

“They are Just LGBTQ People and Nothing Else!” Theorizing and Measuring the “Perceived Inclusion of an Outgroup Members within Individuals’ Ingroups” (PIOMI) to Evaluate Inclusive Social Tolerance in the Multiple Identities Perspective

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Abstract Due to the shortcomings of their methodological procedures, do the theoretical models dedicated to the analysis of the predictive effect of identity plurality on social tolerance not in reality explain this tolerance by identity singularity rather than by identity plurality as they claim? This is the paradox that emerges from a critical analysis of the literature on multiple identities in general and Social Identity Complexity (SIC) in particular. To address this limitation, we propose the concept of “Perceived Inclusion of an Outgroup Members within individuals’ Ingroups” (PIOMI), which examines the inclusive tolerance of X outgroup in individuals’ ingroups. To measure it, this study constructs and validates the Degree of PIOMI (DPIOMI) scale, a tool which assesses the degree of this inclusive tolerance. This tool is applied to the social inclusion of LGBTQ people in the Cameroonian highly heteronormative context, which is characterized by the criminalization of homosexuality and violence against LGBTQ people. Two samples of heterosexual Cameroonian students (N=666; 335 men, 331 women) made it possible to validate this tool. The exploratory results (N1=200; 103 men, 97 women) summarize the structure of the DPIOMI scale into 3 reliable factors (Perceived Inclusive Enumeration (PIE), Perceived Inclusive Similarity (PIS) and Perceived Inclusion Core (PIC)). The confirmatory results (N2=466; 235 men, 231 women) report an adequate structural fit of this tri-factorial structure to the data. The invariance test indicates the same understanding of the content of each item of the scale, regardless of the gender of the respondents. The construct, discriminant and predictive validities of this scale are satisfactory. With regard specifically to predictive validity, the data collected reveal that the low inclusive tolerance of LGBTQ people in the participants’ ingroups is explained by their homo-negative cognitions, affects and behaviors.

Keywords Identity singularity, Identity plurality, SIC, PIOMI, DPIOMI, LGBTQ

1. Introduction

The multiple identities perspective constitutes a response to the criticisms raised against Social Identity Theory (SIT; Tajfel & Turner, 1979) and Self-Categorization Theory (SCT; Turner et al., 1987), on the insufficiency of identity singularity to account for the reality of individuals’ group affiliations. Indeed, these theories analyze intergroup relations through the prism of identity singularity (Grigoryan

et al., 2020; Ramarajan, 2014; van Dommelen, 2014), while in fact, individuals are at the crossroads of several social categories (Crisp & Hewestone, 2007). To address this gap, scholarly interest in multiple social categorization has grown, leading to a thriving and diverse theorizing, ranging from cross-categorization to Social Identity Inclusiveness and Structure (Reimer et al., 2022). van Dommelen (2014) lists and classifies the theoretical models designed in this area, according to whether they are unidimensional (Gordon, 1964), bidimensional (Berry, 1997), intersectional (Benet-Martínez et al., 2002; Benet-Martínez & Haritatos, 2005), or hierarchies of inclusiveness (Gaertner & Dovidio, 2000; Gaertner et al., 1993). Cross-cutting conceptualizations, such as Social Identity Complexity (SIC; Roccas & Brewer, 2002),

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Social Identity Inclusiveness (SII; van Dommelen, 2014) and Social Identity Structure (SIS; van Dommelen, 2014), which are located at the crossroads of transversal categorization and identity complexity, are the most recent theoretical models in the wake of cross-categorization. Despite the advances in knowledge that these theoretical models have made in the field of multiple identities, they present shortcomings noted in particular in the excellent literature review carried out by van Dommelen (2014). The present study, which positions itself within the framework of transversal categorization and complexity, is specifically interested in models that fit into this theoretical perspective.

1.1. Research on Identity Complexity and Its Limits

The paradigm of transversal categorization (see Deschamps & Doise, 1978) has inspired research on identity complexity. It proposes that categorization processes can simultaneously be inhibited in favor of a reduction in the ingroup/outgroup differential importance in crossed intergroup contexts (Deschamps, 1977; Roccas & Brewer, 2002). Following this logic, the crossing of two orthogonal categories produces four different groups: a double ingroup, a double outgroup and two crossed categories where individuals find themselves at the intersection of a dimension (Deschamps & Doise, 1978). This perspective is at work in SIC, which proposes that although individuals identify with multiple groups, the number of groups with which they identify is less important than how these different identities are subjectively combined to determine the overall inclusive nature of ingroup membership (Brewer, 2010). In both conceptualization and measurement, SIC takes into account the interrelationships between multiple identities of the perceiver, to the extent that these can impact attitudes towards outgroup members (Brewer & Pierce, 2005; Roccas & Brewer, 2002). SIC scores are interpreted on a continuum, depending on whether the perceiver’s multiple memberships strongly overlap (simple structure corresponding to low SIC) or are highly differentiated (complex structure corresponding to high SIC; Roccas *et al.*, 2021).

The criticism formulated by van Dommelen (2014), both regarding transversal categorization and SIC, is that these models do not take into account perceiver’s degree of identification with the groups on which the categorical pairings are nevertheless based, especially when these are perceived as not overlapping. To remedy this, he proposes SII, which is located at the intersection of the psycho-cognitive awareness of non-convergent category pairings and the perceiver’s identification with these non-overlapping categories. Specifically, the SII refers to the way in which perceiver inclusively or exclusively defines its ingroup based on the combination of its multiple transversal memberships (van Dommelen, 2014). Thus, an individual with a high SII is less rigid in his criteria for identifying with others as “one of us”, unlike an individual with a low SII. However, the link between high SII and permeable identification criteria depends on the rules of inclusiveness that the perceiver himself applies to the pairings of these multiple

social identities over time (van Dommelen, 2014). As for the SIS, it is a qualitative construct which determines the structure corresponding to the ingroup constructed by the perceiver on a continuum (intersection, dominance, fusion and egalitarianism); given that SII does not necessarily capture this content (van Dommelen, 2014). In agreement with van Dommelen (2014), the criticism that can generally be made of research on cross-categorization relates to the fact that it focused more on the multiple affiliations of a target person, in order to evaluate their impact on social impressions; consequently, neglecting the processes that underlie perceiver’s own ingroup representations in conditions of transversal membership (see Hewstone *et al.*, 1993; Migdal *et al.*, 1998 for illustrations). In addition, they have common methodological flaws on which the present study wishes to dwell, relying mainly on SIC, as it was theorized and measured by Roccas and Brewer (2002).

1.2. The Methodological Shortcomings of Research on Social Identity Complexity

For the present research, SIC presents some shortcomings relating in particular to the methodological procedures allowing it to be evaluated and linked to intergroup positivity.

First, SIC does not take into account the socio-identity plurality of the members of the perceived group (the outgroup). In fact, it simply measures the degree of perceived overlap within individuals’ ingroups, by activating them through the Group Elicitation Questionnaire (GEQ; Miller *et al.*, 2009), to then evaluate individuals’ attitude towards an outgroup of which only one of the identity markers is made salient (the black race for example; Brewer & Pierce, 2005; Roccas & Brewer, 2002). Indeed, SIC is conceived as an independent variable predicting tolerance, generally assessed by an external measure such as the Bogardus (1925) social distance scale (see Brewer & Pierce, 2005; Roccas & Brewer, 2002). This procedure could prove problematic due to the potential disconnection between SIC and the tolerance measure, due to the neutralization of the socio-identity plurality of the perceived group due to the activation of only one of its members’ identity markers at the level of the tolerance measurement. However, a member of the outgroup (a black person for example) can have a socio-identity plurality (socio-professional, religious or political groups) which is deployed within the same ingroups as those of a perceiving individual (a white person) (Brewer, 2010; Roccas & Brewer, 2002). From this perspective, it was expected that SIC would simultaneously capture the multiple identities of the perceived (outgroup member) and the perceiver (ingroup member). But this is not the case.

Secondly, and paradoxically, SIC also neutralizes the identity plurality of the perceiver, although activated with the GEQ and maintained constant with its tools (the Overlap Complexity (OC) and Similarity Complexity (SC) measures). However, by studying tolerance towards an outgroup, SIC only activates one of the perceiver’s identity markers (the

black race for example; Brewer & Pierce, 2005; Roccas & Brewer, 2002). However, the activation of a single identity marker of the outgroup is likely to induce the activation of the corresponding identity marker within the ingroup (the white race for example), since the notions of ingroup and outgroup are always located in the perspective of specific identity markers and therefore escape, as a result, the social identity plurality (see Grigoryan et al., 2020 for an analysis of multiple categorization). As an illustration, in a research protocol involving SIC and ingroup threat, to evaluate the impact of a high threat situation on SIC, Roccas and Brewer (2002) report that a high threat situation generated from the activation of an identity characteristic of the outgroup has no significant effect on non-threatened categorical pairings, compared to threatened category pairings. This means that the threat posed to one identity marker does not impact other non-threatened identity markers. In other words, despite the reality of identity plurality, singular identities retain their importance, since they are the ones that are activated in the situations experienced by individuals and it is by referring to them that they react. The results of this research can be extrapolated to measures of tolerance towards members of the outgroup, since the activation of the identity unidimensionality of the outgroup (race for example) is likely to activate the identity unidimensionality of the ingroup (the race also). There could therefore be a sort of singularization of identity plurality activated by the GEQ. Consequently, we can estimate that the paradox of the SIC is that while criticizing the salient identity singularity in the social identity theory, it itself only measures the said singularity in its evaluation of tolerance towards the outgroup, since it makes a single characteristic of the said group salient.

Third, SIC is an independent variable linked to social tolerance (Roccas & Brewer, 2002). Unlike political tolerance, social tolerance focuses on outgroups' social and cultural practices (Cvetkovska et al., 2020). It can take several forms of intergroup positivity. Indeed, work analyzing the consequences of SIC on social tolerance has been carried out in a variety of intergroup contexts, some of which may appear soft and others more hard. In the first category, we can cite studies focusing on attitudes towards affirmative action policies and multiculturalism in the United States (Brewer & Pierce, 2005), intergroup biases in Holland (Verkuyten & Martinovic, 2012), or attitudes towards diversity in Australia (Brewer et al., 2012; Miller et al., 2009). For the present research, these works, which all validate the hypothesis that SIC predicts tolerance towards outgroups, however, have the disadvantage of having been conducted in a Western democratic context, where the level of brutality and discrimination towards subordinates is somehow constrained, indirect and covered because of the cultural ideal of equality of all before the law (Sidanius & Pratto, 1999).

Researches in the second category do not have the contextual disadvantage noted above. We can list the studies by Branković et al. (2015) or Maloku et al. (2018) for example, which were conducted in intergroup contexts

where the protagonists had violent historical backgrounds. Research reports that these antecedents could contribute to creating psychological barriers to the harmony of contemporary intergroup relations (see Dzuetso Mouafo et al., 2024; Vollhardt & Nair, 2018). Indeed, in post-conflict situations, individuals who are confronted with the threat represented by the outgroup prefer clearly circumscribed intergroup boundaries (Roccas & Brewer, 2002); hence their low inclination towards intergroup positivity. In support of this idea, research by Branković et al. (2015), who analyzes social distancing between young Serbs and Bosniaks, by comparing SIC and SII, reports that SIC, unlike SII, does not predict social tolerance. In the same vein, the study by Maloku et al. (2018), conducted in Kosovo, assesses the intention of Albanians and Serbs to engage in intergroup contacts through SIC, in a region that experienced a violent conflict period of clashes, mutilations and killings and which immersed in a highly segregated social climate, characterized by intergroup rejection (Judah, 2008; Maloku et al., 2016, 2018). This study reports that while SIC has a positive impact on the willingness to engage in intergroup contacts among members of the majority ethnic group (Albanians), this is not the case among members of the minority ethnic group (Serbs). Furthermore, even among members of the majority group, SIC scores observed by Maloku et al. (2018) are not as significantly higher than the exponential scores generally recorded in closely divided intergroup contexts. These results suggest that in harsh intergroup contexts, the ability of SIC to predict intergroup positivity may be questioned. This is why this study suggests that it should be further tested in empirical contexts where the level of intergroup cleavage is important, to assess the robustness of its predictions. Without being exhaustive, this would be the case with the situations of the Rohingya in Myanmar (see Habib, 2021; Manikandan, 2019) or LGBTQ people in the African context (see Dzuetso Mouafo, 2023; Dzuetso Mouafo et al., 2023) for example.

To solve the methodological problems noted above, the present study proposes a new process to capture the multiple identities of ingroup members at the same time as those of outgroup members. This proposition consists of the evaluation of the perceived inclusion of outgroup members within individuals' ingroups.

1.3. The Contribution of the Current Research to the Theoretical Perspective of Multiple Identities: The Perceived Inclusion of an Outgroup Members within individuals' Ingroups (PIOMI)

The need to belong is a fundamental human motivation (Brewer, 1991; Fiske, 2004). This means that social exclusion compromises every individual's inalienable right to belong to social collectives (Hutchison et al., 2007), constituted on the basis of identity markers such as religion, ethnicity or language. This research, which focuses on social inclusion, is part of this logic. Concretely, it proposes to the literature the concept of *Perceived Inclusion of an Outgroup*

Members within individuals’ Ingroups (PIOMI). Specifically, this construct refers to the inclusion of the multiple identities of the perceived outgroup within the multiple identities of the perceiving ingroup. It helps fill the limitations of the literature on SIC noted in this study on several points.

First, to fill the limit relating to the non-capture, by SIC, of the identity plurality of the perceived group (the outgroup) at the same time as the identity plurality of the perceiving group (the ingroup), PIOMI is part of the prospect of a simultaneous capture of the socio-identity plurality of these two groups. It thus takes up the proposition relating to the possibility that the identity plurality of a member of a perceived outgroup can be deployed within the various ingroups of a perceiving individual (see Brewer, 2010; Xin & Xin, 2012). Indeed, even if individuals have different category memberships on an identity dimension made salient in a situation (Licata, 2007), it remains that they are also likely to have similar category memberships on other dimensions (see Grigoryan *et al.*, 2020). This means that due to the identity plurality which characterizes all individuals, ingroup/outgroup memberships are always limited to one or a few identity markers. For example, faced with a Black, Christian and heterosexual person, a Black, Christian and homosexual person will belong to the same ingroups for the racial and religious identity markers, but will be a member of the outgroup if we place ourselves in the perspective of the identity marker relating to sexual orientation. Because of this, the present research considers that the socio-identity plurality of the members of the perceived outgroup (homosexuals in this case) deserves, as much as that of the perceiving ingroup (heterosexuals in this case), to be taken into account in the methodological procedures of researches relating to identity plurality. This procedure would have the advantage of making it possible to judge whether, and under what conditions, the multiple group memberships that the perceiver shares with the perceived have the capacity to neutralize or not the salient identity marker on which they diverge. In this vein, the measurement that results from the PIOMI aims to evaluate the degree of the PIOMI. Furthermore, unlike SIC for example, which often assesses, at the level of tolerance measures, the attitudes of perceivers towards several diffuse outgroups (see Brewer & Pierce, 2005; Brewer *et al.*, 2012), PIOMI is contextualized and specified in relation to a single outgroup, following the principle that in each social situation, it is generally a single group characteristic (therefore a single outgroup) which is highlighted.

Secondly, to fill the limit of SIC relating to the paradox of the neutralization of the socio-identity plurality of the perceiver, the PIOMI keeps this plurality constant throughout the process of its evaluation. This means that the perceiver’s primordial group memberships, activated by the GEQ, remain active until the end of the evaluative process. Indeed, as noted above, one of the defects of research on SIC (see for example Schmid *et al.*, 2009; Verkuyten & Martinovic, 2012) is that by activating the identity marker differentiating the outgroup from the perceiver’s ingroup,

they activate, in an induced way, the identity singularity of the perceiver, since the identity marker salient among the outgroup is likely to also become salient among the multiple ingroups of the perceiver. This means that if we evaluate the tolerance of a Black, Christian and heterosexual individual towards homosexuals, it is likely that his race and religion have less impact on his attitude than his sexual orientation (heterosexuality), made salient by the fact that it is the sexual orientation of the perceived person (homosexuality) which has been activated. By evaluating the perceived inclusion of the multiple identities of the outgroup in the multiple identities of the ingroup, PIOMI resolves the problem of the salience of a dimension of the identity of the outgroup by inducing, among perceivers, the idea that the members of this outgroup can, on certain dimensions, share the same ingroups as them. This procedure can therefore lead them not to focus on the differentiating identity marker, since the PIOMI is a measure of the perceived inclusive overlap of the outgroup’s identity plurality.

Third, unlike SIC which is a predictor of tolerance (Roccas & Brewer, 2002), the PIOMI is in itself a measure of social tolerance via social inclusion. Indeed, the approach of the research on SIC, which consists of measuring on the one hand the identity complexity of the perceiver, then administering a scale of tolerance towards the outgroup (external to the SIC) on the other hand, is likely to create a phase shift between SIC and its object, by neutralizing perceiver’s identity plurality. This approach has the consequence of questioning the predictive effect of SIC on social tolerance, in the absence of a control group in which SIC would not be activated. In other words, we can wonder if it is indeed the awareness, by individuals, of their identity complexity activated by the GEQ which impacts on tolerance, since their level of tolerance towards the outgroup is not compared with that of other individuals who would not have been made aware of this complexity by not administering the GEQ to them (a control group). To remedy this, the development of the PIOMI was part of the perspective of Bogardus (1925), who carried out an evaluation of tolerance by the inclusion of the outgroup in the perceivers’ socio-geographical ingroups (members of my family; members of my group of close friends; residents on the same street; colleagues in the same company; citizens of the same country; visitors to my country; and excluded from my country). The level of tolerance of the outgroup is all the stronger as the perceiver accepts the outgroup members in its closest ingroups (member of my family or my group of close friends for example). In this vein, PIOMI has three levels in its assessment of the perceived inclusion of the outgroup multiple identities into ingroup multiple identities: 1) a low degree of inclusion amounting to exclusion of the outgroup; 2) an average degree of inclusion which refers to the tolerance of the outgroup; and 3) a high degree of inclusion which refers to acceptance of the outgroup.

Due to the fact that research conducted within sociopolitical contexts where the groups involved have a history of conflict calls into question the ability of SIC to predict intergroup

positivity (see Branković et al., 2015; Maloku et al., 2018), the present study considers that it is within this type of context that PIOMI can be meaningfully constructed and tested. In doing so, it hopes to provide an explanation for the collapse of SIC as a predictive factor of tolerance in situations where the outgroup represents a threat to the ingroup, as is the case in a post-conflict (see Hall, 2014) or post-segregation (see Dixon et al., 2023) contexts for example. This is why it is interested in the social inclusion of LGBTQ people in the highly heteronormative context of Cameroon. In this country, not only is homosexuality condemned by law, but it is also considered by popular imagery as a curse, a sin, a dishonor, a mental imbalance or a sectarian practice (Lado, 2011; Menguele Menyengue, 2016). This situation explains the violence, abuse and ostracism suffered by LGBTQ people (Amnesty International, 2013; Human Rights Watch, 2021), considered as a threat to heterosexuals.

1.4. The Intergroup Context of the Research: Social Inclusion of LGBTQ People in a Highly Heteronormative Context

Inclusion is the principle of recognizing the right of all individuals to full participation in all aspects of society. It is an individual right and a societal responsibility that requires the removal of barriers and social structures constituting obstacles to the full participation of all. In this sense, it depends not only on the acceptance of difference, but also on the desire to celebrate diversity, which requires a favorable environment and the political will to combat discrimination and promote equality (Jones, 2011). Unfortunately, for many individuals and groups, inclusion remains a principle that comes up against a difficult and even brutal reality. This is the case for LGBTQ people (see Flores, 2021), who daily face exclusion, discrimination and violence within the societies in which they evolve (see Braganza & Hodge, 2024; Hartmann-Tews, 2022; Martínez-Guzmán & Íñiguez-Rueda, 2017; Moleiro et al., 2021; Tillewein et al., 2023). Indeed, even if more or less significant progress has been noted in various countries on the specific rights of LGBTQ people, such as the depathologization of being transgender or the legalization of same-sex marriages (Brandtzæg Godø et al., 2024), it remains that in other contexts, notably those characterized by a marked tendency towards heteronormativity (Gulevich et al., 2018), these people who represent a threat to certain community, moral and ideological values (Adamczyk & Pitt, 2009; Marchlewska et al., 2019; Tjipto et al., 2019) are experiencing the repercussions of these global progressive trends (Salvati & Koc, 2022).

Concepts such as homophobia (Herek, 2000; Weinberg, 2010), transphobia (Nagoshi et al., 2008), homonegativity (Hudson & Rieketts, 1980), homoprejudice (Logan, 1996), heterosexism (Herek, 2004) or sexual prejudice (Chonoby, 2013) refer to all biased attitudes relating to sexual orientation (Castiglione et al., 2014; Flórez-Salamanca, 2014). Generally shared by heterosexuals (Messanga &

Sonfack, 2017), these attitudes are impacted, among other things, by gender, quantity and quality of contact experiences with members of the outgroup, as well as adherence to religious and hegemonic beliefs (Cunningham & Melton, 2012; Gkinopoulos et al., 2024; Kanamori & Xu, 2022; Ncanana & Ige, 2014; Rodriguez-Seijas, 2014). They are the basis of discriminatory policies and behaviors to which members of the LGBTQ community are victims in many countries. Indeed, some of them criminalize, through *sodomy laws* (Dionne et al., 2014), consensual relations between people of the same sex (59% of African countries and 52% of Asian countries that are members of the United Nations). Others have, in their legal and regulatory arsenal, legal provisions which restrict freedom of expression on subjects related to sexual orientation, gender identity and sex education, or prohibit the promotion or propaganda on homosexuality and censor films and media (37% of African countries and 40% of Asian countries members of the United Nations). Only 30% of United Nations member countries, the majority of which are in Europe (68%), have legislation against discrimination based on sexual orientation and 18% recognize the equality of relations between people of the same sex and/or extend the definition of marriage to same-sex unions (Salvati & Koc, 2022).

In the African context, it is often the defense of family and cultural values that serves as the sociocultural and ideological foundation of anti-LGBTQ legislation. Indeed, the official explanation for these laws is the protection of the African heterosexual family against the dangers of homosexuality, conceived as antisocial, anti-kinship, and anti-procreative. Therefore, every African adult must start a family and/or procreate. Anyone who transgresses pro-marriage and pronatalist ideologies by deliberately adopting an unconventional sexual identity or non-reproductive sexual practices is exposed to legal persecution and social ostracism (Ndjio, 2020). These homonegative attitudes and behaviors are all the more significant since in a country like Cameroon, for example, popular imagery does not perceive sexual relations between people of the same sex as the result of a sexual orientation, but rather as a deliberate choice made by individuals motivated by the desire for social mobility and promotion (Gueboguo, 2006). This choice would be justified concretely by a crisis context characterized by the scarcity of jobs which would push young people in search of socio-professional integration to get closer to the political-administrative elites who, in turn, would condition their intervention in their favor with potential employers by homosexual relationships (Messanga & Sonfack, 2017). In this context, these relationships are seen more as conditions for entry into circles of power and money (Gueboguo, 2006). This perception is the basis of conspiracy theories relating to this type of relationship and the people involved. These theories consist of the belief that two or more actors have secretly coordinated to achieve an objective of public interest, but without the public's knowledge (Douglas & Sutton, 2023; Douglas et al., 2024).

Relating to LGBTQ people specifically, they are linked to the alleged existence of an LGBTQ lobby whose role would be to spread homosexuality throughout the world through the indoctrination of minors, the disruption of the natural/moral order, and an ideology based on the controversial “gender theory” (Salvati *et al.*, 2023). They flourish in both the Western (see Friedersdorf, 2012; Salvati *et al.*, 2024) and African contexts (see Dzuetso Mouafo, 2023; Dzuetso Mouafo *et al.*, 2023) and impact on the social distance between heterosexuals and LGBTQ people (Gkinopoulos *et al.*, 2024). This is particularly the case in Cameroon, the empirical setting of the present study.

Unlike other countries in sub-Saharan Africa, in Cameroon, accusations of homosexuality are made by citizens, against the State and elites. They serve to express popular dissatisfaction with institutional authorities and their practices of illicit enrichment. These authorities are accused of being part of secret societies of Western origin (Freemasonry, Illuminati and Rosicrucianism in particular), which would promote homosexual practices. This belief is based in particular on the alleged role of the French Medical Doctor, Louis Paul Aujoulat, considered as a homo-Masonic (homosexual and Freemason) colonial figure (Orock & Geschiere, 2021). According to popular imagery, he would be the “initiator” of membership in secret societies and homosexual practices of the Cameroonian political and administrative elite who were to take over after the colonial period (Nken, 2014). This is why, within public opinion, certain homophobic discourses find their sources in the alleged ritual and initiatory uses of homosexuality (Roxburg, 2019), conceived as an occult practice (Menguéle Menyengue, 2016) or a form of vampirism promoted by esoteric brotherhoods (Menguéle Menyengue, 2014). The members of these brotherhoods, many of whom are recruited from senior administration and business circles, would practice incest, homosexuality and ritual crimes accompanied by sodomy (Tonda, 2002 cited by Menguéle Menyengue, 2016). This belief underlies the neologism *anusocracy* (see Geschiere & Orock, 2021) i.e. the government of the anus, which refers to the perception of the anus as a source of wealth and power. This neologism establishes the idea that sodomy is used in circles of power and money to humiliate and submit individuals in search of social promotion (Pigeaud, 2011).

The consequence of belief in the mystical and clientelist dimensions of homosexuality is that many Cameroonians perceive it as an unnatural practice, since people can be initiated or converted to it (Machikou, 2009). This is one of the sources of the rejection of LGBTQ people (Dzuetso Mouafo, 2023), which manifests itself concretely in the humiliations, ambushes, arbitrary arrests, beatings, torture and assassinations targeting them (Lyonga, 2022; Messanga & Sonfack, 2017; Olivier, 2019). These discriminatory and violent acts are perpetrated in a favorable sociocultural and legal context, since homosexuality is considered a criminal offense punishable by imprisonment of up to five years (Dzuetso Mouafo *et al.*, 2023). This particularly hostile environment pushes LGBTQ people to adopt strategies to

camouflage their sexual orientation, sometimes going so far as to engage in heterosexual relationships or even enter into sham marriages (Gueboguo, 2006).

2. Method

2.1. Participants

666 Cameroonians (335 men and 331 women) agreed to participate voluntarily in this study. They all declared themselves heterosexual. They were divided into two subsamples. The first was used for the exploratory validation of the DPIOMI scale. The second made it possible to ensure the confirmatory and invariance tests, as well as the construct, discriminant and predictive validities of the DPIOMI scale. From the point of view of research ethics, guarantees were given to them regarding the preservation of the confidentiality of their responses and their exclusive use for scientific purposes.

(i) *Subsample A*

The exploratory factorial test of the DPIOMI measurement scale was carried out on a sample of 200 heterosexuals (103 men and 97 women) aged on average 26.06 years ($SD=7.85$). These are people belonging to various linguistic, socio-professional, religious and tribal groups.

(ii) *Subsample B*

To test the confirmatory factorial structure, the invariance of the developed instrument, its construct and discriminant validities and provide various explanations for the degree of inclusion of LGBTQ people in the participants’ ingroups, a sample of 466 people was selected. Their age varies between 18 and 52 years ($M=25.15$; $SD=7.15$). Just like their counterparts in Sample A, they belong to various linguistic, socio-professional, religious and tribal groups.

2.2. Construction Procedure and Description of the DPIOMI Scale

The DPIOMI measurement scale is strongly inspired by SIC’s methodological tools (see Brewer & Pierce, 2005; Roccas & Brewer, 2002), but it differs on a few points. Indeed, SIC assesses the degree of perceiver’s identity complexity, that is to say the degree of overlap that he perceives within the groups to which he simultaneously belongs. It has two dimensions: Overlap Complexity (OC) and Similarity Complexity (SC). SIC items, constructed on the basis of preliminary studies by Roccas and Brewer (2002), generally take into account four important identities of the participant, revealed by the GEQ. This leads to the formulation of 12 items based on all possible pairings of the groups to which an individual belongs to the OC and 6 items to the SC; hence the total of 18 items, when the tools of the two dimensions are administered simultaneously. The items on these two scales are neither worded nor coded in the same way. Furthermore, the interpretation of the scores resulting from the statistical analysis is not done according to the logic of traditional scales. For example, a high score on the overlap

scale refers to low SIC and vice versa. The DPIOMI scale, for its part, is located in another methodological perspective.

The DPIOMI scale assesses the inclusion of the identity plurality of an X outgroup in the identity plurality of the ingroup. It therefore measures inclusive complexity. Its evaluation procedure fits into the logic of measuring SIC at the level of GEQ, but detaches from it at the level of the evaluation itself. Like SIC, it takes into account four essential identities of the individual to construct group matches. It has a total of 17 items distributed over three specific dimensions. The first dimension is *Perceived Inclusive Enumeration* (PIE). It informs the researcher not only about perceiver's awareness of the existence of X outgroup, but also about the understanding of the fact that the members of this outgroup potentially have the same group memberships or the same social identities as their own. This first dimension is specifically inspired by the first dimension of the SIC (see Roccas & Brewer, 2002). It has 8 items. For example, an item asks: « *Selon vous, environ combien de personnes LGBTQ y-a-t-il dans votre tribu ?* (According to you, approximately how many LGBTQ people are there in your tribe?) » The second dimension is *Perceived Inclusive Similarity* (PIS). It is essentially inspired by the second dimension of the SIC. It evaluates the similarity that the perceiver admits between the members of X outgroup and the members of his primordial ingroups. Indeed, if the perceiver is aware of the socio-identity plurality of the members of the outgroup, which he counts in his ingroups, we assume that he is likely to perceive points of similarity between this outgroup members and himself. This dimension has 5 items. One of them suggests that: « *À votre avis, environ combien de personnes LGBTQ ressemblent-elles aux membres de votre groupe religieux (Catholiques/Protestants/Musulmans)?* (According to you, approximately how many LGBTQ people do you think are like members of your religious group (Catholics/Protestants/Muslims)?) » The third dimension constitutes the heart of the measurement. This is the *Perceived Inclusion Core* (PIC) or the inclusion of members of the outgroup into the ingroups. It has 4 items. For example, an item states that: « *Quand vous pensez à toutes les personnes LGBTQ, combien en incluez-vous (c'est-à-dire acceptez-vous d'intégrer) comme membres de votre tribu?* » (When you think of all LGBTQ people, how many do you include (i.e. do you accept to integrate) as members of your tribe?). All items on the DPIOMI scale are coded on a 10-point Likert-type scale, ranging from 0 (none) to 9 (all).

2.3. Instruments of Data Collection

This study used various instruments of data collection during its exploratory and confirmatory phases. These instruments were written in the French language.

2.3.1. The Measures of the Exploratory Phase

During this phase, the sociodemographic characteristics of

the participants (age, gender or sexual orientation) were previously collected. Then, their group memberships were generated through the GEQ, before the administration of the measure of the perceived inclusion of the multiple identities of the outgroup members in their primordial ingroups. This assessment was made using the DPIOMI scale. Like for the SIC measures, the GEQ precedes the DPIOMI scale. Its evaluation procedure follows the logic of measuring the SIC at the level of GEQ, but it departs from it at the level of the evaluation itself. To construct group matches, DPIOMI takes into account four essential identities of the individual, namely tribal, religious, linguistic and professional identities. This measure is self-administered.

Following the example of previous researches (Brewer et al., 2012; Miller et al., 2009), the present study used the GEQ to elicit participants' primordial memberships. Based on the diversity of their affiliations, we only retained those who attach importance to the same group affiliations. Indeed, the literature reports that individuals who attach importance to affiliations such as recreational, political or associative groups are few in number in Cameroon, compared to individuals who attach great importance to their tribal, linguistic, religious and professional affiliations, for historically anchored reasons (see Messanga, 2018; Tièmeni Sigankwe, 2019; Tsogo À Bebouraka, 2023; Tsogo À Bebouraka et al., 2023). These observations from the literature underlie the construction of the items of the DPIOMI scale on the basis of these four social identities. The high scores recorded on the identification scale for each of these four group affiliations support the approach of this study.

2.3.2. The Measures of the Confirmatory Phase

In the confirmatory phase of the evaluation of the metrological qualities of the DPIOMI scale, several measuring instruments were administered in order to ensure its construct, discriminant and predictive validities. These measures assess the following constructs:

Degree of Perceived Inclusion of an Outgroup Members within individuals' Ingroups (DPIOMI)

At the end of the exploratory phase, 12 items out of the 17 items of the constructed version of the scale were retained. 5 items were eliminated because they presented double factor loadings greater than or equal to 0.40. The reliability analysis indicates that the DPIOMI scale is reliable ($\omega=.92$; $\alpha=.92$). Its dimensions are also (PIE ($\omega=.88$; $\alpha=.88$); PIS ($\omega=.87$; $\alpha=.86$); PIC ($\omega=.88$; $\alpha=.88$)). The positioning of participants on the items of this measure is ensured using a scale coded between 0 (none) and 9 (all).

Degree of Identification as heterosexual

A single item makes it possible to assess participants' degree of identification as heterosexual. It asks them: « *À quel point votre orientation sexuelle (barrez la mention inutile: Hétérosexuelle/Homosexuelle/Bisexuelle/Pansexuelle) est-elle importante pour vous?* » (How important is your

sexual orientation (cross out what doesn’t apply: Heterosexual /Homosexual/Bisexual/Pansexual) to you?)

Anomic threat

To assess the perception of anomic threat, three items adapted from Teymoori *et al.* (2016) were used. For example, an item suggests that: « *Dans ce pays, les standards de la morale ne sont plus véritablement respectés* » (In this country, moral standards are no longer truly respected). They are evaluated on a 7-point coded scale ranging from 1 (strongly disagree) to 7 (strongly agree). This measure is reliable ($\omega=.80$; $\alpha=.80$).

Conspiracy beliefs

Participants indicated their opinions on six items taken from the Gender Ideology and LGBTQ+ lobby Conspiracies scale (GILC; Salvati *et al.*, 2023). These items relate to the dimension relating to the conspiracy of the LGBTQ+ lobby. One of them proposes that: « *Il existe une organisation de personnes très puissantes qui profitent des instances LGBT pour établir une dictature de la pensée unique* » (There is an organization of some very powerful people who take advantage of LGBT instances to establish a dictatorship of single thought). A Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree) is associated with it. This measure is reliable ($\omega=.89$; $\alpha=.89$).

Intergroup emotions

Several measures using a Likert-type response format, ranging from 1 (strongly disagree) to 7 (strongly agree), were used to assess participants’ emotions towards LGBTQ people.

(i) Distrust

This emotion was assessed using three items (e.g., « *Les personnes LGBTQ doivent être surveillées* » (LGBTQ people should be watched)). This measure is an adaptation of Rusk’s (2018) distrust scale. It is reliable ($\omega=.75$; $\alpha=.75$).

(ii) Fear

This emotion was assessed by an adaptation of Giner-Sorolla and Russell (2019). It has three items, one of which states: « *Les personnes LGBTQ sont vraiment effrayantes* » (LGBTQ people are really scary). This measure is reliable ($\omega=.84$; $\alpha=.83$).

(iii) Anger

Three items adapted from Giner-Sorolla and Russell (2019) were used to measure this emotion. One of these items suggests that: « *Je peux parfois sentir mon cœur battre plus vite à cause de la rage que je ressens quand je commence à penser aux personnes LGBTQ* » (I can sometimes feel my heart beating faster because of the rage I feel when I start thinking about LGBTQ people). This measure is also reliable ($\omega=.85$; $\alpha=.85$).

(iv) Hatred

The evaluation of the participants’ hatred towards the LGBTQ outgroup was done through three items adapted from Sternberg and Sternberg (2008). One of them indicates

that: « *La lutte contre les personnes LGBTQ est importante en Afrique quels que soient les coûts possibles* » (The fight against LGBTQ people is important in Africa whatever the possible costs). The reliability of this measure is acceptable ($\omega=.86$; $\alpha=.86$).

(v) Disgust

Disgust was assessed with three items from the Hodson *et al.* measure (2013). One of these items states: « *Je demanderai de nouveaux draps de lit dans un hôtel, si le précédent occupant de la chambre était une personne LGBTQ* » (I would ask for new bed sheets in a hotel if the previous occupant of the room was an LGBTQ person). The reliability of this measure is acceptable ($\alpha=.750$).

Opposition to LGBTQ rights

Two items from the scale of Smeekes *et al.* (2011) were adapted and used to assess opposition to LGBTQ rights ($\alpha=.62$). For example, one reverse-coded item states that: « *Au Cameroun, les homosexuels ont le droit de s’exprimer dans l’espace public* » (in Cameroon, LGBTQ people have the right to express themselves in public space). A Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree) is associated with it.

Prejudice towards LGBTQ people

Three items from the measure developed by Yu *et al.* (2011) were used to measure this construct. The response format is a 7-point Likert scale. One item in this measure suggests that: « *Le nombre croissant des personnes LGBTQ indique un déclin des mœurs sociales dans ce pays* » (The growing number of LGBTQ people indicates a decline in social morals in this country). This scale is reliable ($\omega=.81$; $\alpha=.80$).

Daily discrimination against LGBTQ people

Two items from the Everyday Discrimination Scale (Ulusoy *et al.*, 2023) were adapted to measure daily discrimination against LGBTQ people. One of these items proposes that: « *Les personnes LGBTQ devraient être traitées avec moins de courtoisie* » (LGBTQ people should be treated with less courtesy). These items use a 7-point response format, ranging from 1 (strongly agree) to 7 (strongly agree). This scale has good internal consistency ($\alpha=.81$).

Physical aggression towards LGBTQ people

Two items adapted from the study by Buss and Perry (1992) measure attitudes towards physical aggression against LGBTQ people among participants. For example, item 2 proposes that: « *Si je dois recourir à la violence pour protéger les valeurs de l’hétérosexualité, je le ferai* » (If I have to resort to violence to protect the values of heterosexuality, I will do so). This measure is reliable ($\alpha=.66$) and its response format consists of a 7-point Likert scale, ranging from 1 (strongly agree) to 7 (strongly agree).

Hostility towards LGBTQ people

To assess participants’ hostility towards LGBTQ people, three items inspired by Schaafsma and Kipling (2012) were

used. One of these items states: « *Je voudrais blesser les personnes LGBTQ* » (I would like to hurt LGBTQ people). Responses to the items are made following a 7-point Likert-type format, ranging from 1 (strongly agree) to 7 (strongly disagree). The internal consistency index of this measure is acceptable ($\omega=.89$; $\alpha=.89$).

Social Identity Complexity (SIC)

SIC assesses the degree of overlap that an individual perceives within the groups to which he or she simultaneously belongs. It has two dimensions, namely overlap complexity (e.g. « *Quand vous pensez à tous les membres de votre tribu, combien sont également membres de votre groupe religieux?* » (When you think of all the members of your tribe, how many are also members of your religious group?) and similarity complexity (e.g. « *En général, l'individu typique de votre tribu est très similaire à l'individu typique de votre groupe professionnel* » (In general, the typical individual of your tribe is very similar to the typical individual in your professional group). The set of SIC items, constructed on the basis of preliminary studies by Roccas and Brewer (2002), generally take into account four important identities to which the participant identifies at the level of GEQ. The overlap complexity measure uses a 10-point Likert-type response format, ranging from 0 (none) to 9 (all). It is reliable ($\alpha=.91$; $\omega=.92$). The similarity complexity measure, on the other hand, uses a 7-point response format, ranging from 1 (strongly agree) to 7 (strongly disagree). This scale is also reliable ($\alpha=.87$; $\omega=.87$).

2.4. Data Analysis Procedure

In this study, the statistical software SPSS.27 (Statistical Package for Social Sciences) was used to manage missing values by automatically replacing them with the mean of the series. This software also made it possible to code sociodemographic variables. The JASP.17.1 software (Jeffreys's Amazing Statistics Program) was used to perform descriptive statistics (Means and Standard Deviations), determine Pearson coefficients (r) and explore the factorial structure of the DPIOMI scale. To analyze the quality of the items in order to reduce the instrument based on the relationships between all the manifest variables and the latent factors and their level of validity, multivariate statistical techniques such as exploratory factor analyzes (EFA) using the rotation method orthogonal Varimax were applied. The scree plot (Cattell, 1966), the explained variance of the factor model and the factor loadings were estimated (Raykov & Marcoulides, 2011). Measures of Sampling Adequacy (MSA; Kaiser, 1974) and Bartlett's chi-square (χ^2) were also determined. These methods made it possible to summarize and extract the latent factors of the DPIOMI. Items with very low loadings ($FC \leq .30$) were considered for deletion (Boateng et al., 2018). To give the most credence to the reliability of the scale, the present research followed the recommended ideal procedure (Boateng et al., 2018), which consists of constructing the

scale on a first sample, whether cross-sectional or longitudinal, then to test it on a second independent sample. The reliability of the elements and that of the latent factors explored, as well as the complete correlation of the corrected manifest variables (CI-TC) were evaluated using the alpha (α) models of Cronbach (1951) and the omega (ω) models of McDonald (1999) in both samples.

The confirmatory test of the first and second order factor structure and the analysis of the invariance of the DPIOMI scale are carried out under JASP.17.1 by executing the Lavaan syntax. The overall fit of all confirmatory factor models (CFA) was tested using the chi-square goodness-of-fit test. This test was supplemented by alternative adjustment indicators (Kline, 2016). Among these fit indicators, the Tucker-Lewis Index (TLI) is based on the idea of comparing the proposed factor model to a model in which no relationship is assumed between the variables, while the fit coefficient Comparative Fit Index (CFI) is an incremental relative fit index that measures the relative improvement in the fit of the developed model compared to that of a reference model (Boateng et al., 2018; Hu & Bentler, 1999). The CFI index ($CFI \geq .95$, acceptable fit) and the TLI index ($TLI \geq .95$, reasonable fit), the Root Mean Square Error of Approximation ($RMSEA \leq .08$, reasonable fit) and the Standardized Root Mean Square Residual ($SRMR \leq .06$, acceptable fit) were examined. The developed latent and manifest variable measurement models were improved based on the model modification indices. Factor loadings are acceptable from .40 (Hu & Bentler, 1999). A higher order factorial structure, in which the correlations between the main factor (DPIOMI) and its three latent factors (PIE, PIS and PIC) were established and its structural adjustment coordinates were determined (Boateng et al., 2018).

The DPIOMI scale equivalence test establishes evidence of configural (the model is the same across groups in qualitative terms), metric (equality of factor loadings between groups), and scalar invariances (unbiased statistical comparison of the means on the latent constructs) of this scale among men and women. It checks whether the men and women in the sample will respond in the same way overall to the same items of the DPIOMI scale. This test makes it possible to verify whether this scale does not suffer from a problem of measurement equivalence between groups, as is often the case with certain psychometric scales. Metric invariance was tested by constraining the factor loadings to intergroup equality, by labeling the loadings in the Lavaan syntax. Comparison of relative fits of multi-group CFA models using scaled Chi-square (χ^2) difference tests was performed (Kline, 2016). A value of $\Delta\chi^2$ was calculated. If it is insignificant ($p > .05$), this indicates that there is metric invariance. The ΔCFI was estimated and a value of $\Delta CFI < .01$ indicates a parsimonious model constrained by equality (Cheung & Lau, 2012; Cheung & Rensvold, 2002). The AIC/BIC value was calculated and the lowest value indicates the best compromise between model fit and model complexity (van de Schoot et al., 2012). Since metric

invariance does not allow comparing scores on latent factors between groups, this involves comparing structural relationships between latent variables between groups. To ensure scalar invariance, the average scores on the three DPIOMI factors were compared without bias and the intercepts were introduced so as to label the two sexes identically, in order to constrain them to be equal.

In addition to validating the scale structure, the DPIOMI is predicted by intergroup cognitions and affects. Thus, the correlation coefficients and the linear regression model involving the latent and manifest variables were estimated by

running the Lavann syntax from the JASP software 17.1. A general explanatory model of the perceived social inclusion of LGBTQ minorities involving the latent variables was carried out using AMOS.23. Based on all these results, PIOMI was summarized through a summary model of its application in highly heteronormative contexts.

3. Results

3.1. Exploratory Tests of Latent Factors of the Internal Structure of the DPIOMI Scale

Table 1. Item statistics of the DPIOMI scale

<i>Three-Factors</i>							
<i>Factor 1 : Perceived Inclusive Enumeration (PIE)</i>	FL	MS A	M (SD)	Shapiro- Wilk	I-RC	α	ω
<i>1. Selon vous, environ combien de personnes LGBTQ y-a-t-il dans votre tribu ?</i> (According to you, approximately how many LGBTQ people are there in your tribe?)	.80	.85	.96 (1.39)	.68***	.65	.90	.89
<i>2. Selon vous, environ combien de personnes LGBTQ y-a-t-il dans votre groupe linguistique (Anglophones/Francophones) ?</i> (According to you, approximately how many LGBTQ people are there in your linguistic group (Anglophones/Francophones)?)	.82	.82	1.28 (1.63)	.75***	.61	.90	.90
<i>3. Selon vous, environ combien de personnes LGBTQ y-a-t-il dans votre groupe professionnel (c'est-à-dire les étudiants de l'Université de Dschang) ?</i> (According to you, approximately how many LGBTQ people are there in your professional group (i.e. students at the University of Dschang)?)	.64	.84	1.18 (1.76)	.67***	.66	.90	.89
<i>4. Selon vous, environ combien de personnes LGBTQ y-a-t-il dans votre groupe religieux (Catholiques/Protestants/Musulmans etc.) ?</i> (According to you, approximately how many LGBTQ people are there in your religious group (Catholics/Protestants/Muslims etc.)?)	.65	.92	1.11 (1.66)	.67***	.67	.90	.89
<i>Factor 2 : Perceived Inclusive Similarity (PIS)</i>							
<i>1. À votre avis, environ combien de personnes LGBTQ ressemblent-elles aux membres de votre tribu?</i> (Approximately how many LGBTQ people do you think are like people in your tribe?)	.77	.84	1.15 (1.66)	.71***	.70	.89	.90
<i>2. À votre avis environ combien de personnes LGBTQ ressemblent-elles aux membres de votre groupe linguistique (Francophones/Anglophones) ?</i> (In your opinion, approximately how many LGBTQ people resemble members of your linguistic group (Francophones/Anglophones)?)	.73	.90	1.18 (1.66)	.70***	.70	.89	.89
<i>3. À votre avis environ combien de personnes LGBTQ ressemblent-elles aux membres de votre groupe professionnel (les étudiants de l'Université de Dschang) ?</i> (In your opinion, approximately how many LGBTQ people are like the members of your professional group (students at the University of Dschang)?)	.85	.83	1.22 (1.78)	.70***	.73	.89	.89
<i>4. À votre avis environ combien de personnes LGBTQ ressemblent-elles aux membres de votre groupe religieux (Catholiques/Protestants/Musulmans)?</i> (Approximately how many LGBTQ people do you think are like members of your religious group (Catholics/Protestants/Muslims)?)	.75	.86	1.03 (1.78)	.62***	.58	.90	.90
<i>Factor 3 : Perceived Inclusion Core (PIC)</i>							
<i>1. Quand vous pensez à toutes les personnes LGBTQ, combien en incluez-vous (acceptez-vous d'intégrer) comme membres de votre tribu ?</i> (When you think of all LGBTQ people, how many do you include (accept to be integrated) as members of your tribe?)	.69	.9	.70 (1.46)	.53***	.60	.90	.90
<i>2. Quand vous pensez à tous les personnes LGBTQ, combien en incluez-vous (acceptez-vous d'intégrer) comme membres de votre groupe linguistique (Francophones/Anglophones) ?</i> (When you think of all LGBTQ people, how many do you include (do you accept to be integrated) as members of your linguistic group (Francophones/Anglophones)?)	.76	.85	.87 (1.61)	.59***	.60	.90	.90
<i>3. Quand vous pensez à tous les personnes LGBTQ, combien en incluez-vous (acceptez-vous d'intégrer) comme membres de votre groupe professionnel</i>	.85	.83	.81	.56***	.68	.90	.89

(*étudiants de l'Université de Dschang*) ? (When you think of all LGBTQ people, how many do you include (accept to be integrated) as members of your professional group (students at the University of Dschang)?)

(1.59)

4. Quand vous pensez à tous les personnes LGBTQ, combien en incluez-vous (acceptez-vous) comme membres de votre groupe religieux

(*Catholiques/Protestants/Musulmans etc.*) ? (When you think of all LGBTQ people, how many do you include (accept) as members of your religious group (Catholics/Protestants/Muslims etc.))

.59 .84 1.01
(2.05) .55*** .53 .90 .91

Statistics of items dropped

	FL		MSA	M (SD)	Shapiro-Wilk	I-RC	α	ω	
	F1	F2							
1. D'après vous, environ combien de membres de votre tribu sont des personnes LGBTQ ? (In your opinion, approximately how many members of your tribe are LGBTQ people?)	-	-	.91	.77 (1.27)	.63***	.59	.79	.79	
2. Selon vous, environ combien de membres de votre groupe linguistique (Anglophones/Francophones) sont-ils des personnes LGBTQ? (According to you, approximately how many members of your linguistic group (Anglophones/Francophones) are LGBTQ people?)	.55	.48	.92	1.14 (1.56)	.74***	.75	.74	.75	
3. Selon vous, environ combien de membres de votre groupe religieux (Catholiques/Protestants/Musulmans, etc.) sont-ils des personnes LGBTQ? (According to you, approximately how many members of your religious group (Catholics/Protestants/Muslims, etc.) are LGBTQ people?)	.57	.45	.88	1.08 (1.74)	.65***	.72	.74	.75	
4. Selon vous, environ combien de membres de votre groupe professionnel (les étudiants de l'Université de Dschang) sont-ils des personnes LGBTQ ? (According to you, approximately how many members of your professional group (students at the University of Dschang) are LGBTQ people?)	.59	.46	.91	1.15 (1.56)	.73***	.68	.76	.77	
5. À votre avis environ combien d'hétérosexuels ressemblent-ils aux personnes LGBTQ? (Approximately how many heterosexuals do you think are similar to LGBTQ people?)	.48	.40	.90	1.53 (2.18)	.71***	.41	.86	.87	
χ^2	Df	p-value	Factors scale	MSA	Eigenvalues	Cumulative %	Scale	ω	α
163.3	66	p< .001	F1	.81	5.8	.48	F1	.90	.90
			F2	.79	1.22	.58	F2	.87	.87
			F3	.76	1.02	.67	F3	.85	.85
			Overall	.86			Overall scale	.90	.91

Note. Factor Loadings, MSA=Measure of Sampling Adequacy; M=Mean; SD=Standard deviation; I-RC=Item-Rest Correlation; α=Cronbach's alpha; ω=McDonald's gamma; Df=Degree of freedom.

Exploratory factor analyzes summarize the structure of the DPIOMI into three factors: *Perceived Inclusive Enumeration* (PIE), *Perceived Inclusive Similarity* (PIS) and *Perceived Inclusion Core* (PIC). On the basis of the factor loadings, the structure of the scale went from 17 items (the unifactorial version) to 12 (the trifactorial version), i.e. 4 items for each of the three factors. These elements are those which make it possible to finely capture the degree of perceived inclusion of the identity plurality of the LGBTQ outgroup in the identity plurality of the heterosexual ingroup, and whose factor loadings vary between .48 and .85 (see Table 1). It is this logic which underlies the elimination of the five (05) items, four (04) of which had double factor loadings greater than .40 while one (01) did not saturate with any factor (Nunnally, 1978). This indicates that factor loadings do not vary uniquely (Boateng et al., 2018).

The descriptive statistics also indicate that the items

retained have average distributions which vary from .70 to 1.28. These low average trends indicate very low inclusion of LGBTQ people in the different participants' ingroups. The reliability indices of the extracted items and factors are acceptable. Those of the items vary between .89 and .90 according to the Cronbach alpha method (Cronbach, 1951) and between .89 and .91 according to the McDonald method (McDonald, 1999). According to these reliability estimation methods, the DPIOMI factors are reliable. The same is true for the global scale (see Table 1). Inter-item relationships range from .53 to .70. These statistical parameters indicate that the 12 observed factors summarize the internal structure of the DPIOMI measurement into 3 latent factors constituting a three-factor model with Eigenvalues varying between 5.8 to 1.02. The variance explained by the three-factor model is estimated at 67% (see Table 1); hence the scree plot graph in Figure 1.

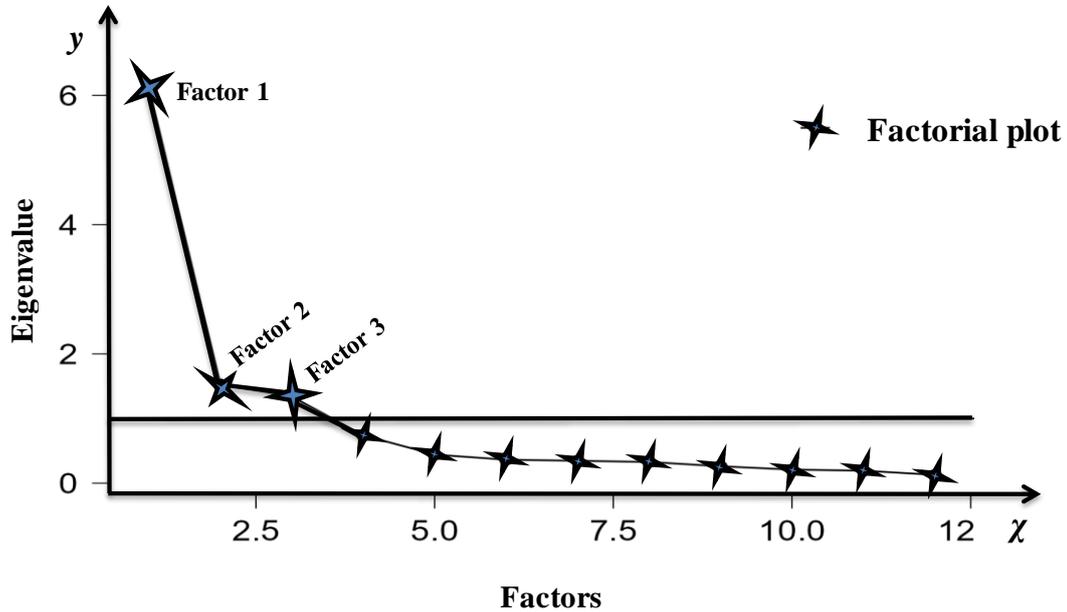
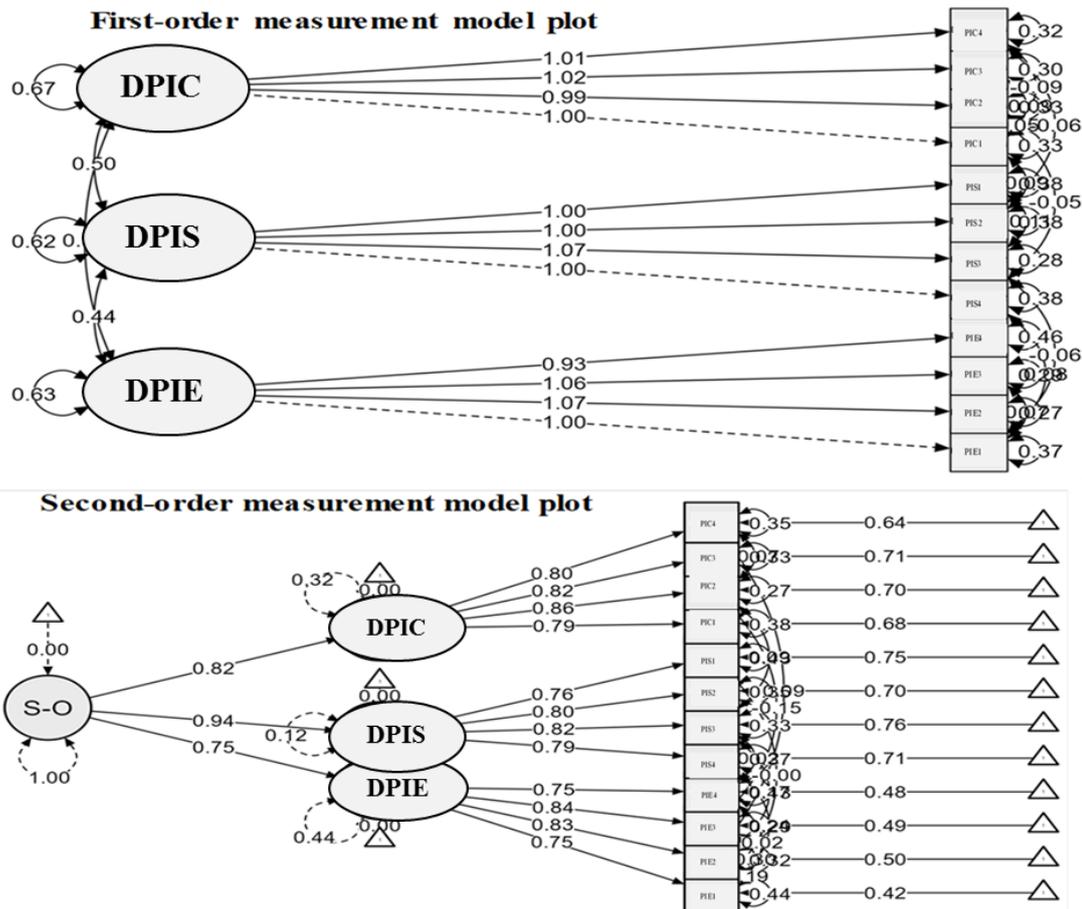


Figure 1. Scree plot



Note. S-O=Second-Order factor; DPEI=Degree of Perceived Inclusive Enumeration; DPIS=Degree of Perceived Inclusive Similarity; DPIC=Degree of Perceived Inclusion Core; **First-order measurement model plot:** χ^2 (df)=105.638(41), $p < .001$, CFI=.982, TLI=.972, AIC=12274.745, BIC=12680.875; RMSEA [90% CI]=.04 [.04, .07], SRMR=.033; **Second-order measurement model plot:** χ^2 (df)=189.47(40), $p < .001$, CFI=.959, TLI=.933, AIC=18894.582; BIC=19101.791; RMSEA [90% CI]=.06 [.07, .08], SRMR=.035

Figure 2. First and second-order confirmatory tri-factor structures (CFA) of the Degree of Perceived Inclusion of an Outgroup Members within individuals’ Ingroups scale

The scree plot describes a clear break in the curve of the manifest variables retained according to the eigenvalues of the three-factor model explored. Indeed, when reading the graph, we observe that the curve decreases, presenting a clear break from PIE (Factor 1) to PIC (Factor 3). The Eigenvalues vary between 5.80 and 1.02, thus indicating a variation in the factorial information relating to the percentage of the degree of inclusion of the plurality of the identities of LGBTQ people in the plurality of the identities of the participants.

3.2. Confirmatory, Invariance, Construct, Discriminant and Predictive Validities Tests of the DPIOMI Scale

The results of these analyzes come from sample B of the study and are obtained from the measurements administered during the confirmation phase of the factorial structure of the scale.

3.2.1. CFA-SEM of the Structure of the DPIOMI Scale

First-order confirmatory factor analyzes report an acceptable fit of the factor structure to the empirical sample data ($\chi^2(df)=105.638(41)$, $p<.001$, CFI=.982, TLI=.972, AIC=12274.745, BIC=12680.875; AIC/BIC=.96; RMSEA [90%CI]=.04 [.04, .07], SRMR=.033). The factor loadings reflecting the factor relationships between the manifest variables and the corresponding latent variable are acceptable ($>.40$). They vary between .93 and 1.07 for the DPIE, between .10 and 1.07 for the DPIS and between .99 and 1.02 for the DPIC (see Figure 2, First-order measurement model plot).

The data test the higher-order factor structure in which the main latent construct (the DPIOMI) is related to its latent factors which, in turn, are related to the manifest variables intended to represent them (see Figure 2, Second-order measurement model plot). Thus, the results report that the latent psychological construct (DPIOMI) measured on three latent factors is positively linked to these factors, with high factorial weights (tending towards 1), which vary between .75 and .94. The DPIE, DPIS and DPIC saturate at .84, .82 and .86 respectively. The factor loadings of all the manifest factors vary between .75 and .86. This higher-level confirmatory factor structure adequately fits the empirical data ($\chi^2(df)=189.47(40)$, $p<.001$, CFI=.959, TLI=.933, AIC=18894.582; BIC=19101.791, AIC/BIC=.98; RMSEA [90% CI]=.06 [.07, .08], SRMR=.035). These factorial data confirm the fact that the 12 items of the DPIOMI scale validated in the present research effectively assess this degree of inclusion of the LGBTQ outgroup within participants' ingroups. They summarize the factorial structure of this scale into 3 latent factors. Despite these adequate metric coordinates, it is important to evaluate the factorial stability of this measure, in particular by comparing the factorial data of women to those of men.

3.2.2. Measurement Equivalence Analyses of the DPIOMI by Gender (Male vs. Female)

The configural invariance test indicates that the DPIOMI factor model presents acceptable fit indices; which guarantees that in general the three-factor DPIOMI measurement model applies to the two categories compared ($\chi^2(df)=216.90(82)$, $p<.001$; CFI=.965, TLI=.944). In qualitative terms, this pattern is the same in men and women. The RMSEA value argues for a better fit of the configural model (RMSEA [95%CI]=.08 [.07, .09], SRMR=.04). The value of the AIC/BIC ratio is relatively low (AIC/BIC =.98), which shows that the configural model justifies an acceptable compromise between the adjustment of the model and the complexity of the model. Metric invariance compares factor loadings between groups. The results indicate that the observed variables of the tested factor model correlate positively with the latent factors. The indices saturate at 1 in both groups and the chi-square difference is not significant ($\Delta\chi^2=25.37$; $\Delta df=18$; $p>.05$). This supports the existence of metric invariance of the DPIOMI scale. This metric model constrains a better fit (CFI=.96; TLI=.95). The RMSEA value is favorable for an excellent fit of the metric model (RMSEA [90%CI]=.07 [.06, .09], SRMR=.05). The ΔCFI is less than .01 ($\Delta CFI =.002<.01$); which indicates a parsimonious model constrained by equality. These results support the metric invariance of the DPIOMI scale. We conclude that men and women interpret the items of this measure in the same way.

The scalar invariance test is established by comparing the average structure of the metric model to that of the scalar model. Table 2 presents the factor means reflecting the means on the latent factors of the DPIOMI of the men's group (varying between .63 and 1.50) and those of the women's group (varying between .88 and 1.53). These average scores do not present significant differences. Likewise, the intercepts are equal between these groups ($\chi^2(df)=242.27(123)$, $p<.001$; CFI=.96; TLI=.96). The chi-square difference is very small and not significant ($\Delta\chi^2=-1.2\times 10^{-12}$; $\Delta df=23$; $p>.05$) and the value of the AIC/BIC ratio is very low (AIC/BIC=.977). The ΔCFI difference test indicates that the scalar model is parsimonious ($\Delta CFI=-.006<.01$). This value indicates that there is a better accommodation between the fit and the complexity of the scalar model. Thus, these two categories of heterosexuals (men and women) interpret the items of the DPIOMI scale in the same way. The Root Mean Square Error Approximation (RMSEA) better represents the adequacy of the model not only to the population of heterosexuals, but also to the sample of heterosexuals surveyed. The RMSEA value is very low, indicating a better fit of the scalar model (RMSEA [90%CI]=.06 [.05, .07], SRMR=.05). These data support the hypothesis of scalar invariance of the validated scale. Considering all these results of structural stability of the DPIOMI scale, we conclude that this instrument presents acceptable psychometric parameters. Therefore, it can be recommended in the evaluation of DPIOMI in heterosexual males and females. The present research also ensures the construct, discriminant and predictive validities of this measure.

3.2.3. Test of Construct and Discriminant Validities of the DPIOMI Scale

The construct validity of the DPIOMI scale tests the idea that the three extracted latent factors (PIE, PIS, and PIC) are both positively and significantly related to each other and to the higher order factor structure (main factor DPIOMI). The correlation test indicates that the three factors extracted from the DPIOMI scale are positively and significantly correlated

with each other ($p < .001$). These factors are positively and significantly ($p < .001$) related to the DPIOMI (see Table 2). This result thus supports the construct validity of this instrument as the confirmation test could report. The discriminant validity of the DPIOMI scale is ensured by providing evidence of the existence of dissimilarities via very weak or negative relationships between this instrument and SIC subscales: OC and SC (see Table 3 and Figure 3).

Table 2. Adjustment of the (first order) measurement model to empirical data following the test of metric and scalar invariances

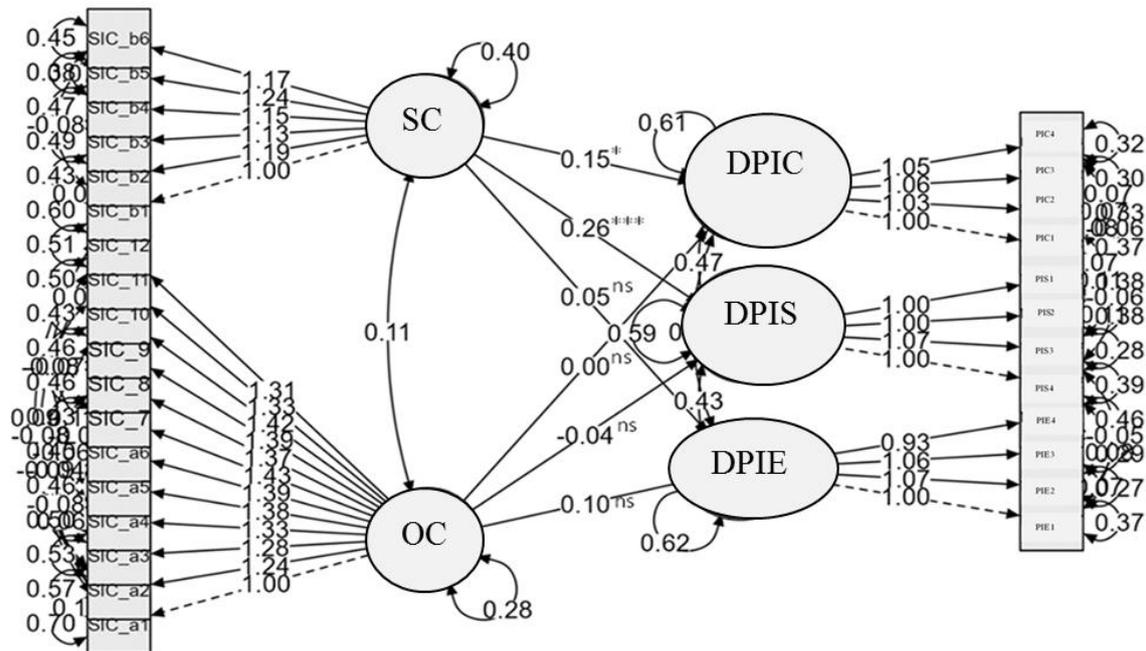
Model	Information criteria	Baseline test		Fit indices			Difference test			
	AIC/BIC	χ^2 (df)	p	CFI	Δ CFI	TLI	RMSEA [95%CI] SRMR	$\Delta\chi^2$	Δ df	p
Configural	.967	216.90(82)	< .001	.965		.94	.08 [.07, .09] .04			
Metric	.971	242.27(100)	< .001	.963	.002	.95	.07 [.06, .09] .05	25.37	18	.11
Scalar	.977	242.27(123)	< .001	.969	-.006	.96	.06 [.05, .07] .05	-1.2×10^{-12}	23	.1

Note. N=466; n₁=235 Male and n₂=231 Female; *** p<.001; AIC=Akaike Information Criteria; BIC=Bayesian Information Criteria; CFI=Comparative Fit Index; TLI=Tucker-Lewis Index; RMSEA=Root Mean Square Error of Approximation; CI=Confidence Interval; Model 1=Metric model; Model 2=Scalar model.

Table 3. Pearson’s correlation test measuring construct and discriminant validities

Central and sub-latent factors scale	1	2	3	3	4	5
DPIOMI	†					
DPIE	.86***	†				
DPIS	.89***	.69***	†			
DPIC	.84***	.53***	.62***	†		
Similarity complexity (SC)	.12**	.10*	.17***	.04	†	
Overlap Complexity (OC)	.05	.03	.04	.07	.31***	†

Note. * p<.05, ** p<.01, *** p<.001; DPIOMI=Degree of Perceived Inclusion of an Outgroup Members within individuals’ Ingroups; DPIE=Degree of Perceived Inclusive Enumeration; DPIS=Degree of Perceived Inclusive Similarity; DPIC=Degree of Perceived Inclusion Core.



Note. χ^2 (df)=785.24(368), $p < .001$; CFI=.94, TLI=.93, RMSEA [95%CI]=.04 [.04, .054]; SRMR=.04; DPIOMI=Degree of Perceived Inclusion of an Outgroup Members within individuals’ Ingroups; DPIE=Degree of Perceived Inclusive Enumeration; DPIS=Degree of Perceived Inclusive Similarity; DPIC=Degree of Perceived Inclusion Core; SC=Similarity Complexity; OC=Overlap Complexity.

Figure 3. Discriminant validity of the DPIOMI scale in the structural relation model

On the one hand, the results (see Table 3 and Figure 3) indicate non-significant and very weak linear and structural relationships between OC and PIE ($\beta=.10$, $SE=.08$, $Z=1.26$, $p>.05$; 95% CI [-.05, .26]), PIS ($\beta=-.03$, $SE=.07$, $Z=-.45$, $p>.05$; 95% CI [-.19, .11]) and PIC ($\beta=.00$, $SE=.08$, $Z=.04$, $p>.05$; 95% CI [-.15, .16]). On the other hand, the results reveal very weak and significant linear and structural relationships between SC and PIS ($\beta=.26$, $SE=.07$, $Z=3.70$, $p<.001$; 95% CI [.12, .40]) and PIC ($\beta=.15$, $SE=.07$, $Z=2.13$, $p<.05$; 95% CI [.01, .28]). SC is very weakly and insignificantly related to PIS ($\beta=.05$, $SE=.07$, $Z=.73$, $p>.05$; 95% CI [-.08, .19]). These results provide support for the discriminant validity of the DPIOMI scale. Which means that DPIOMI scale is different from SIC.

3.2.4. Predictive Validity of the DPIOMI Scale: Structural Relationships between Cognitions, Intergroup Affects and DPIOMI

The descriptive data (see Table 4) presents the average distributions of participants' tendencies relating to the variables measured in the study. In the analysis, each average trend is compared to the median score of the corresponding measure. When the sample mean trend is greater than the median score of the measure, it indicates that participants exhibit the trait assessed by the measure. In fact, we observe, initially, that the average distributions of the participants on the DPIOMI scale and on its dimensions are lower than the

corresponding median scores. Their trend on the general DPIOMI is very weak compared to the median score ($M=13.42 < \text{median score}=60$; $SD=15.92$). In the same vein, they obtain very low averages for the DPIE ($M=4.79 < \text{median score}=14$; $SD=6.09$), the DPIS ($M=5.07 < \text{median score}=14$; $SD=5.90$) and the DPIC ($M=3.55 < \text{median score}=14$; $SD=6.49$). These results indicate that participants (heterosexuals) do not include LGBTQ people in their different ingroups. Following the logic of PIOMI, this trend reflects a very low tolerance towards LGBTQ people. It is explained through the measures of intergroup cognitions and affects presented in Table 4. Indeed, the explanatory variables measured reveal high average trends compared to the average scores of each measure administered. These are anomic threat ($M=15.74 > \text{median score}=10.5$; $SD=4.56$), conspiracy beliefs about LGBTQ people ($M=25.91 > \text{median score}=21$; $SD=9.50$), degree of identification as heterosexual ($M=5.33 > \text{median score}=3.50$; $SD=2.20$), negative emotions towards LGBTQ people ($M=67.16 > \text{median score}=52.50$; $SD=21.55$), prejudice towards LGBTQ people ($M=16.55 > \text{score median}=10.50$; $SD=4.84$), daily discrimination towards LGBTQ people ($M=9.69 > \text{median score}=7$; $SD=3.99$), opposition to the rights of LGBTQ people ($M=10.49 > \text{median score}=7$; $SD=3.81$), attitudes towards physical aggression against LGBTQ people ($M=8.93 > \text{median score}=7$; $SD=3.77$) and hostility towards them ($M=12.29 > \text{median score}=10.50$; $SD=5.79$).

Table 4. Preliminary Descriptive and correlational statistics

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
1. DPIOMI	~~												
2. DPIE	.85***	~~											
3. DPIS	.88***	.69***	~~										
4. DPIC	.84***	.53***	.62***	~~									
5. Anomie	-.11*	-.09*	-.05ns	-.14**	~~								
6. CB	-.04ns	-.01ns	.005ns	-.09*	.52***	~~							
7. DI	-.15**	-.14**	-.07ns	-.16***	.20***	.07***	~~						
8. Emotions	-.25***	-.2***	-.14**	-.30***	.37***	.33***	.31***	~~					
9. Prejudice	-.17***	-.13**	-.09*	-.22***	.36***	.22***	.38***	.50***	~~				
10. DDis	-.15***	-.13**	-.06ns	-.18***	.33***	.27***	.24***	.62***	.47***	~~			
11. OLR	-.17***	-.16***	-.12**	-.16***	.37***	.19***	.41***	.45***	.68***	.45***	~~		
12. PhA	-.17***	-.18***	-.08ns	-.19***	.25***	.23***	.16***	.65***	.34***	.60***	.33***	~~	
13. HTL	-.17***	-.16***	-.10*	-.17***	.26***	.32***	.06*	.67***	.22***	.50***	.23***	.61***	~~
Items	12	4	4	4	3	6	1	15	3	2	2	2	3
Scale median	60	20	20	20	10.5	21	3.50	52.5	10.5	7	7	7	10.5
Mean	13.422	4.79	5.07	3.55	15.74	25.91	5.33	67.16	16.55	9.69	10.49	8.93	12.29
SD	15.923	6.09	5.90	6.49	4.56	9.50	2.20	21.55	4.84	3.99	3.81	3.77	5.79
Shapiro-Wilk	.78***	.76***	.80***	.61***	.90***	.97***	.73***	.95***	.84***	.88***	.83***	.93***	.93***

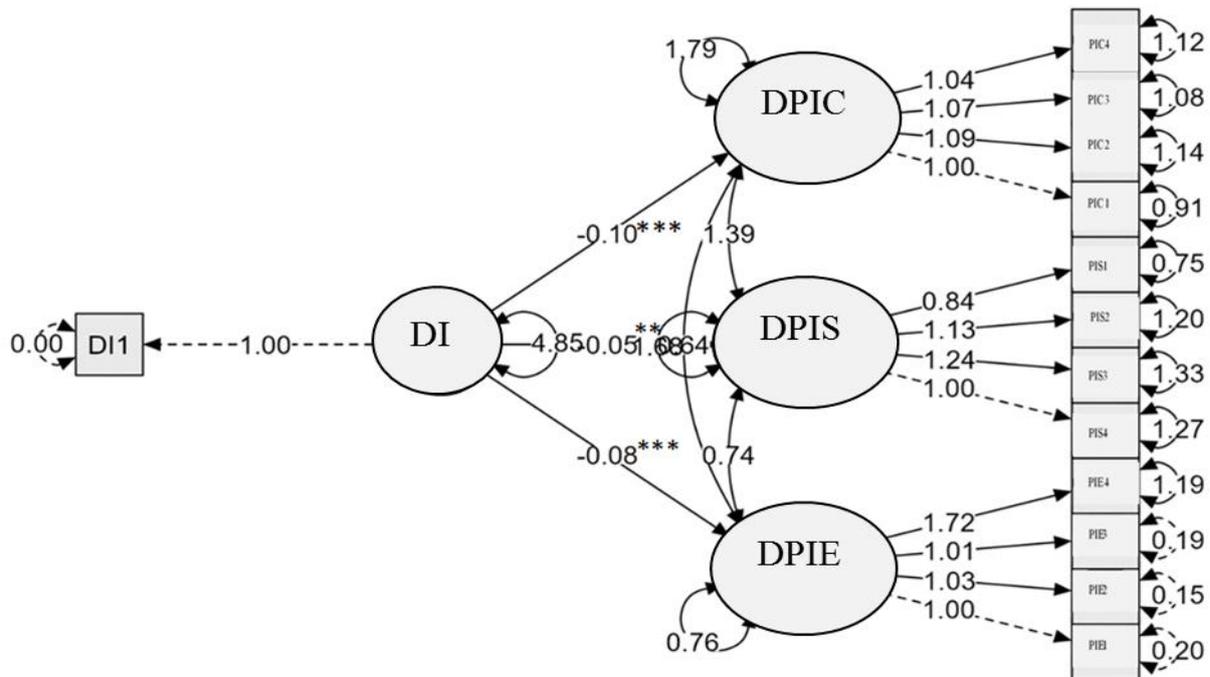
Note. * $p<.05$. ** $p<.01$. *** $p<.001$, ns=non-significant; DPIOMI=Degree of Perceived Inclusion of an Outgroup Members within individuals' Ingroups; DPIE=Degree of Perceived Inclusive Enumeration; DPIS= Degree of Perceived Inclusive Similarity; DPIC=Degree of Perceived Inclusion Core; DI=Degree of Identification as heterosexual; OLR=Opposition LGBTQ Rights; DDis=Daily Discrimination; PhA=Physical Aggression; HTL=Hostility Towards LGBTQ; CB=Conspiracy Beliefs about LGBTQ people; Anomie=Anomic Threat.

The analysis of the linear relationships between the study variables reveals that overall the DPIOMI is negatively and significantly related to the intergroup cognitions and affects assessed. Its dimensions are also negatively and significantly associated with these factors (see Table 4). In fact, DPIE is negatively and significantly linked to identification as heterosexual ($p<.01$), anomic threat ($p<.05$), negative emotions towards LGBTQ people ($p<.001$), prejudice ($p<.01$), daily discrimination ($p<.01$), opposition to the rights of LGBTQ people ($p<.001$), their physical aggression ($p<.001$) and hostility towards them ($p<.001$). We observe a negative and non-significant relationship between DPIE and conspiracy beliefs ($p>.05$). In the same sense, the DPIS has a very weak, positive and non-significant link with conspiracy beliefs ($p>.05$). It also has negative and non-significant links with anomic threat, identification as heterosexual, daily discrimination and physical aggression of LGBTQ people ($p>.05$). DPIS is negatively and significantly associated with negative emotions ($p<.01$), prejudice ($p<.05$), opposition to the rights of LGBTQ people ($p<.01$), and hostility towards them ($p<.05$). The DPIC is, for its part, negatively linked to anomic threat ($p<.01$), conspiracy beliefs ($p<.05$), identification as heterosexual ($p<.001$), negative emotions ($p<.001$), prejudice ($p<.001$), daily discrimination ($p<.001$), opposition to the rights of

LGBTQ people ($p<.001$), physical aggression of these people ($p<.001$) and hostility towards them ($p<.001$). In view of all these results, it is important to study the structural relationships reflecting the causal relationships between all these variables and the DPIOMI, in order to provide explanations for the perceived low inclusion of LGBTQ people in the plurality of heterosexual identities; hence the analysis of structural equation models.

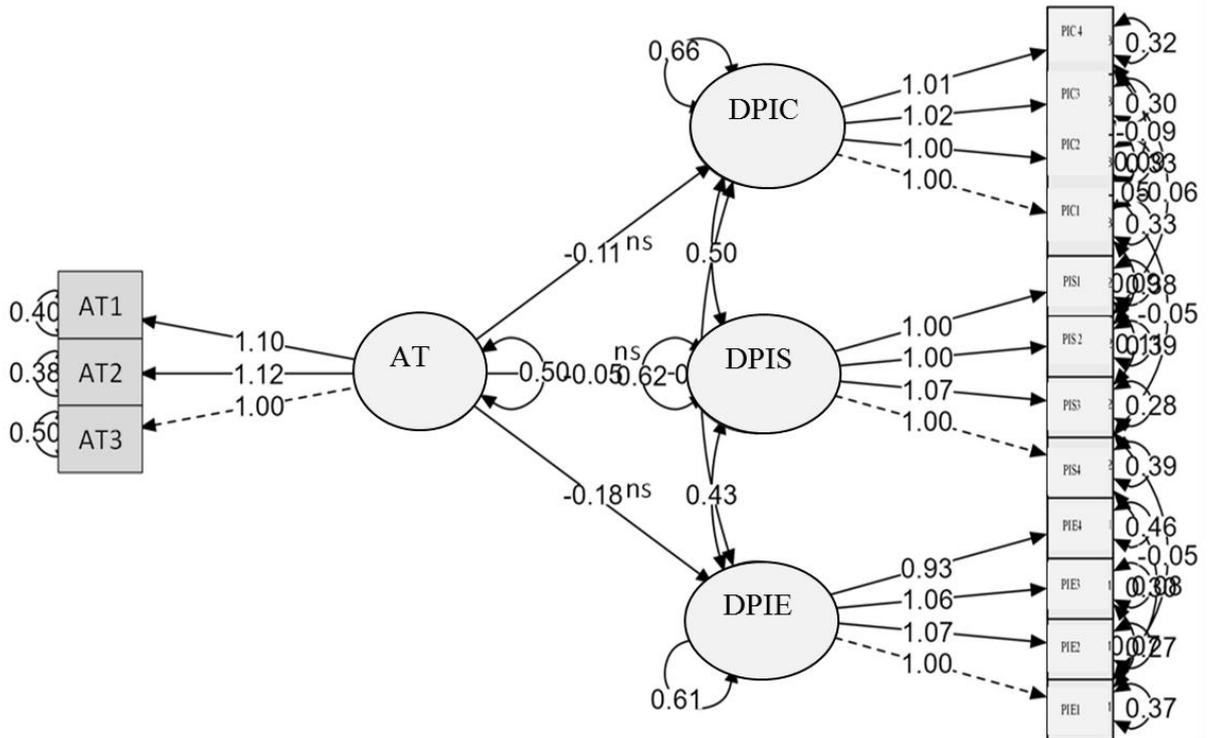
3.2.4.1. High Degree of Identification as Heterosexual as a Source of low DPIOMI

This structural model explains the weak perceived inclusion of the identity plurality of LGBTQ people in the identity plurality of the participants, due to their strong identification as heterosexuals. Linear regression indices indicate that this strong identification explains a significant drop in DPIE ($\beta=-.08$, $SE=.01$, $Z=-4.75$, $p<.001$; 95% CI [-.11, -.04]), DPIS ($\beta=-.05$, $SE=.01$, $Z=-2.62$, $p<.01$; 95% CI [-.08, -.01]) and DPIC ($\beta=-.10$, $SE=.02$, $Z=-4.38$, $p<.001$; 95% CI [-.14, -.05]). Following the logic of the PIOMI, these results support the idea that the degree of identification as heterosexual significantly reduces inclusive tolerance towards LGBTQ people.



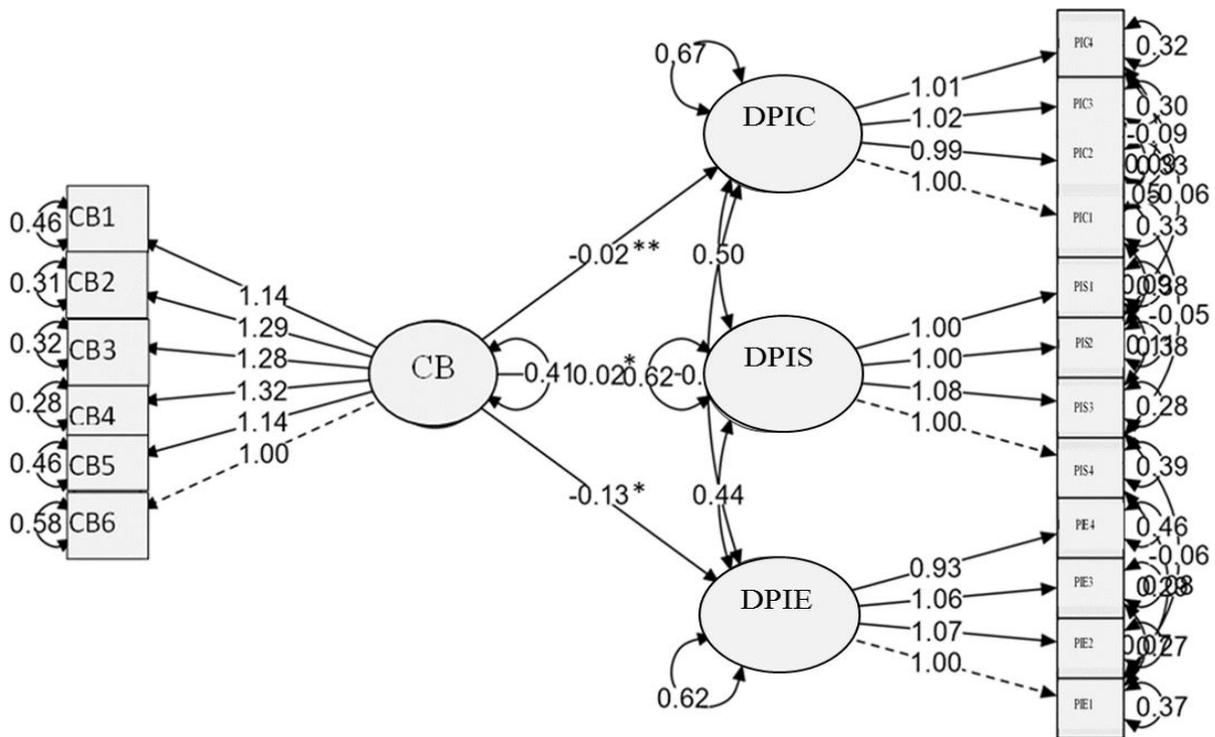
Note. *** $p<.001$, ** $p<.01$, * $p<.05$; DI=Degree of Identification as heterosexual; DPIE=Degree of Perceived Inclusive Enumeration; DPIS=Degree of Perceived Inclusive Similarity; DPIC=Degree of Perceived Inclusion Core; $\chi^2(df)=268.63(60)$, $p<.001$; CFI=.99, TLI=.99; RMSEA [95% CI]=.01[.00, .03], SRMR=.03

Figure 4. Model of explanation of DPIOMI by the degree of identification as heterosexual



Note. *** $p < .001$, ** $p < .01$, * $p < .05$, ns=non-significant; AT=Anomic Threat; DPIOMI=Degree of Perceived Inclusion of an Outgroup Members within individuals' Ingroups; DPIE=Degree of Perceived Inclusive Enumeration; DPIS= Degree of Perceived Inclusive Similarity; DPIC=Degree of Perceived Inclusion Core; $\chi^2(df)=168.884(74)$, $p < .001$; CFI=.98, TLI=.97, RMSEA [95% CI]=.05 [.042, .063], SRMR=.038

Figure 5. Model of explanation of DPIOMI by anomic threat



Note. *** $p < .001$, ** $p < .01$, * $p < .05$; CB=Conspiracy beliefs about LGBTQ people; DPIOMI=Degree of Perceived Inclusion of an Outgroup Members within individuals' Ingroups; DPIE=Degree of Perceived Inclusive Enumeration; DPIS= Degree of Perceived Inclusive Similarity; DPIC=Degree of Perceived Inclusion Core; $\chi^2(df)=268.27(119)$; $p < .001$; CFI=.97, TLI=.96, RMSEA[95% CI]=.05 [.04, .06], SRMR=.04

Figure 6. Structural model of the prediction of a low DPIOMI by conspiracy beliefs about LGBTQ people

3.2.4.2. Anomic Threat as a Source of a Low DPIOMI

The structural model in Figure 5 explains the low level of perceived inclusion of LGBTQ people in participants’ ingroups by the anomic threat they feel. Indeed, this threat is negatively associated with DPIE ($\beta=.18$, $SE=.06$, $Z=-2.89$, $p>.05$; 95% CI [-.30, -.05]), DPIS ($\beta= -.05$, $SE=.06$, $Z=-.78$, $p>.05$; 95% CI [-.16, .07]) and DPIC ($\beta=-.11$, $SE=.06$, $Z=-1.76$, $p>.05$; 95% CI [-.23, .01]). From the perspective of PIOMI, these relationships indicate that the anomic threat (i.e. the disintegration as lack of trust and erosion of moral standards/deregulation as lack of legitimacy and effectiveness of leadership; Teymoori *et al.*, 2016, 2017) represented by LGBTQ people induces low tolerance among participants towards them. The related model presents a better fit to the reality of the heteronormative context ($\chi^2(df)=168.88(74)$, $p<.001$; CFI=.98, TLI=.97, RMSEA [95% CI]=.05 [.04, .06], SRMR=.03).

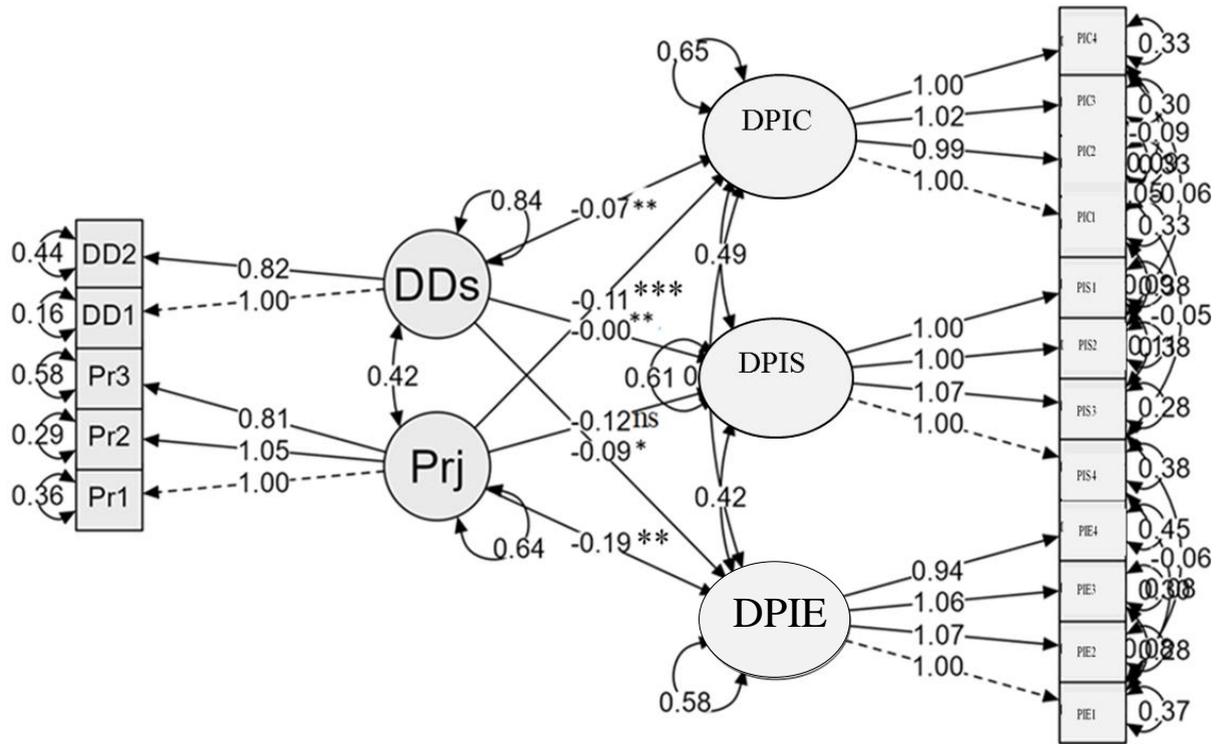
3.2.4.3. Conspiracy Beliefs about LGBTQ People as a Predictor of a Low DPIOMI

The results of the model in Figure 6 report that participants’ belief in the existence of an LGBTQ conspiracy explains the low perceived inclusion of the socio-identity plurality of LGBTQ people in their socio-identity plurality. This model adequately fits the data from the highly heteronormative context ($\chi^2(df)=268.27(119)$; $p<.001$; CFI=.97, TLI=.96, RMSEA[95%CI]=.05 [.04, .06], SRMR=.04). We observe weak regression coefficients indicating that conspiracy

beliefs are a significant inhibitory factor of DPIE ($\beta=-.13$, $SE=.06$, $Z=-2.10$, $p<.05$, 95% CI[-.26, -.00]), DPIC ($\beta=-.02$, $SE=.06$, $Z=-.37$, $p<.01$, 95% CI [-.15, .10]) and DPIS ($\beta=.01$, $SE=.06$, $Z=.27$, $p<.05$, 95% CI[-.10, .13]).

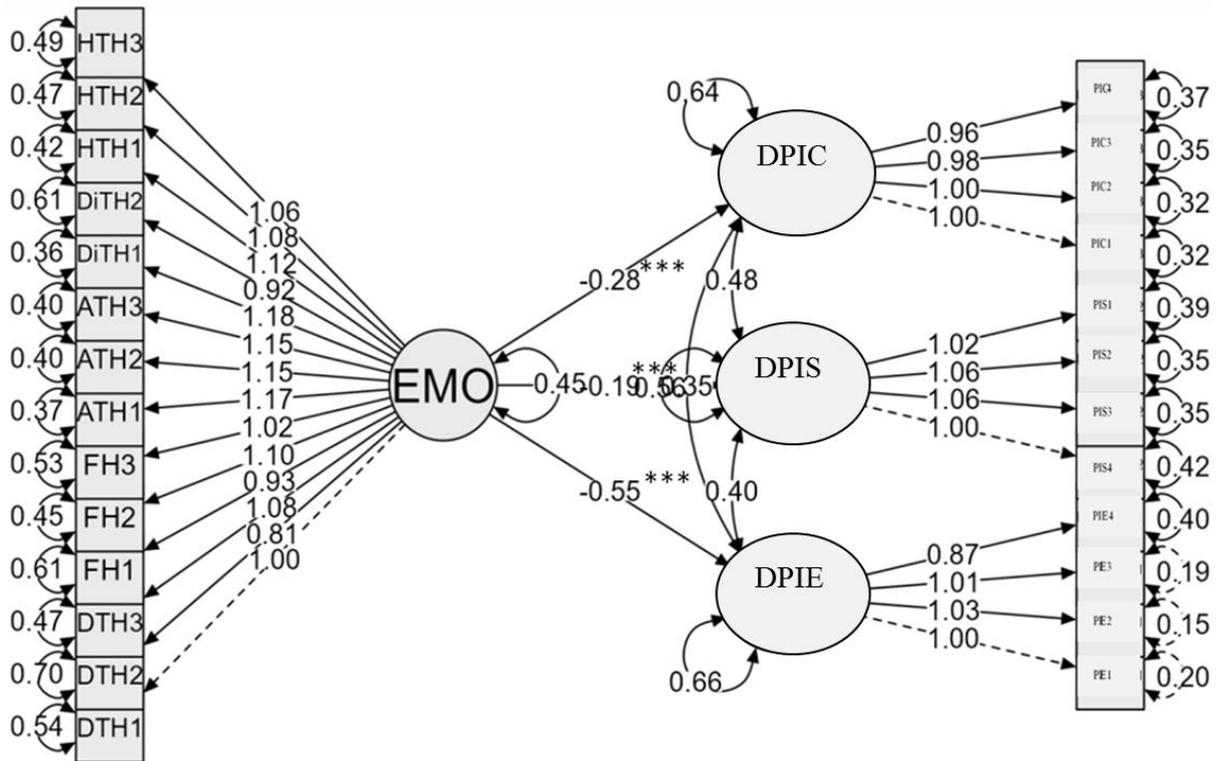
3.2.4.4. Prejudice and Daily Discrimination as Predictors of a Low DPIOMI

Prejudice and everyday discrimination against LGBTQ people non-significantly explains their low inclusion in participants’ ingroups, as indicated by the model data in Figure 7, which adequately fits the context of the study ($\chi^2(df)=195.13(99)$, $p<.001$, CFI=.97, TLI=.97, RMSEA [95% CI]=.04 [.03, .05], SRMR=.031). Indeed, prejudice against LGBTQ people contributes to very strong intolerance towards them. They are negatively and significantly related to DPIE ($\beta=-.19$, $SE=.06$, $Z=-2.82$, $p<.01$, 95% CI [-.32, -.059]) and DPIC ($\beta=-.11$, $SE=.07$, $Z=-1.63$, $p<.001$, 95% CI [-.25, .02]). They are, on the other hand, negatively and not significantly associated with DPIS ($\beta=-.11$, $SE=.06$, $Z=-1.74$, $p>.05$, 95% CI [-.25, .01]). Daily discrimination against LGBTQ people also significantly explains DPIOMI. Indeed, the relationship model establishes that daily discrimination of LGBTQ people significantly explains low DPIE ($\beta=-.07$, $SE=.06$, $Z=-1.23$, $p<.01$, 95% CI [-.19, .04]), low DPIS ($\beta=-.003$, $SE=.05$, $Z=-.05$, $p<.01$, 95% CI [-.11, .11]) and low DPIC ($\beta=-.09$, $SE=.05$, $Z=-1.57$, $p<.01$, 95% CI [-.20, .02]).



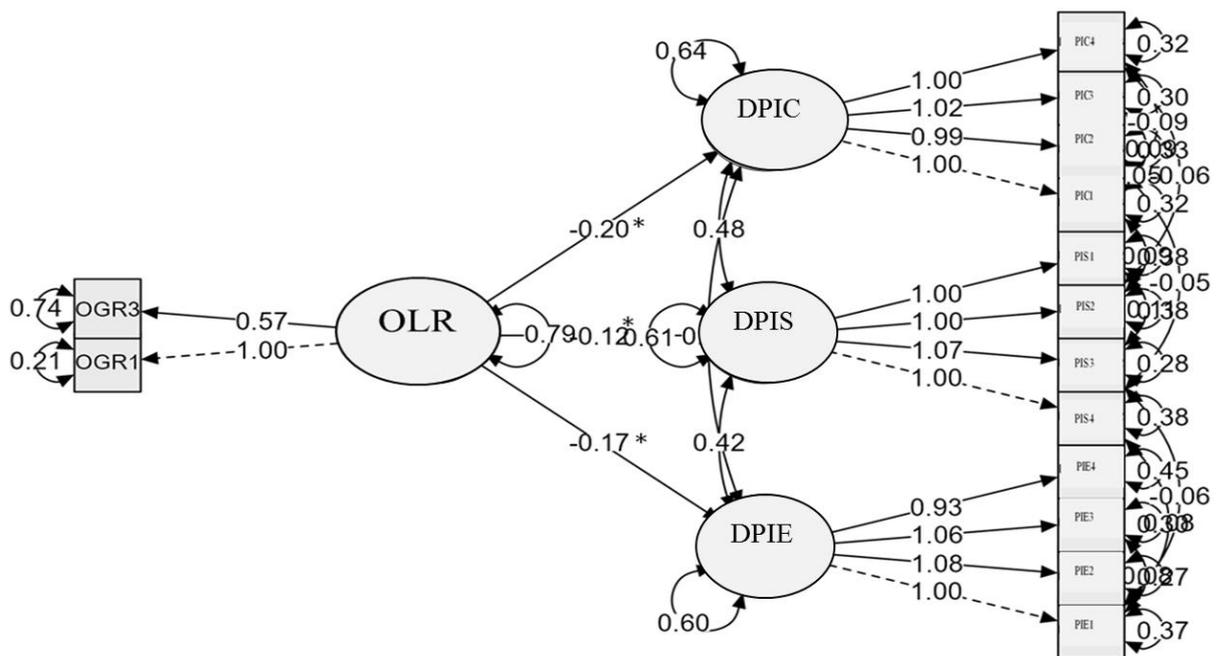
Note. *** $p<.001$, ** $p<.01$, * $p<.05$, ns=non-significant; Prej=Prejudice; DDs=Daily Discrimination; DPIOMI=Degree of Perceived Inclusion of an Outgroup Members within individuals’ Ingroups; DPIE=Degree of Perceived Inclusive Enumeration; DPIS=Degree of Perceived Inclusive Similarity; DPIC=Degree of Perceived Inclusion Core; $\chi^2(df)=195.13(99)$, $p<.001$, CFI=.97, TLI=.97, RMSEA [95% CI]=.04 [.03, .05], SRMR=.03

Figure 7. Predicting model of a low DPIOMI by prejudices and daily discrimination of LGBTQ people



Note. *** $p < .001$, ** $p < .01$, * $p < .05$; EMO=Emotions; DiTH=Distrust; FH=Fear; DTH=Disgust; ATH=Hatred; DPIOMI=Degree of Perceived Inclusion of an Outgroup Members within individuals' Ingroups; DPIE=Degree of Perceived Inclusive Enumeration; DPIS=Degree of Perceived Inclusive Similarity; DPIC=Degree of Perceived Inclusion Core; $\chi^2(df)=467.65(293)$; $p < .001$; CFI=1 ; TLI=.99 ; RMSEA [.00, .005]=.000, SRMR=.05

Figure 8. Negative emotions as predictors of a low DPIOMI



Note. *** $p < .001$, ** $p < .01$, * $p < .05$; OLR= Opposition to LGBTQ Rights; DPIOMI=Degree of Perceived Inclusion of an Outgroup Members within individuals' Ingroups; DPIE=Degree of Perceived Inclusive Enumeration; DPIS=Degree of Perceived Inclusive Similarity; DPIC=Degree of Perceived Inclusion Core; $\chi^2(df)=128.77(61)$, $p < .001$; CFI=.98, TLI=.97, RMSEA[95%CI]=.04 [.03, .06], SRMR=.03

Figure 9. Path relation between opposition to LGBTQ rights and DPIOMI

3.2.4.5. Negative Emotions towards LGBTQ People as a Source of a Low DPIOMI

The structural relationships of the model in Figure 8 indicate that negative emotions significantly induce a very low inclusion of the socio-identity plurality of LGBTQ people in the socio-identity plurality of the participants, as evidenced by the regression coefficients. Indeed, emotions significantly explain a low DPIE ($\beta=-.54$, $SE=.03$, $Z=-18.12$, $p<.001$; 95% CI [-.60, -.48]), a low DPIS ($\beta=-.19$, $SE=.01$, $Z=-11.94$, $p<.001$; 95% CI [-.22, -.16]) and a low DPIC ($\beta=-.27$, $SE=.01$, $Z=-14.27$, $p<.001$; 95% CI [-.31, -.23]). By relating each emotion to the overall DPIOMI, the results report that each emotion significantly predicted low DPIOMI. Concretely, we note negative and significant relationships between DPIOMI and fear ($\beta=-.17$, $p<.001$), distrust ($\beta=-.20$, $p<.001$), disgust ($\beta=-.14$, $p<.01$), anger ($\beta=-.21$, $p<.001$) and hatred ($\beta=-.31$, $p<.001$) towards LGBTQ people. We conclude that their exclusion from the participants’ ingroups is explained by the negative emotions felt towards them.

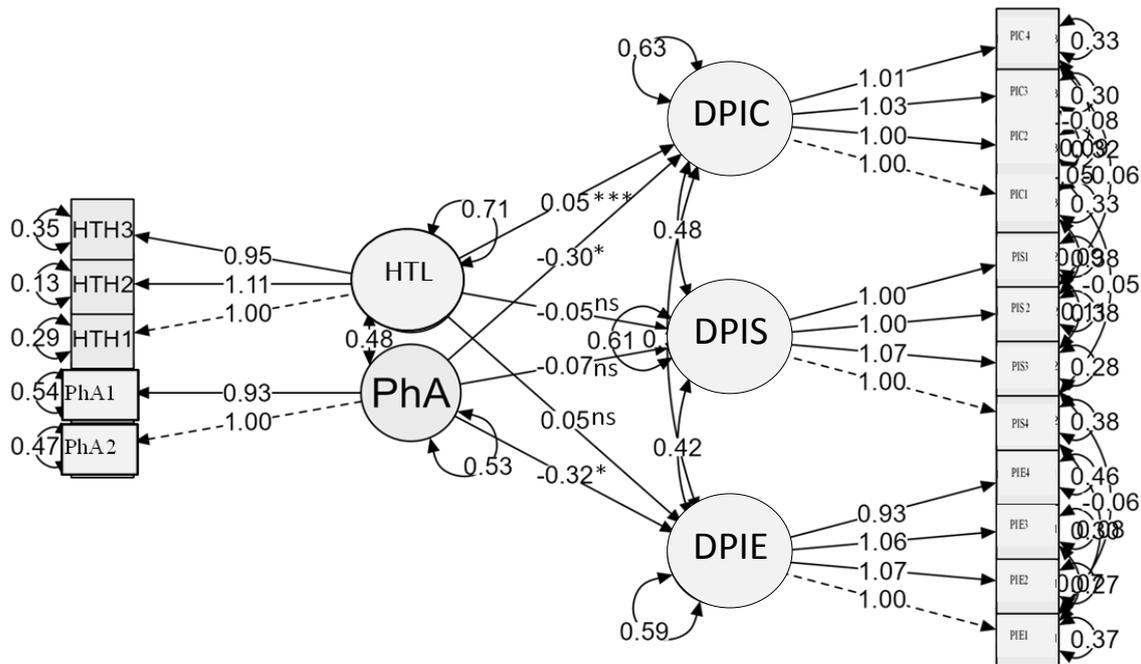
3.2.4.6. Opposition to LGBTQ Rights as an Explanation of a Low DPIOMI

This model presents a very good level of fit ($\chi^2(df)=128.77(61)$, $p<.001$; CFI=.98, TLI=.97, RMSEA[95%CI]=.04 [.03, .06], SRMR=.03) and reports significant asymmetric relationships between opposition to LGBTQ rights and the DPIE ($\beta=-.171$, $SE=.07$, $Z=-2.36$, $p<.05$, 95% CI [-.31, -.03]), DPIS ($\beta=-.12$, $SE=.06$, $Z=-1.99$, $p<.05$; 95% CI [-.24, -.002]) and DPIC ($\beta=-.20$, $SE=.08$, $Z=-2.54$, $p<.05$; 95% CI [-.363, -.04]). We therefore observe that the low perceived

inclusion of the socio-identity plurality of LGBTQ people in the socio-identity plurality of the heterosexual ingroup results from the contestation of the rights of LGBTQ people.

3.2.4.7. Physical Aggression and Hostility towards LGBTQ People as Predictors of a Low DPIOMI

This model reports that the exclusion of LGBTQ people from participants’ ingroups is predicted by participants’ hostility and aggressive tendencies towards these people. Indeed, the explanatory model (see Figure 10) of the DPIOMI indicates that hostility towards LGBTQ people is negatively and significantly related to the DPIC ($\beta=.05$, $SE=.11$, $Z=.44$, $p<.001$; 95% CI [-.17, .27]). It correlates negatively and not significantly with the DPIE ($\beta=.05$, $SE=.11$, $Z=.46$, $p>.05$; 95% CI [-.16, .27]) and negatively and not significantly with the DPIS ($\beta=-.05$, $SE=.10$, $Z=-.49$, $p>.05$; 95% CI [-.26, .15]). We also note that physical aggression has a negative and significant link with the DPIE ($\beta=-.32$, $SE=.145$, $Z=-2.21$, $p<.05$; 95% CI [-.60, -.03]) and the DPIC ($\beta=-.30$, $SE=.145$, $Z=-2.10$, $p<.05$; 95% CI [-.58, -.02]). On the other hand, we note that there is a non-significant negative relationship between physical aggression of LGBTQ people and the DPIS ($\beta=-.07$, $SE=.13$, $Z=-.54$, $p>.05$; 95% CI [-.34, .19]). We conclude that the DPIS is not significantly related to intergroup hostility and physical aggression. These two factors significantly induce a low DPIC. In short, hostility and physical aggression towards LGBTQ people significantly induce a low perceived inclusion of their multiple identities in the multiple identities of the participants.



Note. *** $p<.001$, ** $p<.01$, * $p<.05$, ns=non-significant; PhA=Physical Aggression of LGBTQ; HTL=Hostility Towards LGBTQ; DPIOMI=Degree of Perceived Inclusion of an Outgroup Members within individuals’ Ingroups; DPIE=Degree of Perceived Inclusive Enumeration; DPIS=Degree of Perceived Inclusive Similarity; DPIC=Degree of Perceived Inclusion Core; $\chi^2(df)=20.44(99)$, $p<.001$; CFI=.98, TLI=.97, RMSEA [95%CI]=.05 [.04, .06], SRMR=.03

Figure 10. Hostility and physical aggression as predictors of a low DPIOMI

3.3. DPIOMI Structural and Summary Models

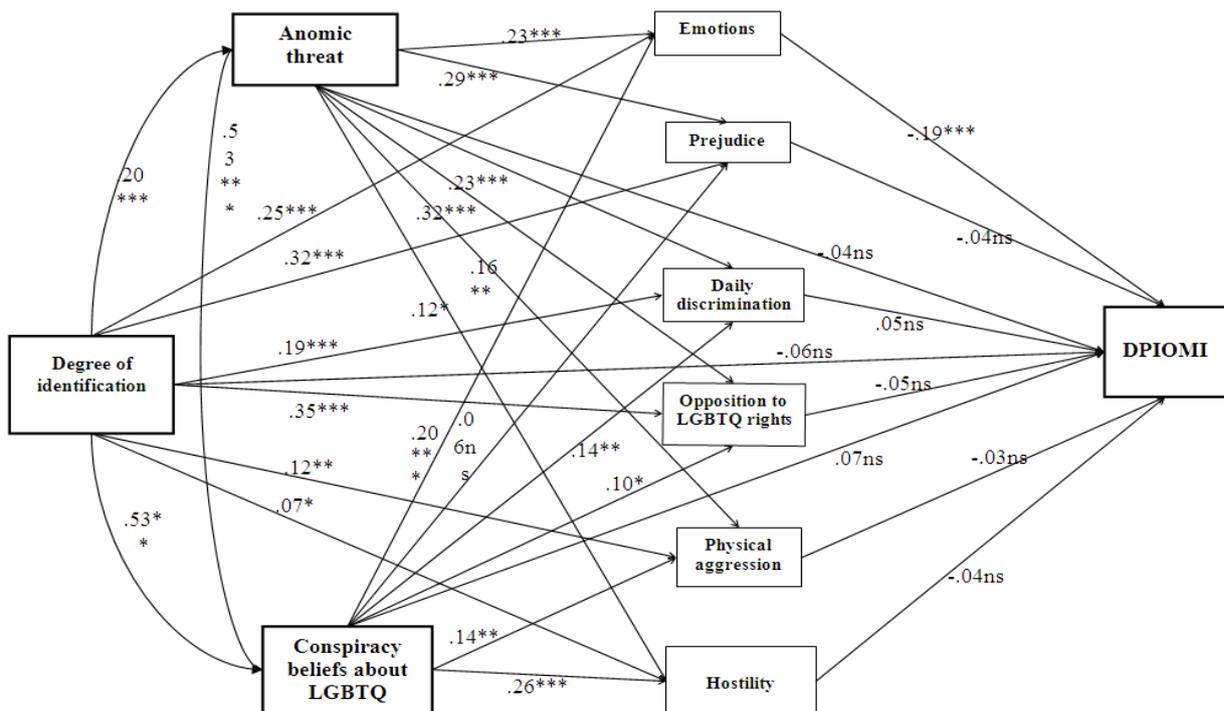
The model in Figure 11 makes it possible to analyze the impact of intergroup cognitions and affects towards LGBTQ people on the DPIOMI of heterosexuals in a highly heteronormative context. It mainly links identification as heterosexual to DPIOMI through a double mediation ensured firstly by anomic threat and conspiracy beliefs (see Dzuetsou Mouafo et al., 2023) and secondly by intergroup emotions, prejudices, daily discrimination of LGBTQ people, opposition to their rights, and hostility and physical aggression against them. In fact, the results report that the identification of participants as heterosexual is negatively and not significantly linked to DPIOMI ($\beta = -.06$, ns). This identification positively and significantly induces anomic threat ($\beta = .20$, $p < .001$) and conspiracy beliefs ($\beta = .53$, $p < .01$).

All these mediation relationships result in a low perceived inclusion of the socio-identity plurality of LGBTQ minorities within participants' ingroups (see Figure 11). Thus in a highly heteronormative context, marked by a strong identification of individuals as heterosexual, the perception of the anomic threat generated by LGBTQ minorities and conspiracy beliefs, as well as negative emotions ($\beta = -.19$, $p < .001$), prejudice ($\beta = -.04$, ns), discriminatory tendencies towards LGBTQ people ($\beta = .05$, ns), opposition to their rights ($\beta = -.05$, ns), hostility ($\beta = -.04$, ns) and physical aggression towards them ($\beta = -.03$, ns) explain their low degree of perceived inclusion in the participants' ingroups.

Analysis of the indirect relationship between identification as

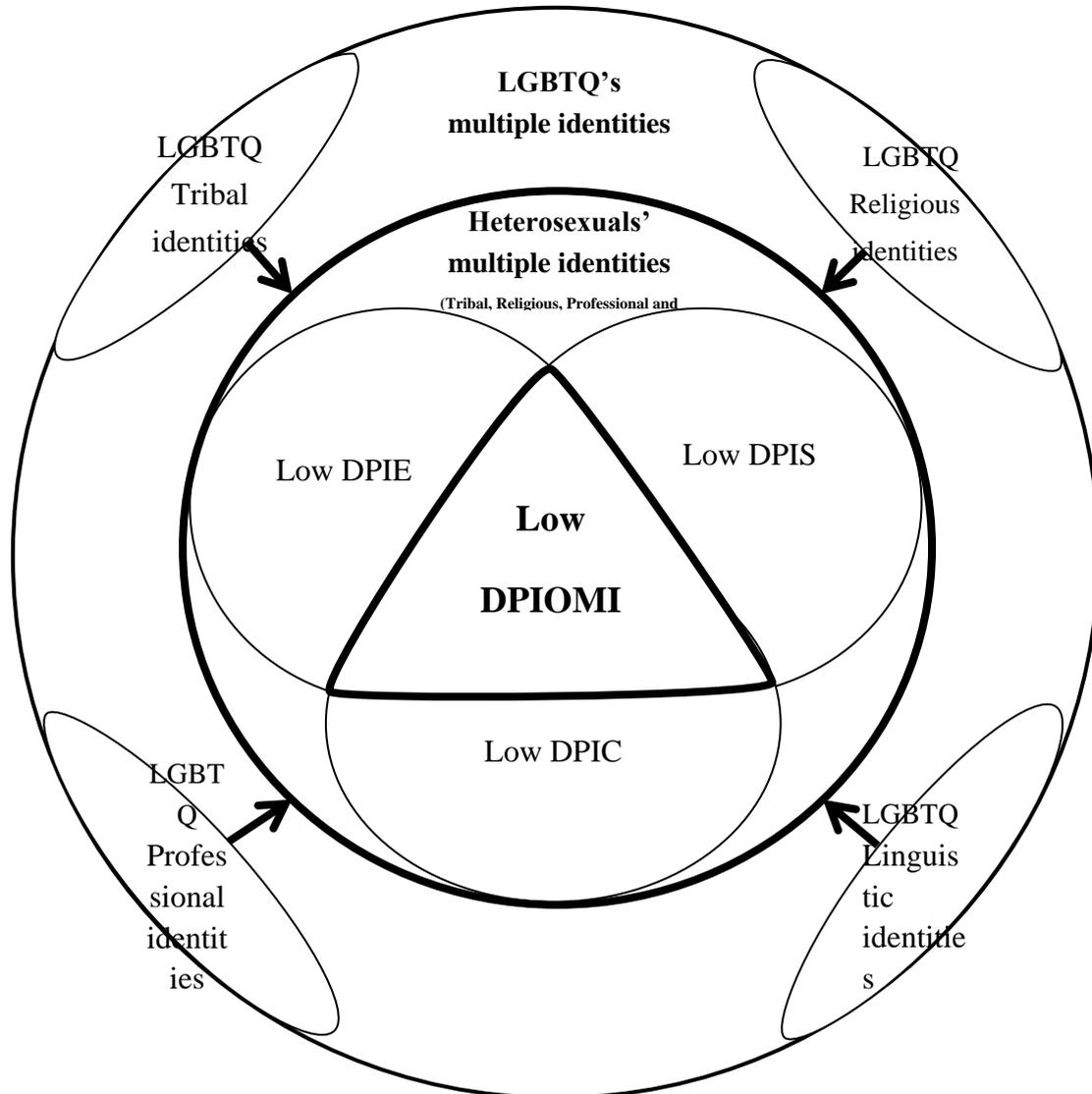
heterosexual and DPIOMI through anomic threat ($\beta = .000$), conspiracy beliefs ($\beta = .10$), emotions ($\beta = .05$), opposition to LGBTQ rights ($\beta = .06$), prejudice ($\beta = .05$), discrimination ($\beta = .05$), physical aggression ($\beta = .04$), and hostility toward LGBTQ people ($\beta = .04$) indicates very weak indirect effects. The indirect or total mediation relationship between identifying as heterosexual and DPIOMI is negative ($\beta = -.08$). We conclude that all these factors explain the low inclusion of LGBTQ people within the participants' ingroups; which reflects a strong intolerance towards them, according to the PIOMI theorization. The DPIOMI summary model accounts for this intolerance (see Figure 12).

This model summarizes the observations made in the present research regarding the inclination of heterosexuals to include LGBTQ people (the outgroup) in their tribal, religious, professional and linguistic ingroups. It reports a low DPIE due to the fact that participants perceive that there are: 1) few LGBTQ people who have the same tribal, linguistic, professional and religious identities as them (Low DPIE); 2) low inclusive similarity between LGBTQ people's multiple identities and their own (Low DPIS); and 3) low inclusion of LGBTQ people in their different ingroups (Low DPIC). Based on the triangulation of the relationships between the three dimensions of PIOMI, this model summarizes the tendencies of heterosexuals relating to PIOMI. This triangulation of perceived inclusion (see central triangle, Figure 12) indicates that, in general, heterosexuals very weakly include the multiple identities of LGBTQ people within their own multiple identities.



Note. * $p < .05$, ** $p < .01$, *** $p < .001$; ns=non-significant; DPIOMI=Degree of Perceived Inclusion of an Outgroup Members within individuals' Ingroups; SIE=Standardized Indirect Effects.

Figure 11. General explanatory model of the perceived inclusion of LGBTQ minorities in heterosexual ingroups



Note. 1) The thick, dark circle represents the intergroup boundary between heterosexuals and LGBTQ people; 2) the arrows leading from the identities towards the intergroup boundary indicate that each dimension of the PIOMI takes into account each identity at the intergroup level; 3) the heterosexual perceiving group must include the multiple identities of the perceived LGBTQ outgroup in its multiple identities from the three dimensions of the PIOMI; 4) the inclusion of the multiple identities of the outgroup is analyzed taking into account the intersection or triangulation between the Degree of Perceived Inclusive Enumeration (DPIE), the Degree of Perceived Inclusive Similarity (DPIS) and the Degree of Perceived Inclusion Core (DPIC).

Figure 12. Summary model of the perceived inclusion of the outgroup members (LGBTQ) in the participants' (heterosexuals) ingroups in a highly heteronormative context

From the perspective of theorizing PIOMI as a measure of tolerance, we can conclude that there is a low degree of tolerance (or a high degree of intolerance) towards LGBTQ people in the empirical research context, which can be considered highly heteronormative (see Dzuetso Mouafo *et al.*, 2023), or even homophobic (see Gueboguo, 2006). We observe that the participants, by excluding LGBTQ people from their different ingroups, carry out a form of protection of the said groups, through low DPIE, DPIS and DPIC. In this case, these three dimensions of PIOMI can be considered as participating in a strategy of strengthening the tightness of intergroup boundaries to curb the (anomic) threat represented by the outgroup. In doing so, participants consider that LGBTQ people do not belong to their tribal,

religious group, professional group or linguistic groups. They only belong to the LGBTQ group and no other. So we can say that they are just LGBTQ people and nothing else.

4. Discussion

The objective of the present study was to theorize and measure the Perceived Inclusion of an Outgroup Members within individuals' Ingroups (PIOMI). To do this, the present research proceeded with the construction and validation of a scale to measure the Degree of Perceived Inclusion of an Outgroup within individuals' Ingroups (DPIOMI scale), designed as a measure of intergroup tolerance through the perceived inclusion of the multiple identities of the outgroup

into the multiple identities of the ingroup. Churchill's (1979) paradigm guided the process of constructing this instrument (Boateng et al., 2018); resulting in a tool comprising seventeen (17) elements. This measure was designed and administered in a highly heteronormative context with heterosexual people. After collecting the data, its validation first focused on the exploration of its factorial structure (EFA) and the analysis of the quality of its items. Exploratory analyzes reduced and summarized the content of this measure to twelve (12) items grouped into three latent factors, based on Eigenvalues and factor loadings. These factors assess aspects of tolerance towards the LGBTQ outgroup by the heterosexual ingroup through the DPIE, the DPIS and the DPIC. The EFAs revealed satisfactory psychometric properties. The factors explored and the overall scale are reliable from the point of view of alpha and omega methods (Cronbach, 1951; McDonald, 1999).

The validation of the DPIOMI scale focused on the confirmatory evaluation of its factorial structure, its invariance, as well as its construct, discriminant and predictive validities. The evaluation of the confirmatory structure and adequacy was carried out through systematic procedures allowing the determination of satisfactory and statistically significant cut-off values supporting the structure of the DPIOMI scale (Boateng et al., 2018; Hu & Bentler, 1999). The equivalence test of this measure revealed satisfactory metric properties, consistent with the standards defined by the psychometric literature (Cheung & Rensvold, 2002; Kline, 2016). Consequently, evidence of invariance of the factor structures of this scale has been established (Byrne, 1989; Jöreskog & Sörbom, 2004; Vandenberg & Lance, 2000). Finally, analyses of the relationships between the dimensions of the DPIOMI and the overall DPIOMI supported the construct validity of this measure (Nunnally, 1978). Results reported dissimilarities between DPIOMI and SIC, another measure of multiple identities. They also indicated that the low DPIOMI observed among heterosexuals is due to several factors, including identification as heterosexual, anomic threat, conspiracy beliefs, negative emotions towards LGBTQ people, as well as prejudice, discrimination, opposition to rights, hostility and physical aggression towards them. Overall, these results reveal that the heterosexual ingroup is intolerant of the LGBTQ outgroup; hence the fact that participants do not include the multiple identities of LGBTQ people in their multiple identities. Thus, while they were given the opportunity to perceive LGBTQ people as individuals with identities other than that relating to their sexual orientation, participants preferred to perceive them solely from the point of view of identity singularity, making them only LGBTQ people and nothing else.

Preliminary work on SIC reports that situations of threat which weigh on one of the perceiver's membership categories do not affect the non-threatened categories, due to the fact that in this type of situation, individuals opt for a clear redefinition of intergroup boundaries (Roccas & Brewer, 2002). The results of the present research do not go in the

same direction as this observation. Indeed, participants present a low degree of inclusion of the multiple identities of LGBTQ people in their multiple identities, which reflects a form of protection of their non-threatened identities and therefore of the corresponding ingroups. This is what Renström et al. (2022) are referring to by invoking the notion of protection of ingroups, which goes hand in hand with the feeling of threat and conspiracy beliefs. Indeed, contrary to the observations of researches on SIC, in the context of the present study, the situation of identity threat relating to sexual orientation stimulates the protection of non-threatened identities (tribal, professional, linguistic and religious) by the bias of excluding LGBTQ people from these identities. Concretely, the participants behave as if these people did not belong to any group other than that of LGBTQ people. In other words, they would not be from any tribal, professional, religious or linguistic group. The control variables measured, relating to cognitions and affects about LGBTQ people, provide an explanation for this protection of non-threatened ingroups. Indeed, participants, who strongly identify with the heterosexual group, feel the threat of LGBTQ people and believe in conspiracy theories about these people. This inclines them to feel negative emotions (e.g. fear, disgust, hatred), to be hostile, to be prejudiced and to behave in a discriminatory and aggressive manner towards LGBTQ people (see Dzuetso Mouafo, 2023; Dzuetso Mouafo et al., 2023; Messanga & Sonfack, 2017). All of these elements result in a low DPIOMI which, in this case, is assimilated to an individuals' desire to prevent the threat relating to sexual orientation from spreading to their other identities (see Figure 12).

One of the criticisms made by the present research to models of multiple identities, including SIC, was that they themselves neutralized (involuntarily from our point of view) perceivers' socio-identity plurality during the assessment of their tolerance towards the outgroup; thus paradoxically falling back into the socio-identity unidimensionality whose criticism was the foundation of their existence. In this context, the advantage of the PIOMI is that it is not a predictor of tolerance like SIC, but a measure of tolerance by the inclusion of the socio-identity plurality of the outgroup in the socio-identity plurality of the ingroup. Consequently, while SIC neutralizes the identity plurality of the ingroup and the outgroup due to a methodological defect, PIOMI allows us to observe a potential neutralization of this plurality through the representations that the ingroup members have of the outgroup. Concretely, the results of this study indicate that it is the heterosexuals themselves who have neutralized the plurality of the social identity of LGBTQ people, by not including them in any of their multiple identities. Consequently, despite the constant maintenance of the identity plurality of the two groups, the participants neutralized the identity plurality of the outgroup, due to the threat, cognitions and affects relating to the said group. These observations provide empirical support for the thesis that in situations of threat, individuals have an inclination towards clearly

circumscribed intergroup boundaries (Roccas & Brewer, 2002), presumably because any intrusion by outgroup members within the ingroup is likely to increase this threat and therefore the vulnerability of the ingroup. The exclusion of LGBTQ people from the various participants’ ingroups goes in this direction, and is explained by means of the control variables measured (see Table 4 and Figure 11).

The literature on LGBTQ people living in heteronormative contexts reveals the diversity of repulsive, violent and discriminatory attitudes and behaviors of which they are victims (Dzuetso Mouafo *et al.*, 2023; Gulevich *et al.*, 2018; Lyonga, 2022; Messanga & Sonfack, 2017). This work explains the negative correlations between the DPIOMI, its three dimensions and participants’ attitudinal, behavioral and emotional negativity towards LGBTQ people (see Table 4). For the present study, this negativity explains the low DPIOMI observed in the participants. As a reminder, this low DPIOMI reflects the exclusion of LGBTQ people from the different identities of the participants. In this vein, these results suggest that unlike SIC methodological approach where the researcher neutralizes the socio-identity plurality of both ingroup and outgroup due to the activation of the salience of a single identity marker of the outgroup, the PIOMI offers the perceiver the latitude to neutralize or not the multiple identities of the perceived. This means that with PIOMI, the neutralization of the multiple identities of members of the outgroup is attributable to the participant and not to the methodological procedures implemented by the researcher; this neutralization is perceptible through the DPIOMI, which is an indicator of tolerance towards this outgroup.

The present research hoped to provide an explanation for the breakdown of SIC as a predictor of tolerance in situations where the outgroup represents a threat to the ingroup, as is the case in post-conflict contexts (see Hall, 2014). This is why it was interested in the social inclusion of LGBTQ people in the highly heteronormative context of Cameroon; LGBTQ people belonging to a community that polarizes negative affects, cognitions and behaviors in this context (Dzuetso Mouafo, 2023; Dzuetso Mouafo *et al.*, 2023). That community is therefore strongly cleaving. The data collected in this study report that this cleavage impacts the tolerance of heterosexuals towards LGBTQ people, as evidenced by their almost systematic exclusion from participants’ ingroups, which make them people without any tribal, religious, professional or linguistic group. However, in reality, LGBTQ people do belong to these social categories; which makes them individuals just as plural as heterosexuals. The emphasis on their single identity as LGBTQ people reduces the complexity of their multiple memberships by accentuating differences between categories (Maalouf, 1996/2003). This tendency worsens when the context tends to accentuate this dichotomy (Brewer, 2001) between LGBTQ and heterosexual people, as is the case in the present research, conducted in a highly heteronormative context (see Dzuetso Mouafo *et al.*, 2023; Gulevich *et al.*, 2018; Tjipto *et al.*, 2019).

5. Limitations and Perspectives

One of the major limitations of the present study concerns the generalizability of the results to other contexts, in particular those where intergroup divisions are less extreme than those which were highlighted in this research between LGBTQ and heterosexual people in the Cameroonian highly heteronormative context, considered by the literature as one of the most difficult in the world for LGBTQ people (see for example Human Rights Campaign Foundation & Human Rights First, 2014). Indeed, salient dichotomous intergroup contexts have the capacity to exacerbate differentiation between categories (Brewer, 2001), and therefore impact individuals’ inclination towards intergroup positivity. Thus, even if they constitute a real challenge for research in the fields of peace psychology or social psychology of intergroup relations, it remains that there are less cleaving intergroup contexts capable of revealing other realities than those that were highlighted in this study. Regarding the psychometric limits of the DPIOMI scale, the study did not establish evidence of residual and structural invariance of this measure. It validated this instrument with a sample consisting solely of Cameroonians. It would be interesting for future research to address these limitations by validating this tool in other socio-political and cultural contexts.

Declarations

Conflict of Interest

This research was conducted in the absence of any attitude or behavior that could be interpreted as a potential conflict of interest.

Authors’ Contributions

Monique Pélagie Tsogo À Bebouraka designed the research project and participated in writing the sections of the manuscript relating to multiple identities, SIC, and PIOMI. She also constructed the DPIOMI scale and discussed the results of the study.

Achille Vicky Dzuetso Mouafo participated in writing the section of the manuscript relating to the social inclusion of LGBTQ people in heteronormative contexts. She also participated in the discussion of the results and the proofreading of the manuscript.

Sylvestre Nzeuta Lontio carried out all the statistical analyses of the research.

Gustave Adolphe Messanga participated in writing sections of the manuscript relating to multiple identities, SIC, PIOMI, social inclusion of LGBTQ people in heteronormative contexts and in the discussion of the results.

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Data Availability Statement

The raw data supporting the conclusions of this research will be made available by the authors, without any undue reservation.

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