	
Zimova Popper 2017 3_1	0,112	-0,215	0,417	0,665	0,506	
Zimova Popper 2017 3_3	0,089	-0,237	0,397	0,528	0,598	
Zingora & Graf_2019_1_1	-0,600	-0,677	-0,511	-10,489	0,000	
Zingora et al 2020 1_1	-0,600	-0,640	-0,556	-20,644	0,000	
Zingora Graf 2019	-0,670	-0,735	-0,592	-12,269	0,000	
Fixed	-0,181	-0,187	-0,175	-59,277	0,000	
Random	-0,170	-0,198	-0,141	-11,527	0,000	



Appendix 5.

Details of the multilevel model predicting personal attitudes towards the Roma.

Table 1

Multilevel model predicting individual (within level) attitudes towards the Roma with cross-level interactions

Estimates (Fixed effects)	Standardized (SD)	95% CI	p
Contact	.181 (.007)	[.168; .194]	< .001
Gender	.026 (.006)	[.014; .037]	< .001
Age	-.131 (.006)	[-.144; -.119]	< .001
Education	.081 (.006)	[.069; .093]	< .001
Size of residence	.050 (.006)	[.038; .061]	< .001
Lef-right ideology	-.125 (.007)	[-.138; -.112]	< .001
Contact X Country-level Roma-attitude	-.659 (.211)	[-.920; -.113]	.022
Contact X Conservation	-.256 (.246)	[-.602; .361]	.366
Contact X Openness	-.438 (.236)	[-.737; .189]	.150
Contact X Self-enhancement	-.163 (.335)	[-.594; .618]	.670
Contact X Self-transcendence	-.293 (.304)	[-.666; .463]	.458
R2 (within)		.079	

Note. Reported estimates are the median points of the Bayesian posterior distributions. SD = Posterior standard deviation; 95% CI = Upper and lower bounds of the 95% Bayesian credibility interval.