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"20 Years After…" GFE 2.0: A Theoretical Revision and Empirical Testing of the Concept of "Group-Focused Enmity" Based on Longitudinal Data

Aribert Heyder[1]*, *Pascal Anstötz*[2], *Marcus Eisentraut*[2] and *Peter Schmidt*[3,4]

[1] Faculty of Social Sciences and Philosophy, Institute of Political Science, University of Marburg, Marburg, Germany, [2] GESIS Leibniz Institute for the Social Sciences, Cologne, Germany, [3] Center for International Development and Environmental Research (ZEU), University of Giessen, Gießen, Germany, [4] Department of Psychosomatic Medicine, University of Mainz, Mainz, Germany

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***Correspondence:**
Aribert Heyder
heyder@uni-marburg.de

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Conceptually, "group-focused enmity" (GFE, long-term project in Germany, duration: 2002–2011) consists of several different attitudes that constitute a syndrome of group-focused enmity. These attitudes are empirically related to each other and share a common core which is the ideology of inequality. But is GFE really a one-dimensional homogeneous ideology? Over the years there have been considerable doubts about this fundamental assumption. We have two central theoretical argumentations for explicating and revising the concept of GFE. The first is based on the social psychological literature regarding differences between ideologies, attitudes, stereotypes and social prejudices. The second arises from one of the basic conceptual ideas of the GFE project, which states that depending on the respective societies different specific groups become targets of devaluation and discrimination. Therefore, we propose a revised version of the GFE syndrome as a two-dimensional concept: an ideology of inequality (generalized attitudes) and social prejudice (specific attitudes). The measurement models are strictly empirically tested using data from the *GFE panel* (waves 2006, 2008) as well as the representative *GFE-surveys* (cross-sections 2003, 2011) conducted in Germany. To test for discriminant and external validity, we have also included social dominance orientation (SDO). Additionally, within this framework, the methodological focus of the study is to test for several forms of measurement invariance in the context of higher-order factor models considering the issue of multidimensionality of latent variables. Our empirical results support the idea that GFE is a bi-dimensional concept consisting of an ideology of inequality and social prejudice. Moreover, SDO is demonstrated to be empirically distinct from both dimensions and correlates more strongly with the ideology of inequality in comparison to social prejudice. Additionally, the bi-dimensional GFE conceptualization proves to be at least metric invariant both between and within individuals. The impact of our proposed conceptualization and empirical findings will be discussed in the context

of international research on ideologies, attitudes and prejudices. The dealing questions are why different explanatory factors have different effects on prejudicial and ideological attitudes and why there are different forms and manifestations of social prejudice in different societies over time.

Keywords: group-focused enmity (GFE), attitudes, stereotypes, prejudice, ideology, social dominance orientation (SDO), measurement invariance, higher-order confirmatory factor analysis

INTRODUCTION

"One of the facts of which we are most certain is that people who reject one out-group will tend to reject other out-groups. If a person is anti-Jewish, he is likely to be anti-Catholic, anti-Negro, anti any out-group." (Allport, 1954, p. 68).

This well-known sentence was the main conceptual framework of the long-term project "*Group-Focused Enmity*"[1] (GFE, 2002–2011, Heitmeyer, 2002, 2012). Conceptually, GFE consists of at least eight different elements[2] which "[…] constitute a syndrome of group-focused enmity (GFE), that is, they are related to each other and share a common core that is strongly predicted by a generalized ideology of inequality." (Zick et al., 2008, p. 363). Furthermore, Zick et al. "[…] assume that the central underlying factor is an ideology of inequality […]" (p. 364). Therefore, the empirical transformation was always modeled by a *single second-order factor*. But is GFE really a homogenous ideology of inequality?

To answer this central question, we will first review the social psychological literature on ideologies, attitudes and prejudices and secondly the publications about the *GFE syndrome*. Based on these two discussion threads, we have carried out an explication in the sense of Carnap (1956; see also Brun, 2016) and present a differentiated, revised conception of GFE including explicit hypotheses[3]. We will test these assumptions empirically by using two waves of the *GFE panel study* (Endrikat et al., 2015) and two representative *GFE-surveys* (Heitmeyer et al., 2013a,b) which have been conducted in Germany. Before we turn to the social psychological literature and the publications about GFE, we first give a very brief overview of this long-term project and the basic assumptions postulated there.

Now, 20 years after the project was initiated, we propose a theoretically revised conception of GFE. We begin with the core of *GFE as an ideology of inequality*, including several elements of prejudices against diverse groups, as it was first described by Heitmeyer. "Since assumed inequality constitutes the common core of all the elements mentioned, we speak of the syndrome of group-focused enmity." Furthermore, it is "[…] of utmost interest to know the extent of ideologies of inequality and how they develop over time." [Heitmeyer, 2002, p. 9, 19 (our translations)]. In addition, the whole project also had a central normative claim, as it was not only a scientific but also a civil societal project. The latter means that there were dozens of collaborations and discussion platforms not only within the scientific community (e.g., with international experts in prejudice research), but also with several civil societal projects and institutions. During the project, numerous (scientific) workshops and conferences with educators, teachers, social workers, mayors and so on have taken place. Furthermore, there was intensive cooperation with the media (e.g., DIE ZEIT, Frankfurter Rundschau), which regularly reported on the results of the GFE surveys published each year[4]. So far in brief for one of the socio-political foundations and impacts of the GFE project.

The aforementioned quotes reflect the fundamental ideas of the entire project and can be found—mutatis mutandis—in several other publications (e.g., Heitmeyer, 2003, 2004, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2018; Zick et al., 2009; Heitmeyer et al., 2020). But some researchers had and still have considerable doubts whether GFE is a one-dimensional concept. This is also because several alternative phrases, especially about ideology and prejudice, were not precisely formulated (basically about this issue, see Hempel, 1973). Therefore, we have sifted through the various articles and books on GFE and the social psychological literature on prejudice.

Following the definition of GFE, the empirical transformation into a measurement model was and still is usually modeled as one *second-order factor*. We propose that the GFE syndrome consists of two dimensions: social prejudice (specific attitudes) and an ideology of inequality (generalized attitudes), which are conceptually and, therefore, also empirically distinct components.

We have two central argumentations for explicating and revising the concept of GFE. The first is based on the social psychological literature regarding differentiations between attitudes, social prejudices, stereotypes, and ideologies. The second arises from one of the basic conceptual ideas of GFE,

[1]We dedicate this article to Wilhelm Heitmeyer, the founder of the project, who has worked for decades to combat social inequality and continues to do so today. The GFE-project (2002-2011) was supported and financed by a consortium of foundations headed by the Volkswagen Stiftung. We thank the editor of this article and the reviewers for their fruitful comments.

[2]During the lengthy project period of ten years, the number of elements was increased step by step. At the end of the project, twelve elements were integrated (Heitmeyer, 2012).

[3]Basically, one of the reasons for the ambiguity of terms is that the original literature is sometimes not directly consulted but paraphrased or even that false content is reproduced. To avoid this, we intentionally provide quotes from various authors more frequently in the following. A quite simple recent example in another context is the historical fact that the term ethnocentrism was not introduced by Sumner (1906), as cited in numerous studies (e.g. Adorno et al., 1950, p. 102; LeVine and Campbell, 1972, p. 8), but originally by Gumplowicz (1879, for an overview, see Bizumic, 2014).

[4]Also press conferences with federal politicians were held regularly in Berlin (e.g., Wolfgang Thierse, the former President of the Bundestag). Not without reason the term "Menschenfeindlichkeit" (human enmity) entered everyday language in German politics and the media.

which states that depending on the respective societies, different specific groups become targets of devaluation and discrimination (Heitmeyer, 2002). The central reference for our empirical analyses is the article by Zick et al. (2008), where the *GFE syndrome* contained eight elements: racism, sexism, xenophobia, anti-Semitism, islamophobia, and devaluation of homosexual persons, homeless people as well as newcomers (also labeled as the precedent rights of established). As well as Zick et al. (2008), we will also test for discriminant and external validity by including social dominance orientation (SDO, Sidanius and Pratto, 1999) which is defined as an ideology of group-based social hierarchies.

In the next section, we will present the theoretical background and elucidate the definitions of the central concepts, which are the basis for our revised conceptualization of GFE, followed by the hypotheses that have been derived from the theoretical conceptual considerations. We will then outline our modeling strategy especially regarding the applied approaches of confirmatory factor analysis with ordinal data and the employed measurement invariance tests over subjects (cross-sectional data) and time (panel data). Subsequently, we follow our sequential hypothesis testing strategy and present the corresponding empirical findings. In the conclusion, the results of our analyses are summarized and critically discussed, resulting in an outlook and pinpointing of our study in the context of prejudice research.

ATTITUDE, PREJUDICE, STEREOTYPE, IDEOLOGY AND SYNDROME

As so often, there is no clear consensus in the scientific international community regarding the "nominal definitions" (Hempel, 1973) of the terms attitude, stereotype, prejudice, discrimination, and ideology. Without diving deep into the vast literature (comprehensive overviews can be found in Allport, 1954; Eagly and Chaiken, 1993; Zick, 1997; Pelinka et al., 2009; Brown, 2010; Dovidio et al., 2010; Petersen et al., 2020), we follow the subsequent argumentation. If one takes up the core concept of the GFE syndrome, the ideology of inequality according to Heitmeyer (2002), the question arises: What does it theoretically mean from the perspective of attitude and prejudice research?

Our starting point is the widespread definition of *attitude* by Eagly and Chaiken as "[…] a psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor." (Eagly and Chaiken, 1993, p. 1). In addition, following the three component model of attitudes (Rosenberg and Hovland, 1960; Eagly and Chaiken, 1993), it does not only contain feelings of antipathy, which is the affective component, but also a cognitive and a behavioral component.

Allport defines *prejudice* as "[…] an antipathy based on faulty and inflexible generalization. […] It may be directed toward a group as a whole, or toward an individual because he is a member of that group." (1954, p. 9). Furthermore, "Most researchers have continued to define prejudice as a negative attitude (i.e. an antipathy)." (Eagly and Mladinic, 1989; Aboud, 1993; Zick, 1997; Dovidio et al., 2010, p. 6). In other words, there are no positive prejudices in the sense of this definition (Leyens et al., 1994). Not only Brown (2010) discusses the possibility that prejudices can also be positive: "Of course, logically, prejudice can take both positive and negative forms." After giving some examples of positive forms like loving Italian food, he continues: "However, such harmless infatuations hardly constitute a major social problem, worthy of much of our attention as social scientists." (p. 4). Listing further remarks and explanations, he presents his final working definition (nominal definition), which is very similar to the definition mentioned above: "[…] prejudice will be regarded as any attitude, emotion or behavior toward members of a group, which directly or indirectly implies some negativity or antipathy toward that group." (p. 7). We fully agree with the argumentation that prejudices should not be defined in the sense that they can also be positive (see stereotypes, below)[5].

"*Stereotypes* are not identical with prejudice." (Allport, 1954, p. 204). "[…] a stereotype is an exaggerated belief associated with a category. Its function is to justify (rationalize) our conduct in relation to that category." (p. 191). Walter Lippmann called them "[…] simply 'pictures in our heads'." (Allport, 1954, p. 204). He has introduced the term stereotype "[…] to refer to the typical picture that comes to mind when thinking about a particular social group." (Dovidio et al., 2010, p. 7). He furthermore emphasizes the function of stereotypes as a cognitive economical defense against the necessary expenses of a comprehensive detailed experience. He also speaks of a relieving and protective function of stereotypes through the element of simplification (Lippmann, 1922). In other words, they are cognitive schemes to simplify the information processes about the social environment. Today, stereotypes are defined "[…] as associations and beliefs about the characteristics and attributes of a group and its members that shape how people think about and respond to the group." (Dovidio et al., 2010, p. 8). They represent trait-related beliefs that are a basis of the cognitive component of attitudes (Haddock et al., 1993).

Most of the authors in prejudice research agree that stereotypes can also be positive and that they are less stable over time than prejudices (e.g., Allport, 1954; Aronson et al., 2005; Pelinka et al., 2009). Empirically, the latter is rather doubtful. The data of the GFE project document quite strong fluctuations regarding the strength of the expression of some prejudices over time (Heitmeyer, 2002, 2003, 2004, 2006, 2007, 2008, 2009, 2010, 2011, 2012). Some are stable, some are not. This is especially valid for anti-Semitism (see our second central argumentation below).

To sum up so far, *prejudice* is an *attitude* that is expressed by negative *stereotypes* toward members of a particular outgroup (Aronson et al., 2005; Taylor et al., 2006). Moreover, following the three component model of attitudes (Rosenberg and Hovland,

[5]Without going into the well-known, worldwide negative consequences of prejudice and discrimination, science also has a societal influence in a certain way. Journalists and politicians, but also interested and committed actors (e.g. the so called multiplicators in civil society) refer to definitions and empirical results from the social sciences. Often, this results in normative demands on the general population. To put it succinctly and in colloquial terms. How should a researcher respond to a person's question, not involved in the scientific literature: "Why am I not allowed to speak positively about a group? If everyone would do that, the world would be a much better place!".

1960; Eagly and Chaiken, 1993), prejudices do not only contain feelings of antipathy (affective component) and negative stereotypes (cognitive component) but also intended actions (behavioral component). These three central criteria are valid for xenophobia, anti-Semitism, islamophobia, devaluation of homosexual persons and homeless people as specific attitudes.

Finally, we come to the *distinction between prejudice and ideology*. With respect to the attitude object "entity" (mentioned in the definition by Eagly and Chaiken above), one can differentiate between *generalized attitudes*, which are individual assessments of whole classes of social objects or issues that can be summarized into programmatic or ideological concepts like liberalism-conservatism (Jost et al., 2008; Graham et al., 2009), vs. *specific attitudes* (Prislin and Ouellette, 1996; Six, 1996, 2017; Zick, 1997; Sibley et al., 2006). The latter are characterized by their concrete attitude object, in our context this comprises certain target groups of people who are mostly minorities in society. Prejudices can thus be defined as "specifically negative forms of stereotypes" (Zick, 1997, p. 42). In a similar context, for example, Sibley et al. (2006, p. 3) present a "[…] quantitative and qualitative analyses of both participants' generalized attitudes toward equality and entitlement, and their more specific attitudes toward an affirmative action policy for ethnic minorities […]."

Furthermore, generalized attitudes in the sense of an ideology of inequality do not necessarily refer to specific minorities (e.g., the former Apartheid system in South Africa, a country with a 79% black population in 2011). The attitude objects represent universal, global categories and have been firmly anchored in ideologies for many decades in the consciousness of various population groups, mostly the majority societies. In contrast to specific attitudes, racism is a generalized attitude in the sense of an ideology (Van den Berghe, 1967; Miles, 1989; Zick, 1997, 2020) that distinguishes global social groups of people on the basis of a "pseudo-scientific determinism" (Poliakov et al., 1992, p. 198) using biological criteria (black vs. white or women vs. men) and thus attributes negative characteristics and properties (Six, 2017). Zick (1997) summarizes the social science literature and comes to the same conclusion. Namely, racism, in contrast to prejudice, is an ideological differentiation of people according to quasi-biological criteria. Basically, he states that racism and prejudice are two distinct categories. Transferred to our conception, racism is therefore a classical component of ideologies and to be distinguished from prejudices. Hence, racism and sexism (also called "gender ideology," Davis and Greenstein, 2009) are generalized attitudes. In addition, women are not a minority in society and sexism is not depending on short term conditional, different societal circumstances and not subject to cyclical waves to the same extent as anti-Semitism, for example (e.g., Zick et al., 2008, p. 22–30; see our second central argumentation, below). Here, both latent constructs are summarized under the term "ideology of inequality." Precedent rights of the established are also expressed in a general conviction of inequality between global social groups, which includes the claim that people who are new anywhere should have less rights than long-established people. Although they contain no biological reference, precedent rights represent a generalized attitude because they do not refer to specific groups in comparison to prejudices. Depending on the respective society and the time-related, socio-historical circumstances, different groups can be part of this attitude. Of course, these two dimensions are empirically interrelated. There are many ideologies that are related to prejudicial attitudes, e.g., multiculturalism/color blindness (Wolsko et al., 2000) or individualism/communalism (Katz and Hass, 1988). So far for the classification of GFE with regard to the social psychological literature.

SOCIAL DOMINANCE ORIENTATION

As mentioned above, we will also include social dominance orientation (SDO, Sidanius and Pratto, 1999) and test for discriminant and external validity. Although, social dominance theory (SDT) is not the focus of this empirical study, it will be briefly summarized in the following. SDO is well-known as a predictor for prejudice that has been empirically tested in several international studies (e.g., Pratto et al., 1994, 2012; Altemeyer, 1998; Whitley, 1999; Asbrock et al., 2010). It is not only positively correlated with endorsement of ideologies that legitimize inequality, such as racism and sexism, but also with prejudicial attitudes about many kinds of groups (Lee et al., 2011).

The basic foundation of *social dominance theory* (SDT, for a comprehensive overview, see Sidanius and Pratto, 1999) is the assumption that all human societies are structured as systems of group-based social hierarchies. This hierarchical social structure consists of one or more dominant and hegemonic groups at the top of society, with one or more subordinate groups at the bottom. The dominating groups are characterized by an disproportional possession of positive values, of "[…] all those material and symbolic things for which people strive." (p. 31). These dominant groups have a strong interest to stabilize the system and the associated differences in status.

The stabilization takes place via three processes. First, the aggregated individual discrimination describes everyday discrimination against socially constructed groups in society. Second, the aggregated institutional discrimination relates to the institutions of a society with all their rules, procedures and unequal treatment of different groups. These institutions can be private (e.g., shops, businesses or banks, etc.) or public and state institutions (e.g., schools, courts or job centers, etc.). Third, the behavioral asymmetry reinforces the system of group-based hierarchies. This reinforcement is working through the ways minorities and subordinate groups can be repressed, manipulated and controlled by the dominant groups. In this sense, asymmetry means the differences in the behavior repertoires between individuals belonging to the respective groups with their different degrees of access to resources of social power. The unequal distribution of options reinforces the group-based hierarchical relationships within the social system.

All the stabilizing processes occur within three stratification systems, the so-called trimorphic structure of group-based social hierarchy. In the age system, the adults generally have greater power and influence, and consequently they dominate children and younger adults. In the gender system, the men, who have more political and social power, dominate the women.

Third, in the arbitrary set system, processes are governed by group memberships and differences, both of which are socially constructed through specific characteristics.

Lastly, the system of group-based hierarchies, social inequality and acts of discrimination is justified morally and intellectually by means of the so-called legitimizing myths that are composed of attitudes, stereotypes, ideologies and social values. Prejudices against minorities living in a society also fall under this broad definition of myths.

If one classifies SDO within the conceptual differences between attitudes, prejudices and ideologies described above, it is a generalized attitude. The attitude objects are not representing specific groups, but refer to a general conviction of inequality between global social groups. In the sense of an ideology, SDO designates a generalized individual attitude orientation that sees intergroup relations in terms of a group-based social hierarchy. "SDO is defined as the degree to which individuals desire and support group-based hierarchy and the domination of 'inferior' groups by 'superior' groups." (Sidanius and Pratto, 1999, p. 48).

THE PROJECT OF THE SYNDROME "GROUP-FOCUSED ENMITY"

Now we turn to the GFE project itself and our second central argumentation. In different societies and different times, let us say in cyclical waves, various specific groups come into the focus of devaluation and discrimination (Heitmeyer, 2018; Heitmeyer et al., 2020). An exemplary case is the devaluation of asylum seekers, which became firmly established in Europe especially after the so-called "refugee crisis" in 2015, but already played a recurring role in the 1990s. However, there are also events that take place regionally or nationally far away outside one's own country, but nevertheless lead to an increase in prejudice against a group. This can be exemplified in the case of anti-Semitism in Germany, which rose sharply after the outbreak of the "second Intifada" in 2000 (Heyder et al., 2005a) and settled back to its lower level before this event after a few years (Leibold and Kühnel, 2009)[6]. Both examples, we argue, are social prejudices in the sense of specific attitudes. In their recently published book, Heitmeyer and colleagues state that the devaluation of certain groups is a product of societal debates. Otherwise, it would not be possible to explain the curves of increases and decreases or the fact that new phenomena enter the syndrome over time (Heitmeyer et al., 2020). A further argument for our conceptual distinction has already been elaborated as follows: "This *ideology of inequality is the lowest common denominator* [our emphasis] that unites all layers of the escalation continuum and that permeates all individual, group and national comparisons." [Heitmeyer et al., 2020, p. 20 (our translation)].

This is also what makes GFE special compared to other ideologies or generalized attitudes (e.g., social dominance orientation and authoritarianism) that deal with social inequality and devaluation of minorities. It is more comprehensive and includes *prejudices and the ideology of inequality*. The latter thus still represents the core of GFE. The specific attitudes as social prejudices, on the other hand, are changeable over time. For example, Bergmann (2001) states that the stock of prejudices changes in the course of history and varies according to social groups (classes, ethnic groups, religious communities). What once belonged to the certainties of a society, i.e., the churches, science and the public, is now considered as a ridiculous prejudice, such as the belief in witches. Prejudices are also expandable depending on the social circumstances etc., as the 10-year history of the development of GFE demonstrates. In other words: GFE is flexible to temporary social changes with the dimension of social prejudice. "[…] which out-groups become targets of prejudice and discrimination depends on the options a specific society offers." (Zick et al., 2008, p. 367), as well as "[…] on the cultural tradition and the social context." (Zick et al., 2009, p. 286).

EMPIRICAL TRANSFORMATION AND HYPOTHESES

To summarize, in comparison to other well-known conceptions like social dominance orientation (SDO, Sidanius and Pratto, 1999) or authoritarianism (Adorno et al., 1950; right-wing authoritarianism, RWA, see Altemeyer, 1988, 1998)[7], the special and innovative feature of GFE is its openness, flexibility and inherent possibility to be modified and extended, not only with respect to current societal circumstances but also to different countries, let us say cultures.

If one transforms these theoretical conceptual considerations into an empirical measurement model, the syndrome consists of two dimensions: the ideology of inequality and prejudicial attitudes. The two dimensions are bound together by the syndrome, which can generally be defined as a "group of characteristics or factors whose combined occurrence indicates a certain relationship or condition" (dictionary of the German language, Duden). Therefore, *the common occurrence of the main factors ideology and prejudice indicates the condition of the syndrome*. Such an attitudinal syndrome can be "[…] defined in terms of necessary and sufficient conditions, more specifically by the simultaneous presence of the concept's constituent components." (Wuttke et al., 2020, p. 3). To briefly summarize the consequences of the theoretical explanations given so far, our nominal definition of GFE is as follows:

GFE is an attitudinal syndrome with two main constituent components consisting of the ideology of inequality (generalized attitudes) and social prejudices (specific attitudes).

Yet, this conceptual differentiation has not been proposed so far by the published studies on the GFE syndrome (e.g., Zick et al., 2008; Davidov et al., 2011) or elsewhere. Assuming a two-dimensional structure of the syndrome, adequate statistical modeling would have to test whether a model with two second-order factors fits better to the data than a model with one second-order factor. The model with two second-order factors

[6]For a comprehensive overview of surveys dealing with antisemitic and anti-Israel attitudes, see Bergmann (2021).

[7]Recently published empirical studies in the context of SDO, RWA and prejudices can be found in Golec de Zavala et al. (2017) or Jedinger and Eisentraut (2020).

would be statistically equivalent to a model including a third-order factor influencing the two second-order factors (see **Figure 1**). In this study, we therefore will not document these analyses introducing a third-order factor, although empirical confirmation was successful. Nevertheless, in case of explicit theoretical considerations, modeling a third-order factor has an advantage as it is possible to estimate the overall influences of different explanatory factors on GFE. For example, the causal relations of SDO and RWA with GFE[8].

To test the postulated measurement theory, we will follow the "alternative modeling strategy" by Jöreskog (1993). Thus, we empirically compare the conception of one *second-order factor versus two second-order factors* in a longitudinal perspective analyzing panel as well as cross-sectional data. To the best of our knowledge, theory-driven empirical analyses dealing with higher-order factors (second- and third-order) are very scarce (e.g., Heyder and Decker, 2011; Cieciuch et al., 2014) and there has still been little research on the equivalence of higher-order model structures (e.g., Rudnev et al., 2018)[9]. However, in this study, we will also address the issue of measurement invariance between and within individuals, which means that we address the comparability of measures not only in case of different subjects that have answered the same survey questions, but also in case of the same persons that answered the questions repeatedly at different time points (cf. Adolf et al., 2014). We primarily refer to the aforementioned article by Zick et al. (2008) to compare the two different measurement theories. Therefore, we will also include social dominance orientation (Sidanius and Pratto, 1999) and test for discriminant and external validity (also integrated in Zick et al., 2008). Because SDO is defined as an ideology of group-based social hierarchies, we assume that it correlates more strongly with the GFE ideology component in comparison to the social prejudice component. Our main hypotheses are as follows:

H1: A GFE model with two second-order factors fits the data better in comparison to a model with one single second-order factor.

H2: SDO is empirically distinct to the two second-order factors "ideology of inequality" and "social prejudices."

H3: SDO correlates more strongly with "ideology of inequality" in comparison to "social prejudices."

H4: The first- and second-order factors are invariant within and between individuals (over time and over subjects).

DATA AND OPERATIONALIZATIONS

We firstly analyze panel data available from the *GFE panel study* (Endrikat et al., 2015). The data was collected to serve as social monitoring for the German society, with the goal of analyzing how attitudes toward ethnic, religious or other social groups are shaped and changed over time in the German population. The survey was drawn upon a representative sample of the German population aged at least 16 years and conducted by computer-assisted telephone interviews (CATI). The focus of the quantitative long-term survey was on the subcomponents of GFE. Therefore, the number of the analyzed attitudes changed over time, but also the project-internal designed indicators were further developed and reformulated to some extent (for the definitions of the related latent constructs, see Heitmeyer, 2002, 2003, 2004, 2006, 2007, 2008, 2009, 2010, 2011, 2012)[10]. Although a total of six waves are available (period 2002–2010), only the two waves 2006 and 2008 offer the opportunity to conduct analyses with identical indicators[11]. Accordingly, the analyses with panel data rely on a valid *n* of *3120* in 2006 and *1387* in 2008 (for details regarding the panel refreshment, see Hohlweg et al., 2014).

In addition, we secondly analyze cross-sectional data available from the *GFE-surveys* (Heitmeyer et al., 2013a,b) which also includes the questions that have been fielded in the *GFE panel study*. These surveys are representative for the resident population of Germany aged 16 years or older, were collected following the ADM sample design, and realized with CATI as well. Given that we are not only interested in comparing competing measurement models, but also in testing measurement invariance, both intra- and inter-individually, we have chosen the first (2003) and the last cross-section (2011). This allows us to analyze measurement invariance considering the maximum possible time span of available data. Thus, the analyses with cross-sectional data rely on a valid *n* of *3000* in 2003 and *2000* in 2011.

Regarding the operationalizations, two indicators are available for each of the eight GFE elements and three for SDO. In most cases, as already demonstrated in earlier studies, high convergent validity is given (Heyder, 2005; Zick et al., 2008; Davidov et al., 2011). The three items for operationalizing SDO are translated versions of the English formulations used by Sidanius and Pratto for their SDO scales (Sidanius and Pratto, 1999, p. 67; for a new 4-item short-scale, see Pratto et al., 2012). They relate to (a) attitudes toward hierarchical relationships between social groups, (b) the fundamental superiority of particular social groups over others and (c) the maintenance of group-based social hierarchies and the legitimation of group-based hierarchies. All questions were answered on a 4-point scale ranging from 1 (*completely agree*) to 4 (*do not agree at all*), with intermediate agreement response options. A list of all indicators is shown in **Table 1**.

[8]Given a third-order modeling strategy, it is of course also possible to determine the specific relationships between explanatory factors and subordinate GFE-elements by considering direct, indirect and total effects.

[9]See, for a recently published study in the course of the current research topic, Lomazzi (2021) dealing with the subject of equivalence of first- and second-order factor models.

[10]For example, the original scale to measure "heterophobia" (2002), including the devaluations of homosexuals, disabled and homeless people, was revised and transformed into three separate latent constructs (Heyder et al., 2005b). Other further developments also took place over time with regard to the expanded syndrome, which were also empirically tested in each case using several pretests.

[11]Initially, three waves (including the year 2010) were considered in order to compare the alternative models and to test for temporal measurement invariance, which fielded identical survey questions. However, the inclusion of the third wave resulted in estimation problems using the WLSMV procedure, which was primarily due to the small sample size compared to the number of parameters to be estimated (Liu et al., 2017).

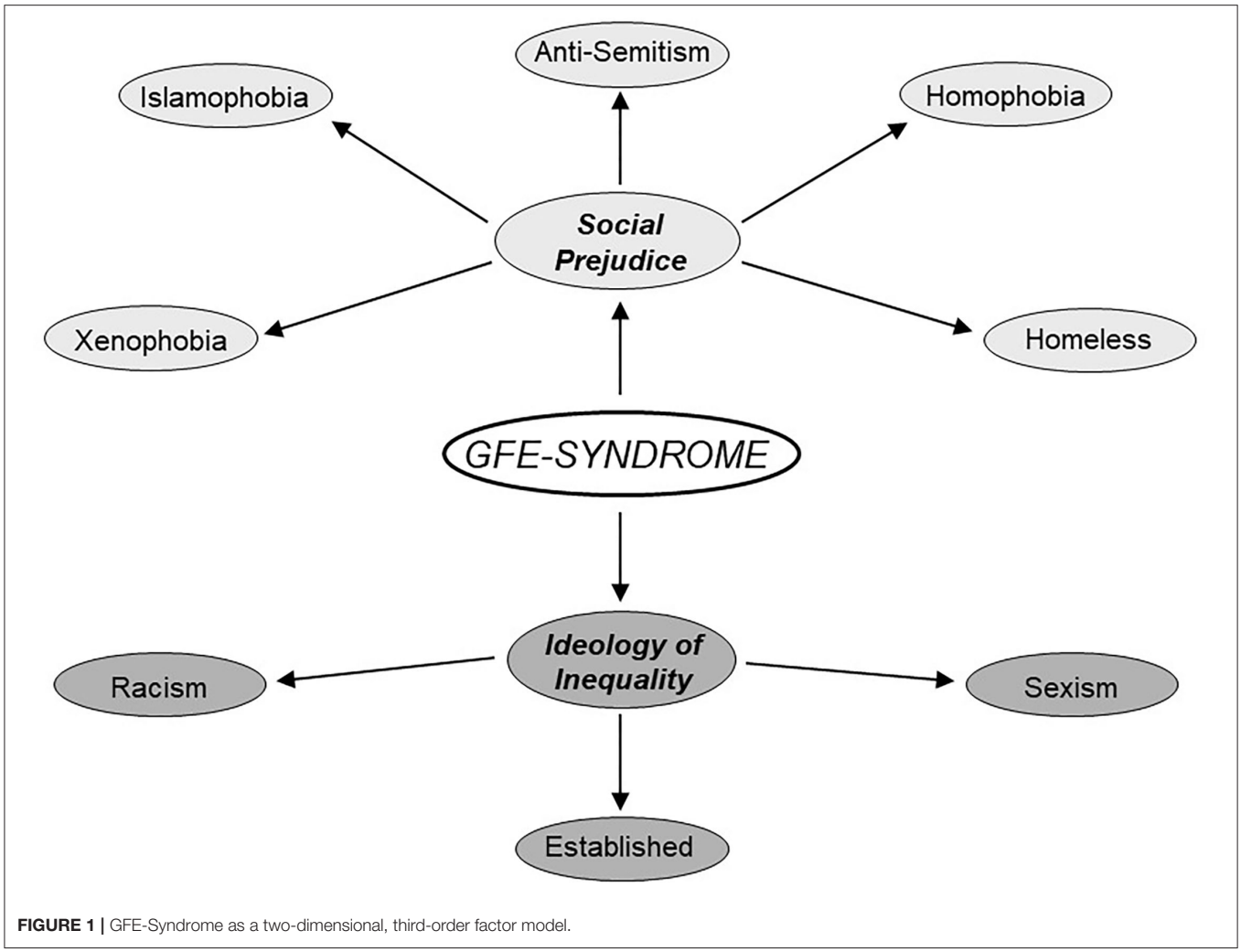

FIGURE 1 | GFE-Syndrome as a two-dimensional, third-order factor model.

ANALYSIS STRATEGY AND METHODS

We applied different approaches of confirmatory factor analysis to test our derived hypotheses empirically and have executed all analyses with Mplus software (Muthén, 1998–2017). Given the present state of research, for example summarized in Liu et al. (2017), and Monte Carlo simulations (Rhemtulla et al., 2012), it is recommended to use the ordinal strategy when the number of categories of the response scales are lower than five. To account for the ordinal measurement of the indicators we therefore used the weighted least square mean and variance adjusted estimator (WLSMV) which is employed in all analyses (cf. Davidov et al., 2018). This is because using estimation methods for continuous variables may result in biased point estimates and standard errors of the parameters as well as incorrect estimations of the number of factors. Applying continuous estimation approaches under such circumstances can also lead to invalid global and detailed fit measures (Beauducel and Herzberg, 2006; Rhemtulla et al., 2012). Furthermore, simulation studies suggest that there is a greater tendency for more biased findings when the distribution of the variables is extreme, as we are operating with indicators that deviate in kurtosis and skewness from a normal distribution considerably (cf. Appendices 1a,b).

In accordance with the relevant literature, the following values are considered as cut-off criteria indicating a good model fit: comparative fit index (*CFI*) >0.95, Tucker-Lewis index (*TLI*) >0.95 and root mean square error of approximation (*RMSEA*) <0.06 (Bentler, 1990; Browne and Cudeck, 1993; West et al., 2012). When analyses rely on ordered categorical data, considering changes of fit indices like ΔCFI, ΔTLI or ΔRMSEA for testing nested models (e.g., with equality constraints) may lead to false conclusions under certain conditions (see Sass et al., 2014). Therefore, we additionally use chi-square (χ^2) difference tests as proposed by Asparouhov and Muthen (2006), Asparouhov and Muthén (2019) to assess the appropriateness of the competing model solutions.

Initially, before certain hypotheses can be tested (e.g., discriminant validity of latent constructs), empirical confirmation is needed of whether the theoretically postulated measurement models match the data, and if the indicators are related to the dimensions in a meaningful way (configural

TABLE 1 | Surveyed indicators and related constructs.

Constructs	Labels	Item wording
Racism	ra01	German re-settlers should be better off than foreigners because they are of German origin.
	ra03	It is right that Whites are leading in the world.
Sexism	sx03	Women should think stronger on the role as wives and mothers.
	sx04	It is more important for a wife to help her husband's career than to have one herself.
Xenophobia	ff04d	There are too many foreigners living in Germany.
	ff08d	When jobs get scarce, the foreigners living in Germany should be sent (back) home.
Anti-Semitism	as01	Jewish people have too much influence in Germany.
	as02	As a result of their behavior, Jewish people are not entirely without blame for being persecuted.
Islamophobia	he05m	With so many Muslims in Germany, one feels increasingly like a stranger in one's own country.
	he12m	Immigration to Germany should be forbidden for Muslims.
Devaluation of homosexual persons	he01h	Marriages between two women or between two men should be permitted.
	he02h	It is disgusting when homosexuals kiss in public.
Devaluation of homeless people	he01o	Begging homeless should be chased away from the pedestrian zone.
	he02o	The homeless in the towns are unpleasant.
Precedent rights of the established	ev03	Those who are new somewhere should be content with less.
	ev04	Those who have always been living here should have more rights than those who came later.
Social dominance orientation	do01	The groups at the bottom of society should stay at the bottom.
	do02	Some groups in the population are worth less than others.
	do03	Some groups in the population are more useful than others.

Data base: Endrikat et al. (2015), Heitmeyer et al. (2013a), Heitmeyer et al. (2013b); English item translations taken from Zick et al. (2008) (GFE components) and Heyder (2006) (SDO).

invariance as a basic precondition). Thus, we first estimated simultaneous confirmatory factor analyses (SCFA) with the first-order factors only (while already including SDO at this step), and second, we estimated SCFA that introduce the second-order factors (cf. **Figure 2** for a model illustration)[12]. Based on these models, we tested whether our proposed two second-order factor solution is superior to a model with only one second-order factor (H1) and examined the discriminant validity of the latent constructs (H2). Moreover, we also investigated the relationships between the second-order factors "ideology of inequality" and "social prejudices" with SDO (H3). For our hypothesis test on measurement equivalence (H4), we then applied a series of multi-group confirmatory factor analyses (MGCFA) with the cross-sectional data as well as longitudinal confirmatory factor analyses (longitudinal CFA) with the panel data (Jöreskog, 1970; Little, 2013; Brown, 2015; Seddig and Leitgöb, 2018). As we aim to test for measurement invariance of higher-order factor models between and within individuals, we briefly summarize the necessary steps for model estimation and specification in the following.

To the best of our knowledge, such analyses have rarely been carried out by means of WLSMV estimation and comparable data (see also Rudnev et al., 2018).

When MGCFA is used with WLSMV and ordered categorical data, the probit link function and the theta parameterization are applied for model estimation. Parameter estimates are obtained from the estimated asymptotic variances of the polychoric correlation and threshold estimates are used in a diagonal weight matrix (Muthén et al., 1997; Muthén, 1998–2017). In the baseline model, which basically should fit the data well, (1) the factor variances are constrained to 1 and the factor means to zero in all groups for model identification, allowing to freely estimate all first-order factor loadings and thresholds (three per indicator in case of four answer categories). To test for weak (metric) invariance, we (2) then have set the factor variances free in one group and constrained the first-order factor loadings to be cross-group equal. In a next step, we (3) transmitted the described constraints to the higher-order layer for model identification to test whether the second-order regression weights are equal as well (higher-order metric invariance). Finally, (4) the item thresholds were additionally set to be equal to test if (strong) scalar invariance is supported by the data.

Regarding the longitudinal CFA, which embed the latent constructs measured at both timepoints within one model, we followed the steps for estimation and specification outlined in the seminal paper of Liu et al. (2017). Based on the recommendations in this work, we have chosen the limited information approach implemented in Mplus Version 8.3 (Muthén, 1998–2017), which uses the univariate and bivariate information of the ordered categorical indicators only in contrast to full information methods that would use all information in the data (Muthén, 1984; Millsap, 2011). This approach involves three stages of estimation that have been extensively discussed by Liu and colleagues (Liu et al., 2017, p. 7), while in our case, again the WLSMV estimator and the theta parameterization is used.

[12]We have also conducted analyses that additionally introduce a third-order factor and were able to confirm this measurement model empirically with the same data sets. As already mentioned above, these analyses are not documented here because a two-factor model is statistically equivalent to a model with a third-order factor.

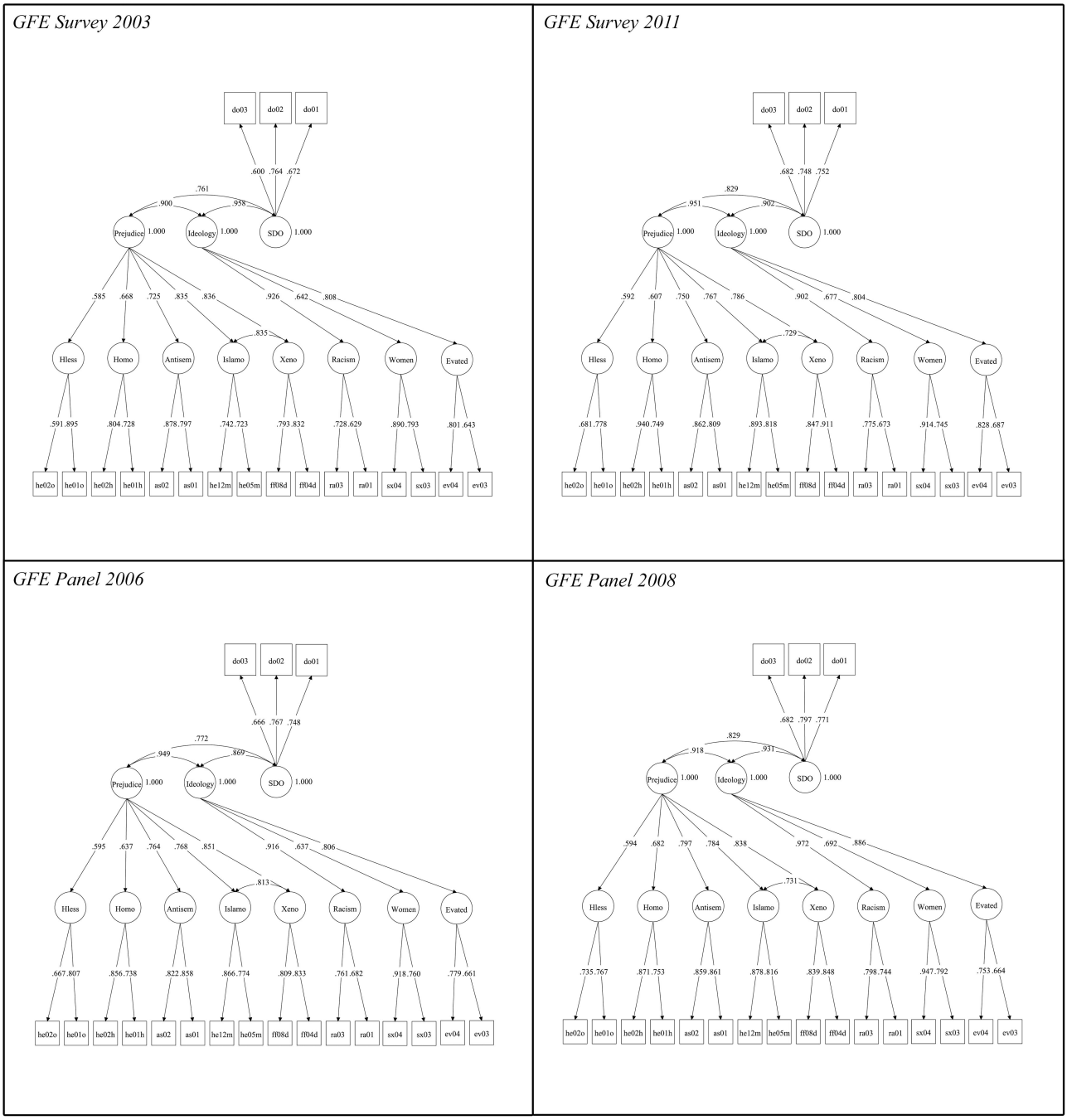

FIGURE 2 | A GFE measurment model with two second-order factors (Prejudice, Ideology) and SDO as first-order factor. According to CFA visualization conventions, circles represent latent variables and boxes represent observed variables; Single headed arrows between latent factors show regression weights, between latent factors and their indicators show factor loadings and double headed arrows show covariances. Indicated are the standardized coefficients; All estimates are significant at the p-level ≤ 0.0l; Data base: Endrikat et al. (2015); Heitmeyer et al. (2013a), Heitmeyer et al. (2013b).

In the baseline model, which initially should provide a good model fit, we employed a model specification via unique factors as neither the latent constructs nor the latent responses have defined scales in this approach. Therefore, to obtain model identification, (1) we fixed the latent intercepts to zero at both time points of measurement (T1 and T2). (2) We fixed the common factor means at T1 to zero and used the unique factor matrix as identity matrix at T1. Furthermore, (3) we have specified the same observed indicators per construct as a marker variable on all occasions, for which the factor weight

is constrained to 1 and, last but not least, (4) we constrained one threshold for each indicator and a second threshold for the marker variable to be equal at T1 and T2 (see Liu et al., 2017, p. 9). As we operate with non-independent data (multiple measures originated from the same individuals at different occasions), we (5) included auto-correlated errors between the same indicators at T1 and T2 in our models (Little, 2013). This modeling strategy allows us to test a model with free first-order factor loadings against a model with all loadings to be equal over time within individuals (metric invariance). We adapted the outlined strategy by fixing the respective higher-order common factor means at T1 to zero and again used the unique factor matrix as identity matrix at T1. Thus, it was possible to test whether the second-order regression weights are equal over time (higher-order metric invariance). Moreover, when all unique factor variances are additionally set equal over time, longitudinal unique factor invariance is achieved, which parallels the strict invariance model for continuous indicators (first-order scalar invariance).

RESULTS

Regarding *configural invariance* on the first-order level, both with cross-sectional (*2003*: CFI = 0.989, TLI = 0.983, RMSEA = 0.035; *2011*: CFI = 0.988, TLI = 0.982, RMSEA = 0.039) and panel data (*2006*: CFI = 0.987, TLI = 0.981, RMSEA = 0.039; *2008*: CFI = 0.983, TLI = 0.976, RMSEA = 0.047), the model assumptions yield an acceptable model fit without any additional modifications being necessary. However, the results show that the overall sufficient standardized factor weights fluctuate in descriptive terms to some extent (*Cross-section 2003* from 0.59 up to 0.90 and *2011* from 0.67 up to 0.94; *Panel 2006* from 0.66 up to 0.91 and *2008* from 0.66 up to 0.94), meaning that some GFE indicators are empirically stronger related to certain constructs and thus seem to be particularly important aspects (cf. Appendix 2). For SDO, all three indicators show also sufficient but rather homogeneous loadings (*Cross-section 2003* from 0.60 to 0.76 and *2011* from 0.68 up to 0.75; *Panel 2006* from 0.67 up to 0.77 and *2008* from 0.68 up to 0.77), indicating similar relevance for the latent dimension they are related to. Overall, validity and reliability coefficients are satisfactory with no exceptions.

Given that configural invariance of the latent first-order constructs is confirmed, we introduced the two second-order factors "ideology of inequality" and "social prejudices" into the model structure (cf. Appendix 2). Including these higher-order constructs results in a slightly weaker but still sufficient model fit (*Cross-section 2003*: CFI = 0.975, TLI = 0.969, RMSEA = 0.047; *2011*: CFI = 0.980, TLI = 0.976, RMSEA = 0.045; *Panel 2006*: CFI = 0.976, TLI = 0.970, RMSEA = 0.048; *2008*: CFI = 0.974, TLI = 0.968, RMSEA = 0.053). In these models, after evaluating modification indices (*MI*), which can help to identify problematic parameters in order to improve the model fit, residual covariances of the first-order factors islamophobia and xenophobia were added (*Cross-section 2003* with 0.84 and *2011* with 0.73; *Panel 2006* with 0.81 and *2008* with 0.73).

As the underlying construct indicators are linked very closely in terms of their specific content to be questioned, constraints seem to be largely plausible from a theoretical perspective. The reasons for these high values are the addressed attitude objects in the respective item formulations. The item wordings for islamophobia contain the object "Muslims" and for xenophobia, it is "foreigners" (see **Table 1**). The largest group of citizens with a migration background living in Germany have been and still are Turks, who are mostly perceived as foreigners (cf. Asbrock et al., 2014 and discussion). And most of the people of the Turkish community are of Muslim faith. Obviously, many of the interviewees do therefore not differentiate between the group of Muslims and foreigners (for more details, see Wasmer and Hochman, 2019). This is the only model modification we have introduced, and it will be kept in all subsequent models presented here. The determined standardized regression weights range from nearly.60 for "homeless people" associated with social prejudice (*Cross-sectional data*: 0.59/0.59; *Panel data*: 0.60/0.59) up to over 0.90 for racism associated with ideology of inequality (*Cross-sectional data*: 0.93/0.90; *Panel data*: 0.92/0.97) and are comparably very homogenous across the used data sources (cf. **Figure 2**). This points out that some object-related components seem to be of more or less importance. Consistently on all occasions of measurement, xenophobia is the strongest factor for social prejudice, while racism is the strongest factor for ideology of inequality. Overall, the documented validity coefficients are reasonable, indicating that configural invariance is supported here as well.

In summary, all stepwise SCFA indicate acceptable model fit and sufficient parameter estimates, lending empirical support for the assumed latent constructs at each layer. Thus, satisfying configural invariance is guaranteed as a precondition for the hypothesis tests. In the following, the results are presented.

H1: Table 2 reports the model fit indices of the baseline models as well as of more restrictive models for both the cross-sectional and the panel data. As already discussed above, the baseline models include the two *second-order factors ideology and prejudice* and fit the data well. These models were tested against nested models where the correlation and the variance of the two second-order factors are fixed at the value of 1, which is equivalent to having only one single second-order factor (cf. the respective second rows per data source in the table). The models in which the second-order factors (ideology and prejudice) correlation is fixed to 1 also have sufficient model fits, but the χ^2 difference tests reveal that the correlation is significantly different from 1 in all test scenarios. This result indicates that on all four occasions of measurement a model with two second-order factors fits better to the data than a model with only one second-order factor, thus confirming H1.

H2: In addition to the comparison of models with one *second-order factor versus two second-order factors*, **Table 2** also reports the model fit indices of the baseline models compared to models in which the correlations between SDO and (a) ideology or (b) prejudice are fixed at the value of 1 (cf. the respective third and fourth rows per data source in the table). Compared to the baseline models, these models display worse model fit and the χ^2 difference tests show that the correlations are significantly different from 1. This applies both for the cross-sectional and

TABLE 2 | Discriminant validity of social prejudice (*Prejudice*), ideology of inequality (*Ideology*) and social dominance orientation (*SDO*).

Data	Models	χ^2	df	CFI (Δ)	TLI (Δ)	RMSEA (Δ)	χ^2 Difference Test*
	Models with cross-sectional data (*GFE-Surveys*)						
Cross-section 2003	Baseline model	1083.514	140	0.975	0.969	0.047	
	Prejudice with Ideology EQ 1†	1165.016	141	0.972 (−0.003)	0.967 (−0.002)	0.049 (+0.002)	$\Delta\chi^2 = 44.545$, df = 1, $p < 0.001$
	SDO with ideology EQ 1	1090.163	141	0.974 (−0.001)	0.969	0.047	$\Delta\chi^2 = 7.990$, df = 1, $p < 0.010$
	SDO with prejudice EQ 1	1394.048	141	0.966 (−0.009)	0.959 (−0.010)	0.054 (+0.007)	$\Delta\chi^2 = 172.022$, df = 1, $p < 0.001$
Cross-section 2011	Baseline model	713.851	140	0.980	0.976	0.045	
	Prejudice with ideology EQ 1	724.357	141	0.980	0.976	0.045	$\Delta\chi^2 = 9.563$, df = 1, $p < 0.010$
	SDO with ideology EQ 1	751.779	141	0.979 (−0.001)	0.975 (−0.001)	0.047 (+0.002)	$\Delta\chi^2 = 35.246$, df = 1, $p < 0.001$
	SDO with prejudice EQ 1	862.317	141	0.975 (−0.005)	0.970 (−0.006)	0.051 (+0.006)	$\Delta\chi^2 = 85.544$, df = 1, $p < 0.001$
	Models with panel data (*GFE Panel*)						
Panel 2006	Baseline model	1143.377	140	0.976	0.970	0.048	
	Prejudice with ideology EQ 1	1158.429	141	0.975 (−0.001)	0.970	0.048	$\Delta\chi^2 = 14.785$, df = 1, $p < 0.001$
	SDO with ideology EQ 1	1244.345	141	0.973 (−0.003)	0.967 (−0.003)	0.050 (+0.002)	$\Delta\chi^2 = 74.420$, df = 1, $p < 0.001$
	SDO with prejudice EQ 1	1573.845	141	0.965 (−0.011)	0.958 (−0.012)	0.057 (+0.009)	$\Delta\chi^2 = 193.201$, df = 1, $p < 0.001$
Panel 2008	Baseline model	691.813	140	0.974	0.968	0.053	
	Prejudice with ideology EQ 1	725.474	141	0.972 (−0.002)	0.966 (−0.002)	0.055 (+0.002)	$\Delta\chi^2 = 19.207$, df = 1, $p < 0.001$
	SDO with ideology EQ 1	708.547	141	0.972 (−0.002)	0.966 (−0.002)	0.058 (+0.005)	$\Delta\chi^2 = 19.007$, df = 1, $p < 0.001$
	SDO with prejudice EQ 1	810.766	141	0.968 (−0.006)	0.961 (−0.007)	0.059 (+0.006)	$\Delta\chi^2 = 70.223$, df = 1, $p < 0.001$

**DIFFTESTS were conducted to compare the more restrictive nested models (Asparouhov and Muthen, 2006). †EQ 1 means that the corresponding covariates were constraint to 1 in the more restrictive models. CFI, Comparative fit index; TLI, Tucker Lewis Index; RMSEA, Root mean square error of approximation.*

the panel models. Therefore, the baseline models treating SDO as an empirically distinct construct are superior to the models that postulate equality of SDO and each of the GFE factors, a finding which confirms H2.

H3: Table 3 reports the correlations of *ideology, prejudice* and *SDO* taken from the cross-sectional as well as the panel baseline models. On all four occasions of measurement, the correlations are quite high (all above 0.76) and those between SDO and ideology are even higher (all above 0.87). We tested if the correlation between (a) SDO with ideology and (b) SDO with prejudice are the same. All four χ^2 difference tests show that this is not the case, meaning that the correlations between SDO and ideology (*Cross-sectional data*: 0.96/0.90; *Panel data*: 0.87/0.93) are higher than the correlations between SDO and prejudice (*Cross-sectional data*: 0.76/0.83; *Panel data*: 0.77/0.83) not only in descriptive terms, but also statistically, which also confirms H3.

H4: **Table 4** shows the results of the *measurement invariance tests* using MGCFA and longitudinal CFA. We first discuss our findings regarding the *equivalence between different subjects*. This accounts for the question of whether the measurements are comparable based on cross-sectional data that have been collected at two time points with an eight-year difference. Or to say it the other way around, whether dissimilar contexts in the years 2003 and 2011 potentially have biased survey responses and thus the relationships between the latent constructs and the related indicators. The MGCFA baseline model tests for cross-group equal factor structures and has a satisfactory model fit (CFI = 0.977, TLI = 0.972, RMSEA = 0.047). A second model (cf. the respective second row in the table) with loading weights identical across groups suggests that full metric invariance on the first-order level is given with regard to the significant χ^2 difference test (ΔTLI = +0.002, ΔRMSEA = −0.003). In a next step, all second-order regression weights were estimated equally to test for higher-order metric invariance (cf. the third row). The executed *DIFFTEST* and value changes of fit indices indicate that this model assumption is supported as well (ΔCFI = +0.005, ΔTLI = +0.006, ΔRMSEA = −0.004). Finally, all item thresholds were estimated equally to test the full scalar model (cf. the fourth row). Although the χ^2 difference test reaches significance, changes in fit indices compared to the less restrictive model (ΔCFI = −0.321, ΔTLI = −0.318, ΔRMSEA = +0.120) considerably exceeded the cut-off criteria, which implies that establishing full scalar invariance with the cross-sectional data has failed. In the present case, we decided not to test for partial scalar invariance in supplementary models (by releasing certain problematic indicator thresholds successively), as we operate with only two observed indicators per latent first-order dimension. Thus, model assumptions on partial invariance cannot be tested in a meaningful way (Byrne et al., 1989; Pokropek et al., 2019).

Regarding *within equivalence over time*, that is, invariant relationships of the items to the latent factors as well as their relations to the superordinate GFE higher-order dimensions for the same respondents surveyed at 2006 (T1) and 2008 (T2), the results are discussed in the following. The longitudinal CFA baseline model, which integrates the measurement models both at T1 and T2 including the aforementioned constraints for model identification, fits the data sufficiently (CFI =

TABLE 3 | Correlations of social prejudice (*Prejudice*), ideology of inequality (*Ideology*) and social dominance orientation (*SDO*).

Data	Latent constructs	Correlations	χ^2 Difference test*
	Models with cross-sectional data (*GFE-Surveys*)		
Cross-section 2003	SDO with ideology	0.958	$\Delta\chi^2 = 101.980$, df = 1, $p < 0.001$
	SDO with prejudice	0.761	
Cross-section 2011	SDO with ideology	0.902	$\Delta\chi^2 = 12.499$, df = 1, $p < 0.001$
	SDO with prejudice	0.829	
	Models with panel data (*GFE Panel*)		
Panel 2006	SDO with ideology	0.869	$\Delta\chi^2 = 31.089$, df = 1, $p < 0.001$
	SDO with prejudice	0.772	
Panel 2008	SDO with ideology	0.931	$\Delta\chi^2 = 23.439$, df = 1, $p < 0.001$
	SDO with prejudice	0.829	

**DIFFTESTS were conducted to compare the models with equal correlations (Asparouhov and Muthen, 2006); Indicated are the standardized coefficients; All estimates are significant at the p-level ≤ 0.01.*

TABLE 4 | Measurement invariance tests using MGCFA and longitudinal CFA.

Models	χ^2	df	CFI (Δ)	TLI (Δ)	RMSEA (Δ)	χ^2 Difference test*
	MGCFA with cross-sectional data *(GFE-Surveys 2003, 2011)*					
Baseline model	1796.959	280	0.977	0.972	0.047	
Full metric model I (first-order factors)	1775.876	299	0.977	0.974 (+0.002)	0.044 (−0.003)	$\Delta\chi^2 = 112.329$, df = 19, $p < 0.001$
Full metric model II (second-order factors)	1509.199	307	0.982 (+0.005)	0.980 (+0.006)	0.040 (−0.004)	$\Delta\chi^2 = 34.059$, df = 8, $p < 0.001$
Full scalar model (first-order factors)	22492.533	345	0.661 (−0.321)	0.664 (−0.318)	0.160 (+0.120)	$\Delta\chi^2 = 11794.761$, df = 46, $p < 0.001$
	Longitudinal CFA with panel data *(GFE Panel 2006, 2008)*					
Baseline model	3639.315	638	0.958	0.954	0.039	
Full metric model I (first-order factors)	3405.316	648	0.961 (+0.003)	0.958 (+0.005)	0.037 (−0.002)	$\Delta\chi^2 = 9.058$, df = 10, $p < 0.526$
Full metric model II (second-order factors)	3335.436	654	0.963 (+0.002)	0.960 (+0.002)	0.036 (−0.001)	$\Delta\chi^2 = 14.061$, df = 6, $p < 0.029$
Full scalar model (first-order factors)	3811.078	684	0.956 (−0.008)	0.955 (−0.005)	0.038 (+0.002)	$\Delta\chi^2 = 663.604$, df = 30, $p < 0.001$

**DIFFTESTS were conducted to compare the more restrictive nested models (Asparouhov and Muthen, 2006); CFI, Comparative fit index; TLI, Tucker Lewis Index; RMSEA, Root mean square error of approximation.*

0.958, TLI = 0.954; RMSEA = 0.039). A second model with all first-order loadings setting equal at T1 and T2 (cf. the respective second row in the table) suggests that full metric invariance could not be rejected confidently when fit indies are inspected (ΔCFI = +0.003, ΔTLI = +0.005, ΔRMSEA = −0.002), although the executed *DIFFTEST* is not significant here. However, this is supported by the finding that, after introducing equality constraints on the second-order layer in a competing model (cf. the third row), the data fit improves again (ΔCFI = +0.002, ΔTLI = +0.002, ΔRMSEA = −0.001). Further, the χ^2 difference demonstrates that this model is fitting the data significantly better, thus lending support for first- and higher-order temporal metric invariance. Additionally, all thresholds of the manifest indicators at T1 and T2 were estimated equally to test the full scalar model (cf. the fourth row). This additional model assumption results in a slightly weaker but still sufficient model fit (CFI = 0.956, TLI = 0.955, RMSEA = 0.038), while the significant χ^2 difference test shows that scalar invariance with the panel data is empirically feasible. In summary, the findings largely confirm our hypothesis (H4).

DISCUSSION

Twenty years after the founding of the long-term project "*Group-Focused Enmity*" (GFE, 2002–2011), we now propose a theoretical revision of GFE based on two central argumentations. First, we reviewed the social psychological literature regarding differentiations between ideologies, attitudes, stereotypes and social prejudices. Second, we sifted through the publications on the basic conceptual ideas of GFE. Our presented longitudinal study found strong empirical support for a revised version of GFE, transformed from the originally formulated uni-dimensional concept (ideology of inequality) into a bi-dimensional conceptualization: generalized attitudes (*ideology of inequality*) and specific attitudes (*social prejudice*).

The derived hypotheses with respect to the concept of GFE as a two-dimensional construct have been confirmed. A GFE model with two second-order factors exhibited a better fit to the data in comparison to a model with one single second-order factor (H1). SDO was empirically distinct to the two second-order factors (H2), and it correlated more strongly with the ideology of inequality in comparison to social prejudice (H3). To test for

the comparability of measurements (H4), we have taken into consideration the inter- and intra-individual ordinal data to be analyzed and thus applied two different approaches within the framework of structural equation modeling. We found that the tested relations (first- and second-order) are statistically equal between and within individuals, meaning that the indicators as well as the dimensions are related systematically in the sense of a broadly consistent psychological understanding. This would allow to integrate GFE as a bi-dimensional concept in structural cross-group or panel models with the aim to investigate on structural (causal) relationships (e.g., including other related covariates like RWA). Nevertheless, scalar invariance could only be secured with the panel data. This indicates that the same individuals exhibit consistent levels of the latent constructs over time (prejudicial and ideological dispositions), and for example, mean values could be compared trustworthy in further analyses. However, in the case of measurements originating from different individuals (here with an 8-years distance the surveys have taken place), it seems that some questions might be contextually biased in terms of the understanding or choosing of answer codes (e.g., due to the presence or societal salience of certain outgroups). Another substantial point which might entail non-invariance is the insufficient content validity of some item formulations (in differing societal settings). Further analyses would be necessary to provide additional insights (e.g., qualitative and/or cognitive interviews, Willis, 2005; replication studies with other resp. recent data), which leads us to the possible final point: the well-known general fact that this is only one empirical study, and the results cannot be generalized. In this sense, we close this summary with the classical phrase "further research is recommended" and will finally turn to the outlook and consequences of our study in the broader context of prejudice research.

Splitting "group-focused enmity" — originally conceptualized as a one-dimensional construct (ideology of inequality)— into two dimensions (social prejudices as specific attitudes and ideology of inequality as generalized attitudes) could be valuable for gaining deeper insights into the genesis of social prejudices, stereotypes and ideologies as well as their theoretical explanations. Several studies have shown that SDO is a much stronger predictor for generalized attitudes like precedent rights of the established and racism, whereas RWA better explains specific prejudices like islamophobia (Heyder and Eisentraut, 2016) and heterophobia (Heyder, 2005). Using a small non-representative sample from Sweden, Ekehammar et al. (2004) also found higher correlations between RWA and prejudice toward homosexuals in comparison to SDO, whereas SDO correlated higher with racism and sexism. Another study based on a small sample from Flanders (Van Hiel and Mervielde, 2002) also found higher correlations between SDO and classical/symbolic racism in comparison to RWA. In our study, we were also able to show that SDO has a higher correlation with the ideology of inequality compared to specific prejudices. As a factor that summarizes racism, sexism and precedent rights of the established, these findings support the aforementioned studies and show the analytical advantage of the two-factor GFE approach. Obviously, predictors like SDO which can be described as ideologies have a stronger influence on generalized attitudes in comparison to specific attitudes.

The distinction between prejudice against "threatening" and "competitive" ethnic groups, for example, goes in a different but, nevertheless, similar direction. According to the dual process model (Duckitt and Sibley, 2016), Cohrs and Asbrock (2009) carried out an experimental study in which they assume that RWA and SDO are predicting "[…] majority members' levels of ethnic prejudice depending on specific factors of the intergroup context" in different ways. They found out that "[…] the effects of RWA on prejudice were particularly powerful when the outgroup was manipulated to be socially threatening, but the effects of SDO on prejudice appeared not to increase when the outgroup was manipulated to be competitive." (p. 270). Furthermore, when outgroups were presented as having a low status, the effect of RWA increased. This was not valid for SDO. Another study demonstrated that RWA predicted prejudice toward "dangerous" groups whereas SDO did not. On the other hand, SDO predicted prejudice toward "derogative groups" whereas RWA did not (Asbrock et al., 2010). A similar Hungarian study with a sample of 401 social psychology students is very interesting in this context. Specifically, only the affective dimension of attitudes toward different social groups was measured. In this study, RWA was found to be more strongly correlated with emotional evaluations of seven "dissident" and "dangerous" groups in comparison to SDO, and SDO correlated more strongly with emotions toward "derogated" groups (Hadarics and Kende, 2018).

Another question in our context is why the devaluation of specific groups vary over time and over different countries? Beside several cultural and national factors like events in the historical past (e.g., wars), traditions, prevailing ideologies (e.g., egalitarianism), national identity or the degree of nationalism, democratic culture, religiosity and so on, the current and temporary national circumstances play a decisive role. One important reason for the focus on different (specific) groups is the salience, the presence of public debates and therefore the media attention (Schlüter and Davidov, 2013). For example, Asbrock et al. (2014) found out, that even within Germany there are differences which specific group respondents associate with the term "foreigners". In West Germany, the percentage of the mental connection with the group of "Turks" was significantly higher in comparison to East Germany (W: 63.5; E: 49.1). On the other way around, the association with the group of "Vietnamese" was higher in East versus West Germany (W: 0.5; E: 7.1). In addition, they stated that the general "[…] category *foreigners* seems to be flexible over time. For example, asylum seekers, a group that was highly visible in the German media in the early 1990s, were listed by very few respondents (<0.5 %) only and consequently subsumed in the category *other*." (Asbrock et al., 2014, p. 6).

Our preliminary conclusion is that every society has it's GFE-syndrome. In all populations there are pejorative and discriminatory attitudes toward certain groups, as Sumner's studies on ethnocentrism (1906) have already shown. For example, he found out that various indigenous peoples referred to their ingroup as "human beings" and gave different names to all outgroups. Even in modern, more complex societies,

ideologies of inequality exist, which have been handed down over a very long time, are very stable, and are virulent almost everywhere. Social prejudices in the sense of specific attitudes, on the other hand, vary in different societies, are sometimes stronger, sometimes less pronounced. Some of the prejudices play only a subordinate role or are even not to be found at all. It is precisely this fact that the two-dimensional conception of GFE takes into account. The ideologies of inequality can be compared directly in international research. Social prejudices against specific groups, on the other hand, vary and are a major problem and widespread in some societies but not in others. In other words, group focused enmity is a universal concept that covers a wide range of attitudes of social inequality and can be used comparatively in international studies taking into account the particularities of individual countries.

A theoretical, differentiated classification of the concept presented here in comparison to the alternative concepts and theoretical approaches discussed above, such as the dual process model (Duckitt and Sibley, 2016) or the distinction between blatant vs. subtle prejudice (Pettigrew and Meertens, 1995), implicit vs. explicit prejudice (e.g., Dovidio et al., 2002) or ethnocentrism (Cunningham et al., 2004), would be very fruitful. Comparing and, if possible, integrating all the aforementioned conceptions and theoretical approaches by testing them empirically would be a valuable endeavor to gain a deeper understanding of the social psychological mechanisms with respect to generalized and specific attitudes, ideologies, social prejudices and stereotypes. In the course of these potential future projects, it would also be essential to take measurement invariance of the different latent constructs into account. A further empirical necessity would be to investigate the measurement invariance and stability over time with respect to the cognitive, affective and behavioral components of attitudes. The latter could also be candidates for measuring different dimensions of attitudinal latent constructs modeled by higher-order factors. One final challenge would be to integrate all these mentioned fields into the international empirical research on ideologies, attitudes, prejudices and stereotypes (see for ex. the recently published special issue on stereotypes and intercultural relations, edited by Grigoryev et al., 2021). With this in mind, we conclude this article as we began with a quote by Gordon W. Allport:

"We cannot plead that we must wait ≫until all the facts are in≪, because we know full well that all the facts never will be in." (Allport, 1954, p. 497).

DATA AVAILABILITY STATEMENT

The data analyzed in this study is subject to the following licenses/restrictions: Data and documents are only released for academic research and teaching after the data depositor's written authorization. For this purpose the Data Archive obtains a written permission with specification of the user and the analysis intention. Requests to access these datasets should be directed to info@gesis.org.

ETHICS STATEMENT

Ethical review and approval was not required for the study on human participants in accordance with the local legislation and institutional requirements. The participants provided their written informed consent to participate in this study.

AUTHOR CONTRIBUTIONS

AH, PA, ME, and PS contributed to conception and design of the study and wrote sections of the manuscript. PA and ME ran the statistical analysis with Mplus. AH wrote the first draft of the manuscript. All authors contributed to manuscript revision, read, and approved the submitted version.

SUPPLEMENTARY MATERIAL

The Supplementary Material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/fpos.2022.752810/full#supplementary-material

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