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Assessing Attitudes Towards Hate Crime: Adaptation and Validation of the Hate Crime Beliefs Scale

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Supplementary Materials: Code, Data, Materials, Preregistration [see Index of Supplementary Materials]

Abstract

A robust measure of hate crime-related attitudes is crucial to exploring the reciprocal relationship between hate crime and attitudes within society. Building on previous versions of the Hate Crime Beliefs Scale (HCBS), developed and validated in the U.S. (Cabeldue et al., 2018; Kehn et al., 2023) and the U.K. (Bacon et al., 2021), we created the HCBS-Universal (HCBS-U) in German and English, designed to be context-independent by omitting references to specific target groups and contexts. The HCBS-U was validated in three pre-registered studies. Study 1 (German sample, N_{t1} = 581; N_{t2} = 300) confirmed the three-factor structure and convergent validity and demonstrated strict measurement invariance across time. Study 2 (German sample, N = 3,000) replicated the three-factor structure and convergent validity. Study 3 (U.S. sample, N = 593) validated the English HCBS-U and supported scalar invariance across countries. Results affirm the HCBS-U as a reliable tool for assessing hate crime attitudes in diverse contexts.

Keywords

hate crime, prejudice, validity, measurement invariance, scale development

Non-Technical Summary

Background

Hate crimes not only harm individuals but also affect communities and societies as a whole. Understanding people's beliefs about hate crimes is therefore important for research, prevention, and policy. To study these beliefs, researchers need reliable questionnaires. For this purpose, the Hate Crime Beliefs Scale (HCBS) was originally developed.

Why was this study done?

THe HCBS was developed in the U.S. and the U.K. and reflects specific legislative frameworks and victim groups relevant to those societies, which hinders its application in other countries. We created a new version of the HCBS that avoids references to country-specific aspects or particular victim groups. This makes the scale more universally applicable across different countries and situations.

What did the researchers do and find?

We developed our new measurement scale, the HCBS-Universal (HCBS-U) in both German and English, using large samples from Germany and the United States with over four thousand participants. Across all studies, the scale proved to be reliable and valid in both languages and cultural contexts.

What do these findings mean?

The HCBS-U provides researchers and practitioners with a robust tool to assess attitudes toward hate crime in diverse contexts and languages. This makes it easier to study public beliefs about hate crime and to compare them across societies.

Highlights

- This paper presents the context-independent Hate Crime Beliefs Scale-Universal (HCBS-U) in German and English.
- The scale omits references to specific target groups, making it adaptable across diverse social settings.
- Three pre-registered studies confirmed the HCBS-U's reliability and validity in Germany and the U.S.
- The scale demonstrated strict measurement invariance over time and scalar invariance across countries.
- The HCBS-U is a robust tool for assessing attitudes toward hate crime in cross-cultural research.

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Theoretical Background

Hate crime is a global phenomenon. Substantial differences in definition, measurement, recognition of victim groups, and enactment of legal policies across nations present significant challenges for cross-national comparisons (e.g., Garland & Funnell, 2016; Vergani et al., 2024). However, one observation likely applies across all countries: Hate crimes not only have a profound impact on the communities targeted, they also disrupt and undermine the broader social fabric of societies—worldwide (Perry, 2014). This underscores the urgency of developing a comprehensive and nuanced understanding of this phenomenon and its societal perceptions concerning diverse social, legal, and cultural contexts, particularly because the application of the hate crime concept across diverse contexts remains largely underexplored (Bhat & Chakraborti, 2024).

In the present work, we address this issue by adapting a scale that measures attitudes toward hate crime, reducing its context-specificity, and providing it in both German and English. With this refinement, we provide a tool suitable for comparative studies, enabling a more consistent examination of attitudes toward hate crime across diverse contexts.

Defining Hate Crime

A systematic review of 35,000 international references presents more than 400 different definitions of hate speech, hate crime, or surrogate terms (Vergani et al., 2024). The following was rated as one with the highest degree of operationalizability:

> "Hate crime, then, involves acts of violence and intimidation, usually directed toward already stigmatized and marginalized groups. As such, it is a mechanism of power and oppression, intended to reaffirm the precarious hierarchies that characterize a given social order. It attempts to re-create simultaneously the threatened (real or imagined) hegemony of the perpetrator's group and the 'appropriate' subordinate identity of the victim's group." (Perry, 2002, p. 10)

Target groups of hate crime vary across contexts as prejudice is deeply rooted in societies' unique cultural, political, and historical backgrounds. While in Western countries hate crime concepts tend to focus on ethnic and religious identities (Vergani et al., 2024), in India, for example, hate crimes primarily occur within the context of caste-based inequality (Bhat & Chakraborti, 2024). What constitutes a socially marginalized group is not static but can evolve alongside broader societal changes, debates, and developments (Groß et al., 2024; Schellenberg, 2024). Therefore, dimensions of discrimination and its targeted societal groups can never be seen as exhaustive, underscoring the need for a more flexible definition, one that can evolve along with ongoing social transformations

and changing contexts, remaining inclusive of emerging forms of bias and discrimination (Schellenberg, 2024).

Measuring Attitudes Toward Hate Crime

As hate crimes profoundly affect society by undermining core social norms and values (Iganski, 2001), it is vital to investigate attitudes and judgments regarding these offenses within society. The *Hate Crime Beliefs Scale* (HCBS; Cabeldue et al., 2018) is a reliable measure of attitudes and beliefs toward hate crime. Its development and validation within the U.K. (Bacon et al., 2021) and U.S. (Cabeldue et al., 2018; Kehn et al., 2023) contexts, however, has resulted in measures that reflect specific legislative frameworks and targeted groups relevant to these societies, which "may limit the ability of the scale to be applied more broadly outside the United States" (Cabeldue et al., 2018, p. 3680).

Therefore, we advocate for incorporating a more adaptable and broadly defined framework into the HCBS that assesses attitudes toward crimes targeting stigmatized characteristics in general, rather than concentrating on specific groups. We aim to reduce context- and target-specific items within the scale, accommodating contextual variations and allowing the HCBS to better assess hate crime beliefs across different legal frameworks and social landscapes. We test this adapted HCBS in both German and U.S. contexts to ensure its validity and applicability across cultural and legislative settings.

Instrument

The original HCBS (Cabeldue et al., 2018) captures a broad spectrum of beliefs related to hate crime, aiming to enhance research consistency by providing a tool applicable across diverse areas of hate crime research. Items were generated from literature such as hate crime legislation and offender punishment (e.g., Gerstenfeld, 2011), blame attribution theory (Shaver & Drown, 1986), or modern racism (Nelson, 2006), resulting in a 40-item scale encompassing four dimensions: *negative beliefs* of hate crime legislation and victim groups, support for greater *offender punishment*, belief in hate crime legislation as *deterrence* and the recognition of greater *victim harm* caused by hate crimes. Bacon et al. (2021) adapted this scale for the U.K. (*HCBS-UK*), which was tested again in the U.S. (*HCBS-SF,* Kehn et al., 2023). The HCBS-UK (20 items) and HCBS-SF (17 items) resulted in shorter versions with three dimensions each: *denial* of the severity of hate crime and the harm it causes, *compassion* toward victims and affected communities, and stronger support for *sentencing* offenders (Bacon et al., 2021; Kehn et al., 2023). Examples of (common) items for each dimension are *"I believe that hate crimes receive too much attention."* (denial), *"Offenders who target Black people based on their race deserve a longer prison sentence."* (sentencing), and *"Sexual orientation bias-motivated crimes are threatening to the*

lesbian, gay, bisexual, transgender community at large." (compassion). In all three HCBS versions, statements were rated on a 5-point Likert scale.

Scale Development

Translation and Adaptation

The primary objective of the current studies was to develop a scale applicable in different contexts, measuring hate crime-related attitudes in various countries for comparative research. We built upon the HCBS-SF (Kehn et al., 2023), primarily due to its brevity. We translated the HCBS-SF into German and then adapted it to reflect the stated objectives. To encourage the use of the adapted scale beyond the German context, we have carried out a back-translation into English. Both translation processes followed the TRAPD method (Harkness, 2003), encompassing a translation (T) by two independent translators, a review (R) phase for discussing and adapting translations, an adjudication (A) by the article's first author, a pretesting (P) through the analyses detailed in this article, and comprehensive documentation (D) of the entire process, available in the *Supplemental Material* (*Documentation of the Translation Process*, Table S1 and S2) in Bender et al. (2025). During the review phase, it was particularly important to make adjustments that reduce context and target specificity. These adjustments are explained in more detail below.

Reducing Context-Specificity

The original HCBS (Cabeldue et al., 2018) required modifications by Bacon et al. (2021) to fit the U.K. context, such as changing references to the First Amendment and adjusting for differences in law enforcement systems. For the German HCBS, we aimed to make the scale less context-specific by identifying and generalizing items with such country-specific content and language. For example, instead of the items *"Prosecutors spend too much time pursuing hate crimes."* (HCBS, Cabeldue et al., 2018; HCBS-SF, Kehn et al., 2023) or *"The police spend too much time pursuing hate crimes."* (HCBS-UK; Bacon et al., 2021), we chose the wording *"Law enforcement agencies spend too much time pursuing hate crimes."*.

Reducing Target-Specificity

Previous HCBS versions were also modified by adjusting the minority groups referenced in the items. For example, Bacon et al. (2021) included items addressing hate crimes against Muslims and Jewish people to reflect the U.K. context. Kehn et al. (2023) emphasized the importance of adapting referenced minority groups to the specific country where the HCBS is implemented. We, however, modified the scale to address crimes against stigmatized characteristics more broadly, avoiding a focus on specific groups

to enhance its general applicability. For example, instead of the target-specific wording *"Sexual orientation bias-motivated crimes are threatening to the lesbian, gay, bisexual, transgender community at large"* (HCBS, Cabeldue et al., 2018; HCBS-UK, Bacon et al., 2021; HCBS-SF, Kehn et al., 2023), we reworded the item to be less target-specific: *"Criminal offenses against people with a certain characteristic also threaten all other people with this characteristic"*.

Implementing a Hate Crime Definition

To ensure respondents share a common understanding of hate crime and its victims, we included a definition in the scale's introduction. It offers a simplified yet clear description of hate crime, along with examples of potential victim characteristics, while allowing flexibility for country-specific variations.

The development process resulted in a 15-item German scale and its English translation, titled the *Hate Crime Beliefs Scale-Universal* (*HCBS-U*; Table 1).

The Present Studies

In three pre-registered studies (Study 1, Study 2, Study 3), we validated the German HCBS-U as well as its back-translation by analyzing factor structures, relations to different variables, and assessment of measurement invariance across time and countries. Complete lists of hypotheses are available in the pre-registrations. All analyses were conducted using *R Studio Version 2025.05.0* (Posit Team, 2025) and the *lavaan* package for structural equation modeling (Rosseel, 2012). Data and analysis code are available in Bender et al. (2025). Deviations from the pre-registrations are described in Table S3 in Bender et al. (2025). Institutional Review Board approval was obtained for all three studies.

Quality Criteria

Study 1

In Study 1, we tested the multifactorial structure and convergent validity of the German HCBS-U using data from $N = 581$ participants. We expected to find the same three-factor structure as previous versions of HCBS (Bacon et al., 2021; Kehn et al., 2023), namely *denial*, *sentencing*, and *compassion*. Following prior HCBS authors, we assessed convergent validity by examining the relationships between HCBS-U subscales, right-wing authoritarianism (RWA), social dominance orientation (SDO)—both strong predictors of prejudice (e.g., Duckitt, 2006)—and political orientation, as political conservatism has been linked to reduced support for hate crime legislation (e.g., Cramer et al., 2017).

In addition, we tested for stability over time using a longitudinal design ($N = 300$) with two measurement points spaced five months apart. We expected a positive corre-

lation between the German HCBS-U subscales at both measurement points, indicating test-retest reliability.

To test measurement invariance over time, data from these two time points were used.

Sample

Data were collected within the fifth wave of the *Panel on the Perception of Crime and Offenders* (*PaWaKS*; Wagner et al., 2024). This online survey was conducted in spring 2024 by the market research company *Ipsos*. The first wave, conducted in spring 2021, was representative of the adult population living in Germany (N = 5,174). N = 581 participated in the fifth wave. Due to this relatively high attrition rate, the sample of the fifth wave can no longer be considered representative. It is on average slightly older, better educated, and has a higher average household net income compared to the sample of the first wave.

Five months later, N = 300 participants were drawn from the participant pool of the fifth PaWaKS wave, with data linked through a panellist ID, providing a longitudinal data structure. These data were collected as part of the *Survey on the Perception of Hate Crime, the Penal System and Sex Work* (*HaSteX*; Bender, Radewald, et al., 2024), an online survey conducted in the summer of 2024 also by the market research company *Ipsos*.

Details on the sociodemographic characteristics of both samples are available in Table S4 in Bender et al. (2025).

Measures

Hate Crime Beliefs Scale-Universal — The 15 items of the German HCBS-U were answered on a scale from 1 to 5 (1 = strongly disagree, 3 = neither agree nor disagree, 5 = strongly agree).

RWA — Right-wing authoritarianism was measured with nine items of the KSA-3 scale (Beierlein et al., 2014) on scales from 1 (strongly disagree) to 7 (strongly agree).

SDO — Social dominance orientation was measured with eight items (Ho et al., 2015, translated into German by Carvacho et al., 2018) on a 7-point scale (1 = strongly disagree, 4 = neither, 7 = strongly agree).

Political Orientation — Participants rated their political views on a 7-point scale (1 = left-wing, 4 = center, 7 = right-wing) of the Left-Right Self-Placement (Breyer, 2015).

The full questionnaires are available in Wagner et al. (2024) and Bender, Radewald, et al. (2024).

Results

Confirmatory Factor Analysis — We tested the three-factor structure of the German HCBS-U in a confirmatory factor analysis (CFA), using Maximum Likelihood Estimation with Robust Standard Errors (MLR). Consequently, only scaled chi-square values and robust estimates of CFI, TLI, and RMSEA are reported in the following. The first model included all 15 items and showed an acceptable overall model fit, according to the criteria introduced by Hu and Bentler (1999): $\chi^2(87) = 343.75$, $p < .001$, CFI = .93, TLI = .91, RMSEA = .08, 90% CI [.07, .09], and SRMR = .06.

Initial results indicated standardized factor loadings for items 14 ($\lambda = .40$) and 15 ($\lambda = .30$) below $|\lambda| = .50$, suggesting weak associations with their respective latent factor (Brown, 2015). In addition, these items were more related to the belief in the effectiveness of punishment than to attitudes toward hate crime. Therefore, we removed them from the model. This adjustment improved the model fit: $\chi^2(62) = 211.01$, $p < .001$, CFI = .96, TLI = .94, RMSEA = .07, 90% CI [.06, .08], SRMR = .04.

Modification indices suggested a high covariance between the error terms of items 1 and 6. Both items refer to the statement that hate crime receives too much attention and show very similar wording. Adding an error covariance to the model improved the model fit: $\chi^2(61) = 169.06$, $p < .001$, CFI = .96, TLI = .95, RMSEA = .06, 90% CI [.05, .07], and SRMR = .04 (for all model fit indices: Table S5 in Bender et al., 2025).

A scaled chi-square difference test indicated a significant chi-square improvement from model 1 to model 2, $\Delta\chi^2(25) = 135.66$, $p < .001$, and from model 2 to model 3, $\Delta\chi^2(1) = 23.27$, $p < .001$, indicating that model 3 provided the best fit to the data. This final model demonstrated strong standardized factor loadings for the remaining items, ranging from .55 to .88 (Table S6 in Bender et al., 2025). Finally, we compared the final model to a one-factor model using a scaled chi-square difference test, which revealed a significantly worse fit for the one-factor model: $\Delta\chi^2(3) = 155.21$, $p < .001$. Table 1 shows the final HCBS-U.

Table 1

Hate Crime Beliefs Scale – Universal

	German HCBS-U[a]	English HCBS-U[b]
	Introduction	
	Im Folgenden geht es um das Thema Hasskriminalität. Bei Hasskriminalität (engl. „hate crime"), oder auch Vorurteilskriminalität oder vorurteilsgeleitete Verbrechen, werden Opfer aufgrund bestimmter Merkmale ausgewählt, die darauf hinweisen, dass sie einer bestimmten Gruppe in der Gesellschaft angehören. Zu diesen Merkmalen gehören z.B. Herkunft, Hautfarbe, sexuelle Orientierung, Religion, Geschlecht oder geschlechtliche Identität, eventuelle Behinderungen, Alter, politische Weltanschauung oder sozialer Status. Es sind auch andere Merkmale denkbar, anhand derer Menschen in Gruppen eingeteilt werden können. Wie beurteilen Sie die folgenden Aussagen?	The following section addresses the topic of hate crime. Hate crime, or bias crime, involves criminal acts in which the victims are selected based on certain characteristics which identify them as a member of a specific group in society. These characteristics include place of origin, skin color, sexual orientation, religion, gender or gender identity, physical or mental disability, age, political ideology, and social status, or other characteristics that can be used to divide individuals into groups. Please rate the statements below using the following 5-point scale.
Dimension	**Items**	
Denial	Hasskriminalität erhält zu viel Aufmerksamkeit.	Hate crime receives too much attention.
Denial	Opfer von Hasskriminalität erhalten zu viel Aufmerksamkeit.	Hate crime victims receive too much attention.
Denial	Strafverfolgungsbehörden investieren zu viel Zeit in die Verfolgung von Hasskriminalität.	Law enforcement agencies spend too much time pursuing hate crime.
Denial	Die Medien machen aus Hasskriminalität eine größere Sache als sie eigentlich ist.	The media makes hate crime into a bigger deal than it actually is.
Denial	Der Schutz bestimmter Gruppen durch Gesetze gegen Hasskriminalität ist unnötig.	Hate crime law protection of specific groups is unnecessary.
Denial	Hasskriminalität erhält in den Nachrichten zu viel Aufmerksamkeit.	Hate crime receives too much attention in the news.
Denial	Wenn jemand zusätzlich zur eigentlichen Tat eine Anklage wegen „Hasskriminalität" erhält, ist das übermäßige Strafverfolgung.	Charging someone with a separate hate crime charge is excessive prosecution.
Denial	Die statistische Erfassung von Hasskriminalität durch Strafverfolgungsbehörden ist unnötig.	The statistical recording of hate crime by law enforcement authorities is unnecessary.

	German HCBS-U[a]	English HCBS-U[b]
Sentencing	Eine vorurteilsgeleitete Motivation bei einer Straftat sollte sich bei der Verurteilung strafverschärfend auswirken.	Evidence of bias motivation in a crime should be an aggravating factor in sentencing.
Sentencing	Täter von Hasskriminalität sollten eine härtere Strafe erhalten.	Hate crime offenders should receive harsher sentences.
Sentencing	Täter, die Menschen aufgrund eines bestimmten Merkmals angreifen, sollten eine härtere Strafe erhalten.	Offenders who target people based on specific characteristics should receive harsher sentences.
Compassion	Täter von Hasskriminalität können ihre Opfer langfristig traumatisieren.	Hate crime perpetrators can cause psychological trauma to their victims.
Compassion	Straftaten gegen Menschen mit einem bestimmten Merkmal bedrohen gleichzeitig auch alle anderen Menschen mit diesem Merkmal.	Crimes against individuals with a specific characteristic threaten all individuals with the same characteristic.
Compassion[c]	*Eine harte Bestrafung von Tätern, die Hasskriminalität begehen, wird die Wahrscheinlichkeit zukünftiger Hasskriminalität verringern.*	*Harsh punishments of hate crime offenders will decrease the likelihood of future hate crimes.*
Compassion[c]	*Gesetze, die Taten gegen bestimmte Gruppen bestrafen, verhindern künftige Straftaten gegen diese Gruppen.*	*Laws that punish acts against specific groups prevent future crimes against these groups.*

[a]Likert scale: 1–5 (1 = stimme überhaupt nicht zu, 3 = weder noch, 5 = stimme voll und ganz zu). [b]Likert scale: 1–5 (1 = strongly disagree, 3 = neither agree nor disagree, 5 = strongly agree). [c]These items were removed from the final versions of the scale due to low factor loadings.

Convergent Validity — Mean scores were computed for all variables prior to correlation analyses. Although RWA and SDO are multidimensional constructs, most studies have treated them as unidimensional. To ensure comparability with prior research, we likewise operationalized them unidimensionally in the present study. In line with Bacon et al. (2021) and Kehn et al. (2023), SDO and political orientation were positively correlated with *denial* and negatively with *sentencing* and *compassion,* indicating convergent validity. RWA was positively associated with *denial* and negatively related to *compassion*, but a negative correlation between RWA and *sentencing* was not observed. Table 2 shows descriptive statistics and bivariate correlations of all variables.

Table 2

Means, Standard Deviations, and Correlations With Confidence Intervals

Variable	*M*	*SD*	1	2	3	4	5
1. RWA	4.15	1.09					
2. SDO	3.15	1.01	.34**				
			[.26, .41]				
3. Polit. Orient.	3.90	1.02	.36**	.47**			
			[.29, .43]	[.40, .53]			
4. Denial	2.21	1.01	**.22****	**.51****	**.38****		
			[.14, .30]	[.44, .57]	[.30, .45]		
5. Compassion	4.20	0.75	**-.16****	**-.43****	**-.32****	-.63**	
			[-.24, -.08]	[-.49, -.36]	[-.40, -.25]	[-.68, -.58]	
6. Sentencing	3.80	0.84	.14**	**-.29****	**-.19****	-.50**	.55**
			[.06, .22]	[-.36, -.22]	[-.27, -.11]	[-.56, -.44]	[.49, .60]

Note. $N = 581$. *M* = mean, *SD* = standard deviation. Values in square brackets indicate the 95% confidence interval for each correlation. Correlations between the HCBS-U subscales and RWA, SDO, and political orientation that align with the hypothesized directions are highlighted in bold.
$^{*}p < .05$. $^{**}p < .01$.

Test-Retest Reliability — We determined bivariate correlations between HCBS-U subscales from two time points based on previously calculated means for each subscale. The results showed high positive correlations for *denial* ($r = .76$, $p < .001$), *compassion* ($r = .54$, $p < .001$) and *sentencing* ($r = .65$, $p < .001$), indicating test-retest reliability.

Measurement Invariance Across Time — To assess measurement invariance of the three-factor model (model 3) across time, we tested four different models with different levels of constraints using CFA and MLR estimator. The *configural model*, which tested whether the same factor structure applied across both time points, showed good fit indices (Table 3), suggesting that the basic structure of the model was consistent across time. In the *metric invariance model*, factor loadings were constrained to be equal across time points. The model fit did not significantly deteriorate compared to the configural model, $\Delta\chi^2(10) = 11.09$, $p = .350$, $\Delta CFI = .000$, indicating that factor loadings were equivalent across time. Next, we tested *scalar invariance*, where, in addition to factor loadings, intercepts are constrained to be equal across time points. The scalar model fit did not significantly deteriorate compared to the metric model fit, $\Delta\chi^2(13) = 9.38$, $p = .744$, $\Delta CFI = .000$, indicating scalar invariance. Finally, we tested for *strict invariance* by constraining factor loadings, intercepts, and error variances to be equal across time points. The strict model fit did not significantly deteriorate compared to the scalar model, $\Delta\chi^2(13) = 14.24$, $p = .357$, $\Delta CFI = .000$, indicating strict invariance and suggesting equal factor loadings, intercepts, and error variances across time, thereby enabling the comparison of unstandardized associations and latent means.

Table 3

Results of the Measurement Invariance Across Time

	Model fit indices						Fit indices differences			
Model	χ^2	*df*	**CFI**	**TLI**	**RMSEA**	**SRMR**	$\Delta\chi^2$	*p*	**ΔCFI**	**ΔRMSEA**
Configural[a]	376.47	269	.976	.971	.040	.041	—	—	—	—
Metric[b]	387.89	279	.976	.972	.040	.044	11.09	.350	.000	.001
Scalar[c]	398.86	292	.976	.974	.038	.045	9.38	.744	.000	.002
Strict[d]	410.65	305	.976	.974	.038	.045	14.24	.357	.000	.000

[a]No equality constraints. [b]Metric factor invariance: equal factor loadings across time. [c]Scalar invariance: equal factor loadings and intercepts across time. [d] Strict invariance: equal factor loadings, intercepts, and error variances across time. χ^2 and $\Delta\chi^2$ represent the scaled values computed using the MLR estimator. CFI, TLI, and RMSEA are robust estimates.

Study 2

Due to the lack of representativeness in the sample of Study 1, in Study 2, we used a representative sample of N = 3,000 participants to examine the multifactorial structure and convergent validity of the German HCBS-U. Again, we expected to find a three-factor structure and relations with RWA, SDO, and political orientation. Additionally, we evaluated associations with transphobic attitudes and prejudice toward various social groups, as these constructs are known to correlate with hate crime beliefs (e.g., Cabeldue et al., 2018).

Sample

The sample (N = 3,000) was collected as part of the *HaSteX* (Bender, Radewald, et al., 2024) and is representative of the adult population living in Germany in terms of gender, age, education, and region. This sample is independent from the sample at the second measurement time point of the longitudinal study in Study 1, which was also collected as part of the *HaSteX*. Details on the sociodemographic characteristics of the sample are available in Table S4 in Bender et al. (2025).

Measures

Measures for attitudes towards hate crime, RWA, SDO, and political orientation were identical to Study 1.

Transphobic Attitudes — To assess transphobic attitudes, participants were asked to rate two statements (adapted from Zick, 2023) on a scale from 1 to 7 (1 = strongly disagree, 4 = neither agree nor disagree, 7 = strongly agree).

Prejudice Towards Social Groups — Attitudes towards different groups (transgender people, Muslims, homosexual individuals, people experiencing homelessness, people with disabilities, and unemployed people) were measured using the feeling thermometer (0 = cold or negative, 50 = neutral, 100 = warm or positive; e.g., Velasco González et al., 2008). These variables were reverse-coded so that higher values indicate stronger prejudices against the respective group.

The full questionnaire can be found in Bender, Radewald, et al. (2024).

Results

Confirmatory Factor Analysis — As in Study 1, we tested the hypothesized three-factor structure in a CFA. Again, items 14 and 15 were removed due to low factor loadings, and an error covariance between items 1 and 6 was added due to modification indices. Following these adjustments, the model showed a good fit: $\chi^2(61) = 433.66$, $p < .001$, CFI = .97, TLI = .96, RMSEA = .05, 90% CI [.05, .06], and SRMR = .04. Standardized factor loadings for the final model ranged from .55 to .78 (Table S7 in Bender et al., 2025). Scaled chi-square difference tests demonstrated significant improvement from the initial model to the item-removed model, with further improvement upon adding error covariance, supporting the final model structure. Table S8 (Bender et al., 2025) shows all model fit indices as well as the results of the scaled chi-square difference test of the CFA. Comparing the final model to a one-factor model using a scaled chi-square difference test revealed a significantly worse fit for the one-factor model: $\Delta\chi^2(3) = 1282.6$, $p < .001$.

Convergent Validity — Means were computed for all variables prior to correlation analyses. SDO, political orientation, transphobic attitudes, and prejudice towards several groups were positively correlated with *denial* and negatively correlated with *sentencing* and *compassion*, indicating convergent validity. However, results for RWA were mixed. While RWA showed a positive correlation with *sentencing*, it was inversely correlated with *compassion* and *denial*. Descriptive statistics and all bivariate correlations are depicted in Tables S9–S11 (Bender et al., 2025).

Study 3

We expected the English version of our HCBS-U to retain the same three-factor structure. As in Study 2, we examined the relationships between HCBS-U subscales and RWA, SDO, political orientation, transphobic attitudes, and prejudices toward various groups to evaluate convergent validity.

To test measurement invariance across samples, we conducted multi-group CFA with a U.S. sample and the representative German sample from Study 2. Since the sample in Study 1 is not representative, we refrained from including it in the test.

Sample

The online survey was conducted in October 2024 via the online recruitment platform *Prolific*. The sample of $N = 593$ was representative of the U.S. population in terms of age, gender, and ethnicity. Table S4 in Bender et al. (2025) provides details on sociodemographic characteristics.

Measures

Measures were identical to Study 2. For RWA, the English translation of the KSA-3 by Nießen et al. (2019) was used (Bender et al., 2025 for the full questionnaire).

Results

Confirmatory Factor Analysis — CFA was conducted to test the three-factor structure of the HCBS-U. Results of an initial model including all 15 items indicated an acceptable model fit (Table S12 in Bender et al., 2025). Different from Studies 1 and 2, the standardized factor loadings of items 14 ($\lambda = .66$) and 15 ($\lambda = .64$) showed strong associations with their respective factor. However, to maintain consistency with the German HCBS-U, we removed both items for the next model. CFA results indicated an improvement in model fit for the revised model. Modification indices suggested an error covariance between items 1 and 6, which we added, consistent with Studies 1 and 2. The final model showed an acceptable to good fit: $\chi^2(61) = 201.12$, $p < .001$, CFI = .96, TLI = .95, RMSEA = .08, 90% CI [.07, .09], and SRMR = .05.

A scaled chi-square difference test showed significant improvement from the initial model to the model with item removal, and further improvement with added error covariance, supporting the final model structure (Table S12 in Bender et al., 2025). Standardized factor loadings ranged from .63 to .90 (Table S13 in Bender et al., 2025). As in Studies 1 and 2, comparing the final model to a one-factor model using a scaled chi-square difference test revealed a poorer fit for the one-factor model: $\Delta\chi^2(3) = 178.9$, $p < .001$. Table 1 shows the final English HCBS-U.

Convergent Validity — Mean scores were computed for all variables prior to correlation analyses. SDO, RWA, political orientation, transphobic attitudes, and prejudice toward various groups were positively correlated with *denial* and negatively correlated with *sentencing* and *compassion* (with a weaker but significant correlation between RWA and *sentencing*, $r = -.09$, $p = .029$), overall supporting convergent validity. The descriptive statistics and all bivariate correlations are depicted in Tables S14-S17 in Bender et al. (2025).

Measurement Invariance Across Countries — Using model 3, we tested measurement invariance across countries, evaluating configural, metric, scalar, and strict invariance as in Study 1. Scaled chi-square difference tests showed significant decreases between all

nested models (Table 4). Research showed that the chi-square difference test is overly restrictive and highly sensitive to sample size, prompting the proposal of alternative criteria such as limiting ΔCFI to no more than .01 and ΔRMSEA to no more than .003 (Chen, 2007; Cheung & Rensvold, 2002). Our results showed that ΔCFI remained below .01 and ΔRMSEA below .003 between the configural and metric model and the metric and scalar model (Table 4). However, a CFI decrease of .034 and an RMSEA increase of .021 from the scalar to the strict model indicated scalar invariance.

Table 4

Results of the Measurement Invariance Across Countries

	Model fit indices								Fit indices differences			
Model	χ^2	χ^2_{Ger}	χ^2_{USA}	*df*	**CFI**	**TLI**	**RMSEA**	**SRMR**	**Δ χ^2**	***p***	**Δ CFI**	**Δ RMSEA**
Con.[a]	619.90	405.93	213.98	122	.967	.958	.058	.036	—	—	—	—
Met.[b]	656.51	419.08	237.43	132	.966	.960	.056	.040	32.27	< .001	.001	.002
Scal.[c]	736.83	445.50	291.34	142	.962	.959	.057	.042	90.30	< .001	.004	.001
Str.[d]	1219.77	457.05	762.72	155	.928	.927	.078	.076	311.34	< .001	.034	.021

[a]Configural invariance: no equality constraints. [b]Metric factor invariance: equal factor loadings across countries. [c]Scalar invariance: equal factor loadings and intercepts across countries. [d]Strict invariance: equal factor loadings, intercepts, and error variances across countries. χ^2 and $\Delta\chi^2$ represent the scaled values computed using the MLR estimator. CFI, TLI, and RMSEA are robust estimates.

General Discussion and Future Directions

Previous versions of the HCBS are limited due to their reliance on context-specific references to target groups, which are especially relevant within the respective cultural or national settings. When deploying these scales in countries beyond the U.S. and U.K., the necessity of evaluating and potentially modifying the target groups not only restricts the utility of the instrument but, more critically, impacts the comparability of measurements across contexts. Although earlier versions of the HCBS had not been subjected to measurement invariance testing, prior research (e.g., on SDO; Lehmiller & Schmitt, 2007) suggests that predictive validity varies with contextual primes. Furthermore, a scale designed to assess attitudes toward hate crime may inadvertently conflate these attitudes with those toward specific relevant social groups, which vary across national and cultural boundaries. This group-specificity may hinder cross-cultural research, as it compromises the conceptual equivalence of the construct being measured. To improve the cross-cultural applicability of the scale, we developed the HCBS-U and omitted any items explicitly referring to specific target groups. We validated the HCBS-U in three studies.

Across all three studies, the HCBS-U showed the expected three-factor structure. The fact that the *sentencing* subscale consists of only two items could be addressed in future research by adjusting the number of items per subscale to achieve a more balanced representation. In Study 1, we provided evidence of test-retest reliability. Convergent validity was supported by correlations with relevant variables, such as SDO, political orientation, transphobic attitudes, and prejudice. However, the correlation between HCBS-U subscales and RWA was mixed: In the U.S. sample, a weak negative correlation appeared between RWA and *sentencing*, whereas in the German samples, this correlation was positive. This positive association aligns with findings from Bilewicz et al. (2017), who reported in a Polish sample that participants with higher RWA exhibited more prejudice, but were more likely to support a ban on hate speech. They suggested this may be due to high RWA scorers' increased sensitivity to norm violations, leading them to condemn actions that violate social norms, such as hate speech. Given these mixed findings and the context-dependency of RWA (e.g., Roets et al., 2015), future research should further explore the relationship between RWA and attitudes toward hate crime.

Measurement invariance tests indicated that the HCBS-U reliably measures hate crime attitudes consistently over time and across different national contexts, specifically in Germany and the U.S., supporting its utility for comparative research on hate crime attitudes. Due to the omission of specific target characteristics, however, some items are phrased more abstractly. This may pose challenges for measurement invariance across different groups (e.g., individuals with vs. without limited language proficiency), as the items may not be equally understandable or interpreted in the same way by all respondents. Future studies should examine measurement invariance across groups to ensure that the items are interpreted consistently and that relationships with other constructs can be validly compared.

Since our goal was to develop a universally applicable scale, further validation of the HCBS-U in contexts beyond Germany and the U.S. is necessary. This may involve adapting the scales' introduction text to reflect cultural specifics. Additionally, refining the introductory definition of hate crime to emphasize its function in reinforcing power dynamics and social hierarchies (Perry, 2002) may be considered. As most hate crime research is predominantly Western-centric and primarily conducted in English-speaking countries (e.g., Bhat & Chakraborti, 2024; Vergani et al., 2024), validating the HCBS-U in non-WEIRD (Western, Educated, Industrial, Rich, and Democratic) contexts is essential to better understand hate crime's global dynamics.

Conclusion

The review mentioned at the beginning of this article addressed that "a notable portion of studies lacked clear definitions, underlining the need for more rigorous standards" (Vergani et al., 2024, p. 3). We hope to address this issue with the HCBS-U by providing a definition as well as a scale that is validated across diverse contexts, thereby promot-

ing greater consistency and reliability in measurement. Our work does not attempt to establish a universal definition of hate crime, bridging the multifaceted conceptualizations across the globe. Rather, it represents an initial step toward moving away from a contextualized approach to measuring hate crime attitudes in favor of one that is more adaptable.

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Competing Interests: The authors have declared that no competing interests exist.

Ethics Statement: The research conducted in this paper adhered to the highest ethical standards. Institutional Review Board (IRB) approval was obtained for all three studies included in the research. IRB approval letters are available upon request. Informed consent was obtained from all participants in accordance with ethical guidelines.

Data Availability: For this article, data are freely available (see Bender et al., 2025).

Supplementary Materials

For this article, the following Supplementary Materials are available:

- Preregistrations (see Bender & Asbrock, 2024; Bender, Asbrock, & Wagner, 2024a, 2024b)
- Supplemental Material including detailed documentation of the translation process and additional tables (see Bender et al., 2025)
- Data sets for all three studies (see Bender et al., 2025)
- R analysis code (see Bender et al., 2025)
- Data handbook for the PaWaKS data set (see Wagner et al., 2024)
- Data handbook for the HaSteX data set (see Bender, Radewald, et al., 2024)
- Questionnaire used in Study 3 with the U.S. sample (see Bender et al., 2025)

Index of Supplementary Materials

Bender, R., & Asbrock, F. (2024). *Adaption and validation of a German Hate Crime Beliefs Scale* [Preregistration]. OSF Registries. https://doi.org/10.17605/OSF.IO/73M9V

Bender, R., Asbrock, F., & Wagner, D. (2024a). *Adaption and validation of a German Hate Crime Beliefs Scale(II)* [Preregistration]. OSF Registries. https://doi.org/10.17605/OSF.IO/693QY

Bender, R., Asbrock, F., & Wagner, D. (2024b). *Adaption and validation of the Hate Crime Beliefs Scale in English (III)* [Preregistration]. OSF Registries. https://doi.org/10.17605/OSF.IO/UAZH2

Bender, R., Asbrock, F., & Wagner, D. (2025). *Assessing attitudes towards hate crime: Adaptation and validation of the Hate Crime Beliefs Scale* [Data, code, materials]. OSF. https://doi.org/10.17605/osf.io/wxv8u

Bender, R., Radewald, A., Wagner, D., Bielejewski, A., Krumma, A., Asbrock, F., & Fuehrer, J. L. (2024). *HaSteX - Survey zur Wahrnehmung von Hasskriminalität, Strafvollzug und Sexarbeit* [Data handbook for the HaSteX data set]. OSF. https://doi.org/10.17605/osf.io/dtk7r

Wagner, D., Azevedo, F., Bender, R., Bielejewski, A., Führer, J., Radewald, A., Weber, K., & Asbrock, F. (2024). *Data Handbook Panel on the Perception of Crime and Criminal Offenders (PaWaKS).* Center for Criminological Research Saxony e.V. https://doi.org/10.17605/osf.io/7kum4

References

Bacon, A. M., May, J., & Charlesford, J. J. (2021). Understanding public attitudes to hate: Developing and testing a UK version of the Hate Crime Beliefs Scale. *Journal of Interpersonal Violence, 36*(23–24), NP13365–NP13390. https://doi.org/10.1177/0886260520906188

Beierlein, C., Asbrock, F., Kauff, M., & Schmidt, P. (2014). *Kurzskala Autoritarismus (KSA-3).* Zusammenstellung sozialwissenschaftlicher Items und Skalen (ZIS). https://doi.org/10.6102/zis228

Bhat, M. M. A., & Chakraborti, N. (2024). Lost in translation? Applying the hate crime concept to an Indian context. *Journal of Interpersonal Violence, 39*(17–18), 3855–3875. https://doi.org/10.1177/08862605241260008

Bilewicz, M., Soral, W., Marchlewska, M., & Winiewski, M. (2017). When authoritarians confront prejudice: Differential effects of SDO and RWA on support for hate-speech prohibition. *Political Psychology, 38*(1), 87–99. https://doi.org/10.1111/pops.12313

Breyer, B. (2015). *Left-right self-placement (ALLBUS).* Zusammenstellung sozialwissenschaftlicher Items und Skalen (ZIS). https://doi.org/10.6102/zis83

Brown, T. A. (2015). *Confirmatory factor analysis for applied research* (2nd ed.). The Guilford Press.

Cabeldue, M. K., Cramer, R. J., Kehn, A., Crosby, J. W., & Anastasi, J. S. (2018). Measuring attitudes about hate: Development of the hate crime beliefs scale. *Journal of Interpersonal Violence, 33*(23), 3656–3685. https://doi.org/10.1177/0886260516636391

Carvacho, H., Gerber, M., Manzi, J., González, R., Jiménez-Moya, G., Boege, R., Koller, C., Rees, J., Saldarriaga, L., Bohner, G., & Sidanius, J. (2018). *Validation and measurement invariance of the Spanish and German versions of SDO-7* [Unpublished manuscript]. Pontificia Universidad Católica de Chile.

Chen, F. F. (2007). Sensitivity of Goodness of Fit Indexes to Lack of Measurement Invariance. *Structural Equation Modeling, 14*(3), 464–504. https://doi.org/10.1080/10705510701301834

Cheung, G. W., & Rensvold, R. B. (2002). Evaluating Goodness-Of-Fit Indexes for testing measurement invariance. *Structural Equation Modeling, 9*(2), 233–255. https://doi.org/10.1207/S15328007SEM0902_5

Cramer, R. J., Laxton, K. L., Chandler, J. F., Kehn, A., Bate, B. P., & Clark, J. W. (2017). Political identity, type of victim, and hate crime-related beliefs as predictors of views concerning hate crime penalty enhancement laws. *Analyses of Social Issues and Public Policy (ASAP), 17*(1), 262–285. https://doi.org/10.1111/asap.12140

Duckitt, J. (2006). Differential effects of right wing authoritarianism and social dominance orientation on outgroup attitudes and their mediation by threat from and competitiveness to outgroups. *Personality and Social Psychology Bulletin, 32*(5), 684–696. https://doi.org/10.1177/0146167205284282

Garland, J., & Funnell, C. (2016). Defining hate crime internationally: Issues and conundrums. In J. Schweppe & M. A. Walters (Eds.), *The globalization of hate: Internationalizing hate crime?* (pp. 15–30). Oxford University Press. https://doi.org/10.1093/acprof:oso/9780198785668.003.0002

Gerstenfeld, P. B. (2011). *Hate crimes: Causes, controls, and controversies*. Sage.

Groß, E., Häfele, J., & Peter, S. (2024). *Gruppenbezogene Menschenfeindlichkeit aus der Betroffenenperspektive: Kernbefunde aus dem Forschungsprojekt „HateTown – Vorurteilsgeleitete Handlungen in urbanen Räumen"*. Schriftenreihe des Instituts für Kriminalitäts- und Sicherheitsforschung (Bd. 2). Institut für Kriminalitäts- und Sicherheitsforschung (IKriS), Polizeiakademie Niedersachsen. https://www.pa.polizei-nds.de/startseite/ikris/forschung/schriftenreihe_des_ikris/

Harkness, J. A. (2003). Questionnaire translation. In J. A. Harkness, F. J. R. van de Vijver, & P. P. Mohler (Eds.), *Cross-cultural survey methods* (pp. 35–56). Wiley.

Ho, A. K., Sidanius, J., Kteily, N., Sheehy-Skeffington, J., Pratto, F., Henkel, K. E., & Stewart, A. L. (2015). The nature of social dominance orientation: Theorizing and measuring preferences for intergroup inequality using the new SDO scale. *Journal of Personality and Social Psychology, 109*(6), 1003–1028. https://doi.org/10.1037/pspi0000033

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling, 6*(1), 1–55. https://doi.org/10.1080/10705519909540118

Iganski, P. (2001). Hate crimes hurt more. *The American Behavioral Scientist, 45*(4), 626–638. https://doi.org/10.1177/0002764201045004006

Kehn, A., Kaniuka, A. R., Benson, K., Sorby, M. L., Stornelli, L., & Cramer, R. J. (2023). Assessing attitudes about hate: Further validation of the hate crime beliefs scale. *Current Psychology, 42*(29), 25017–25027. https://doi.org/10.1007/s12144-022-03626-6

Lehmiller, J. J., & Schmitt, M. T. (2007). Group domination and inequality in context: Evidence for the unstable meanings of social dominance and authoritarianism. *European Journal of Social Psychology, 37*(4), 704–724. https://doi.org/10.1002/ejsp.383

Nelson, T. D. (2006). *The psychology of prejudice* (2nd ed.). Pearson Education.

Nießen, D., Schmidt, I., Beierlein, C., & Lechner, C. M. (2019). *Authoritarianism Short Scale (KSA-3)*. Zusammenstellung sozialwissenschaftlicher Items und Skalen (ZIS). https://doi.org/10.6102/zis272

Perry, B. (2002). *In the name of hate: Understanding hate crimes*. Routledge. https://doi.org/10.4324/9780203905135

Perry, B. (2014). Exploring the community impacts of hate crime. In N. Hall, A. Corb, P. Giannasi & J. Grieve (Eds.), *The Routledge international handbook on hate crime* (pp. 47–58). Routledge.

Posit Team. (2025). *RStudio: Integrated development environment for R* (Version 2025.05.0) [Computer software]. Posit Software, PBC. https://posit.co

Roets, A., Au, E. W., & Van Hiel, A. (2015). Can authoritarianism lead to greater liking of outgroups? The intriguing case of Singapore. *Psychological Science, 26*(12), 1972–1974. https://doi.org/10.1177/0956797615605271

Rosseel, Y. (2012). lavaan: An R package for structural equation modeling. *Journal of Statistical Software, 48*(2), 1–36. https://doi.org/10.18637/jss.v048.i02

Schellenberg, B. (2024). *Politisch motivierte Kriminalität und Hasskriminalität. Das polizeiliche Definitionssystem. Wissenschaftliche Begutachtung und Vorschläge für die Weiterentwicklung.* Bündnis 90/Die Grünen Hamburgische Bürgerschaftsfraktion, Landtagsfraktion Bayern, Landtagsfraktion Thüringen. https://www.gruene-thl.de/node/8583?s=09

Shaver, K. G., & Drown, D. (1986). On causality, responsibility, and self-blame: A theoretical note. *Journal of Personality and Social Psychology, 50*(4), 697–702. https://doi.org/10.1037/0022-3514.50.4.697

Velasco González, K., Verkuyten, M., Weesie, J., & Poppe, E. (2008). Prejudice towards Muslims in The Netherlands: Testing integrated threat theory. *British Journal of Social Psychology, 47*(4), 667–685. https://doi.org/10.1348/014466608X284443

Vergani, M., Perry, B., Freilich, J., Chermak, S., Scrivens, R., Link, R., Kleinsman, D., Betts, J., & Iqbal, M. (2024). Mapping the scientific knowledge and approaches to defining and measuring hate crime, hate speech, and hate incidents: A systematic review. *Campbell Systematic Reviews, 20*(2), Article e1397. https://doi.org/10.1002/cl2.1397

Zick, A. (2023). Herabwürdigungen und Respekt gegenüber Gruppen in der Mitte. In A. Zick & B. Küpper (Eds.), *Die geforderte Mitte: Rechtsextreme und demokratiegefährdende Einstellungen in Deutschland 2022/23* (pp. 181–212). Dietz.