



Stigmatization of ‘gay-sounding’ voices: The role of heterosexual, lesbian, and gay individuals’ essentialist beliefs

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Voice-based sexual orientation (SO) judgements can prompt group-based discrimination. However, the relationships between stigmatization and essentialist beliefs about vocal cues to SO have not been researched. Two studies examined heterosexuals’ and gay men’s and lesbian women’s essentialist beliefs about voice as a cue of SO to uncover essentialist beliefs’ role in the perpetration and experience of stigma. In Study 1 ($N = 363$), heterosexual participants believed voice was a better cue to SO for men than for women, and participants’ belief in the discreteness, immutability, and controllability of ‘gay-sounding’ voices was correlated with higher avoidant discrimination towards gay-sounding men. In Study 2 ($N = 147$), endorsement of essentialist beliefs about voice as a SO cue was associated with self-perceptions of sounding gay amongst gay men and lesbians. Sexual minority participants, especially gay men, who believed that they sounded gay reported more anticipation of rejection and engaged in vigilance in response. Essentialist beliefs about vocal cues to SO are relevant to explaining both the perpetration of stigma by heterosexuals and the experience of stigma for lesbians and gay men.

In the documentary titled ‘Do I sound gay?’ (Gertler & Thorpe, 2014), a gay narrator examines why some people are perceived to sound gay whilst others are not. He consults researchers to understand whether the voices of gay and straight speakers are different, whether and when he ‘learned’ to sound gay, and whether he can ‘control’ his voice. He explores these beliefs because he is aware of the stigma associated with the ‘gay voice’ and sounding gay makes him feel self-conscious. As such, this documentary explores *essentialist beliefs* about a sexual orientation (SO) trait, namely the voice, that can be taken as a signal of an individual’s social identity (Fasoli, Maass, & Sulpizio, 2016; Rule, 2017). The documentary shows that such beliefs are endorsed by both heterosexual and lesbian and gay (LG) individuals to variable extents and can shape the stigma that individuals either enact or experience.

In modern societies, like the UK, discrimination on the basis of perceived SO is considered wrong (i.e., Equality & Human Right Commission, 2020) but still occurs, and contributes to diminished quality of life and wellbeing for LG people (Jackson, Hackett, Grabovac, Smith, & Steptoe, 2019). Hence, this research examines whether essentialist

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beliefs about the voice are relevant to how stigma is enacted, anticipated, and experienced. First, we examine whether heterosexuals' essentialist beliefs about voice as a SO-trait are linked to stigma against LG people. Then, we investigate whether LG targets' voice essentialist beliefs are associated with stigma expectations and vigilance in everyday life.

Essentialist beliefs

Essentialist beliefs can refer either to the attribution of an 'essence' that explains why individuals belong to a social category (e.g., why are some people gay?) or the association of a category to a trait (e.g., why do some gay people speak differently?; Ryazanov & Christenfeld, 2018). Category-based essentialist thinking is better researched in the SO domain. Essentialist beliefs about social categories can engender stereotyping of others and rationalization of treating others prejudicially (Verkuyten, 2003; Yzerbyt, Rocher, & Schadron, 1997), maintaining the status quo (Morton, Postmes, Haslam, & Hornsey, 2009), and tolerating inequality (Williams & Ederhardt, 2008). Essentialist beliefs about SO categories vary along three main conceptual dimensions; *immutability* or fixity, often attributed to SO's biological basis; *discreteness* of SO categories as 'natural kinds' with necessary and sufficient features, and *universality* of SO categories across culture and historical time (Haslam & Levy, 2006). Amongst heterosexuals, belief in both SO immutability and universality are correlated with lower sexual prejudice, and belief in discreteness is correlated with higher sexual prejudice (Haslam, Bastian, Bain, & Kashima, 2006; Haslam, Rothschild, & Ernst, 2002; Hegarty & Pratto, 2001; Hubbard & Hegarty, 2014). Amongst minorities, essentialist beliefs have been linked to identification, assimilation to the majority group, and social change promoting equality (Bastian & Haslam, 2008; Morton & Postmes, 2009). The anti-essentialist belief that SO is a personal choice has been presented as justification for historical attempts to change gay men's and lesbians' SO in unethical ways. In this historical context, SO immutability beliefs seem affirming of LG identity, but they also risk hardening the boundaries between SO categories, increasing the risk of group-based discrimination (see Morton & Postmes, 2009; Prentice & Miller, 2007). Because of this complexity, essentialist beliefs can function as vehicles for expressing both gay-affirmative and prejudicial values and the social identities associated with those values amongst both minorities and majorities (see Hegarty, 2020; Whisman, 1996).

Essentialist thinking about the association of a category with a trait is particularly relevant to the research on *gaydar*, the process by which people use different SO-traits to guess others' SO (Rule, 2017). Belief in *gaydar* seems to presume essentialist belief in real differences between gay and straight people in regard to some discernible traits (Vasilovsky, 2018). In the SO domain, the relationship between such essentialist thinking about category-trait associations and stigma has received far less attention than the relationship between stigma and essentialist thinking about the SO-category itself. These two forms of essentialist thinking are likely to have different relationships to stigma (Hoyt, Morgenroth, & Burnette, 2019; Ryazanov & Christenfeld, 2018). For instance, Kahn and Fingerhut (2011) found that the belief that genes determined men's SO was associated with lower sexual prejudice, whilst the beliefs that genes caused gay men to be more promiscuous, melodramatic, and cowardly than straight men were associated with higher sexual prejudice.

Voice-based essentialist beliefs

We considered three dimensions of essentialist beliefs about auditory *gaydar*; the use of vocal cues to infer others' SO. Research has considered whether heterosexuals' prejudice

predicts SO categorization and accuracy (Brewer & Lyons, 2017; Rule et al., 2015), but not how essentialist beliefs about SO cues relate to prejudice and stigma. As Gertler and Thorpe (2014) documentary makes clear, belief in auditory gaydar presumes *voice discreteness*; the belief that LG and heterosexual speakers have categorically different voices. Second, *voice immutability* refers to the belief that such discernible differences are deep-rooted and fixed. Third, *voice controllability* describes the belief that people can intentionally change their voices to emphasize or conceal their SO.

Our selection of these dimensions was also informed by research on auditory gaydar and accent-based prejudice. Research on auditory gaydar accuracy investigates the reality and perceptibility of voice discreteness and often makes attribution to biological causes relevant to voice immutability (Gaudio, 1994; Linville, 1998; Munson & Babel, 2007). Such research also raises questions about voice controllability. Some acoustic cues are defined by physical factors cues (e.g., frequency parameters) whereas others (e.g., pitch, duration) are somehow controllable (Sulpizio et al., 2015) and influenced by context (Crist, 1997; Podesva, 2007). At first glance, controllability beliefs appear logically incompatible with immutability beliefs. However, accent-based research shows that both listeners and speakers are aware of voice controllability as a way to communicate identity even when they believe that discrete vocal differences exist between groups (Gluszek & Dovidio, 2010). Such research calls for an empirical examination of beliefs about voice discreteness, immutability, and controllability and their relationship to stigma and prejudice.

Voice, stigma, and prejudice

Stigma refers to the negative cultural meanings that are afforded to identities and characteristics (Goffman, 1963) which underlie stereotyping, devaluation, and discrimination (Link & Phelan, 2001). Stigma is a complex phenomenon that shapes the experiences of all members of society, both members of the general majority and the stigmatized minority. Regarding voice, a recent body of research has shown that auditory gaydar cues lead heterosexuals to stereotype and discriminate against LG-sounding individuals in contexts such as employability (Fasoli & Hegarty, 2020; Fasoli, Maass, Paladino, & Sulpizio, 2017), adoption (Fasoli & Maass, 2020), and teaching (Taylor & Raadt, 2020).

Past work examined impressions of and behavioural intentions towards a few LG-sounding speakers. As such it has not taken into account how targets might moderate their behaviour in response to threats of stigmatizing encounters (Swim & Stangor, 1998). Motivational factors, such as coming out, lead gay speakers to modulate their voices to sound more or less gay to others (Daniele, Fasoli, Antonio, Sulpizio, & Maass, 2020). Also, when talking to close friends, gay speakers engage in stereotypical 'gay speech' and sound more gay (Daniele et al., 2020; Podesva, 2007). LG people are aware that voice is a SO cue (Barton, 2015) that may make visible an otherwise concealable stigmatized identity (Camacho, Reinka, & Quinn, 2019). Also, they do not desire their voices to disclose their SO, possibly for fear of stigma (Fasoli, Hegarty, Maass, & Antonio, 2018). Anecdotal evidence suggests that self-perceptions of sounding gay can be associated with stigma-related experiences (e.g., bullying, Kenny, 2018), but no research has investigated this. The role of essentialist beliefs in voice-based discrimination may be as much about how targets act on their beliefs to anticipate the threat of stigma as it is about how heterosexuals treat LG individuals differently on the basis of the essentialist beliefs that they hold.

LG individuals have to constantly deal with stressors stemming from stigma (e.g., rejection expectations, stigma concealment, and internalized stigma; Meyer, 2003; Meyer,

Schwartz, & Frost, 2008). LG individuals fear stigmatization and rejection because of prevailing cultural stigma surrounding their SO, and this predicts poor physical and psychological wellbeing and lower quality of life (Frost, Lehavot, & Meyer, 2015; Jackson et al., 2019; Meyer, 1995). The awareness, and/or fear, that their SO is detectable leads to vigilance and attempts to conceal it (Frost, 2011; Goffman, 1963; Lick, Durso, & Johnson, 2013; Meyer, 2003). Believing one sounds LG may come from the beliefs that see vocal characteristics as immutable and discretely related to SO. Indeed, minorities' essentialist beliefs are linked to group identification (Bastian & Haslam, 2008; Morton & Postmes, 2009). Hence, LG individuals who believe that their voices communicate SO to potentially prejudicial others may elicit expectations of rejections and vigilance.

Overview

This research examined how different essentialist beliefs about voice as a SO-trait may underlie the perpetration and experience of SO-based stigma. Understanding how essentialist beliefs shape both the perpetration and experience of stigma requires dual foci; on both the stigmatizing and the stigmatized (see Phelan, Link, & Dovidio, 2008). Figure 1 illustrates how essentialist beliefs about voice as a SO-trait can be conceptualized as nested within a cultural context of (sexual) stigma defined as 'the negative regard, inferior status, and relative powerlessness that society collectively accords to any nonheterosexual behaviour, identity, relationship, or community' (Herek, 2007, pp. 906–907). In Study 1, we examined how essentialist beliefs amongst the heterosexual majority give rise to *stigmatizing* processes in the form of prejudice, and avoidant discrimination against LG people. In Study 2, we examined how LG people's essentialist beliefs about their own voices shape their experiences of being *stigmatized*, in the form of expectations of rejection and vigilance. Thus, we investigated how essentialist beliefs are related to stigma enactment on the one hand, and stigma expectations and reactions on the other hand.

Across the studies, we also considered differences in beliefs associated with male and female speakers. Being perceived as gay is seen as deviance from heteronormativity especially in men (Kimmel, 1997) and social norms are valued more for/by men than women (Bosson & Michniewicz, 2013). Voice is a cue that is specifically mentioned for gay but not for lesbian speakers (Barton, 2015), and men believe more strongly that their own voices signal SO to others (Fasoli et al., 2018). Whilst gay men value their voices as signals of both their SO and masculinity (Ravenhill & de Visser, 2017), lesbian women are more focused on their appearance than on their voices (Hayfield, 2013; Hayfield, Clarke, Halliwell, & Malson, 2013). Moreover, prejudice and stigma are often stronger towards gay men than lesbian women (Herek & McLemore, 2013). Thus, although target gender similarities in essentialist beliefs about SO-category have been previously observed (Haslam & Levy, 2006; Hubbard & Hegarty, 2014), we examined whether target gender played a role in the relationship between voice essentialist beliefs and stigma in this research.

STUDY 1

Study 1 examined voice essentialist beliefs (discreteness, immutability, controllability), prejudice and avoidant discrimination amongst heterosexuals. Taking advantage of previous literature on SO essentialism, Study 1 investigated whether beliefs in voice discreteness and voice controllability predicted greater prejudice and discrimination, whilst belief in voice immutability predicted greater tolerance in heterosexuals. Previous

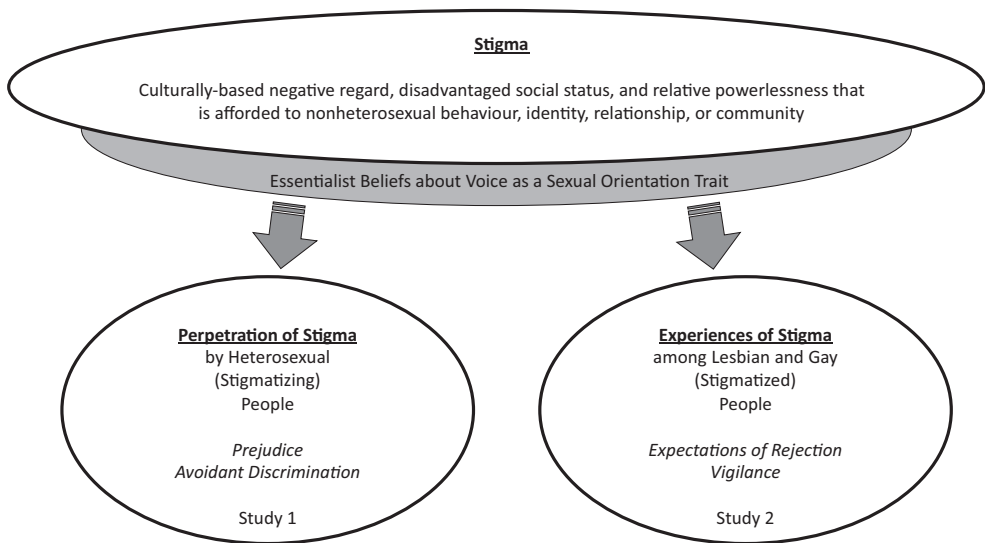


Figure 1. Essential beliefs about voice as a sexual orientation trait are represented as nested within a prevailing cultural context that stigmatizes nonheterosexual behaviour, identity, relationships, and communities. Arrows reflect the ways in which essential beliefs about voice as a sexual orientation trait may lead to the perpetration of stigma by heterosexuals (as examined in Study 1) and the experience of stigma by gay men and lesbian women (as examined in Study 2).

work on SO essentialism amongst heterosexuals mostly focused on negative attitudes (Hegarty, 2020), leaving unexplored the association with discrimination. Here, we considered both prejudice – operationalized as negative attitudes towards LG people and their demands for rights – and avoidant discrimination – operationalized as negative reactions and avoidance of LG-sounding individuals. Since voice is mentioned as a SO cue for men and male voice is believed to be more revealing than female voice (Barton, 2015; Fasoli et al., 2018), we predicted heterosexual participants to endorse all types of voice essentialist beliefs more for men than women (Hypothesis 1a). Also, since heterosexuals hold more negative attitudes towards gay men than lesbian women (Herek, 1998; LaMar & Kite, 1998), we expected higher prejudice and avoidant discrimination against gay men (Hypothesis 1b).

More prejudiced heterosexuals endorse the beliefs that SO is discrete and that it is not immutable (Hegarty, 2020), and believe in their own gaydar to a greater extent (Brewer & Lyons, 2016; Rule et al., 2015). Listeners who perceive that the speakers are in control of their voices, and can thus emphasize or conceal their stigmatized identity, stigmatize speakers more strongly (Gluszek & Dovidio, 2010). Similarly, believing that SO can be controlled both predicts (Lick, Johnson, & Gill, 2014) and justifies (Hegarty & Golden, 2008) heterosexist prejudice. We therefore put forward that beliefs in voice discreteness and controllability would be positively associated with prejudice and avoidant discrimination, whilst beliefs in voice immutability would be negatively associated with prejudice and avoidant discrimination. Since target gender differences were expected, we predicted that greater belief in voice discreteness and controllability for male speakers would be associated with higher prejudice and avoidant discrimination towards gay men, whilst the greater belief in voice immutability for male speakers would be related to lower prejudice and stigmatization (Hypothesis 2).

Method

Participants

A total of 403 participants accessed the survey. We excluded participants who were not heterosexual or US/UK nationals ($n = 40$). The final sample included 363 participants (170 US; 168 women, $M_{\text{age}} = 37.52$, $SD = 11.89$). Participants were mostly White (89.5%), with a degree (49.8%), and liberal (52.9%). A G*Power sensitivity analysis (Faul, Erdfelder, Lang, & Buchner, 2007) for two groups, α error probability = .05 and $1 - \beta = .80$, indicated that our sample was sufficient to detect an effect size of $d = .07$ when a repeated-measures ANOVA was considered, or an effect size of $d = .14$ when univariate ANOVA was performed.

Procedure

Participants were recruited on Amazon MTurk (US, \$1) and Prolific Academic (UK, £1). After consenting to participate, they completed the essentialist beliefs, prejudice, and avoidant discrimination scales. The order of the essentialist beliefs and prejudice/discrimination scales was counterbalanced. Answers were provided on scales ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Participants were randomly assigned to completed items referring to female or male targets. Participants also completed measures of gaydar confidence and LG contacts (see Supplementary Materials) before reporting their demographics.

Measures

Essentialist beliefs

Participants completed a 20-item scale adapted from existing essentialist beliefs scales (Bastian & Haslam, 2006; Haslam & Levy, 2006; Haslam et al., 2002; Hegarty & Pratto, 2001). Subscales refer to the concept of *discreteness* (seven items; e.g., 'When listening to a person it is possible to detect his/her sexual orientation from his/her voice very quickly'), *immutability* (six items; e.g., 'Gay/lesbian people sound gay/lesbian, and there is not much they can do to really change that'), and *controllability* (seven items; e.g., 'Gay/lesbian people can choose to sound gay or straight depending on the situation'). See Supplementary Materials.

Prejudice

Participants completed the 5-item Attitudes towards Gay Men/Lesbians scale (e.g., 'I think male/female homosexuals are disgusting'; Herek, 1998) and the 12-item Modern Homonegativity scale (e.g., 'Gay men/lesbians have all the rights they need'; Morrison & Morrison, 2003). Scores were significantly correlated, $r(363) = .70$, $p < .001$, and collapsed in a single prejudice index.

Avoidant discrimination

Participants completed a 10-item stigma scale inspired by social distance measures (e.g., 'I would not interact with a man/woman who sounds gay/lesbian if I could avoid it'; Crandall, 1991; Oswald, 2007).

Results

All scales were reliable ($\alpha > .74$), items were averaged, and higher scores indicated greater essentialist beliefs, prejudice, and avoidant discrimination, respectively. Essentialist beliefs were all positively correlated (ranging from $r = .40$ to $.62$). For differences concerning participants' gender and nationality across the variables see Supplementary Materials.

The study was completed with reference to male or female targets. Hence, to analyze essentialist beliefs a 2 (Target gender: male vs. female) \times 3 (Type of Essentialist beliefs: immutability vs. controllability vs. discreteness) mixed repeated-measures ANOVA was performed. Otherwise, a 2 (Target gender: male vs. female) ANOVA was performed on each dependent variable. Pairwise comparisons (Bonferroni correction) were used to interpret significant interactions. Reliability and means are shown in Table 1.

Hypotheses testing

Essentialist beliefs

Significant main effects of type of essentialist beliefs, $F(2, 722) = 10.48, p < .001, \eta_p^2 = .03$, and target gender, $F(1, 361) = 54.22, p < .001, \eta_p^2 = .13$, were qualified by a significant interaction, $F(2, 722) = 10.48, p < .001, \eta_p^2 = .03$. Supporting Hypothesis 1a, all three essentialist beliefs ($ps < .002$), but particularly discreteness beliefs, were endorsed more in regard to male targets than female targets (Table 1).

Prejudice and avoidant discrimination

Participants reported significantly higher avoidant discrimination, $F(1, 361) = 12.93, p < .001, \eta_p^2 = .03$, towards male than female targets. No significant difference was found for prejudice, $F(1, 361) = 2.54, p = .11, \eta_p^2 = .007$. Hypothesis 1b was partially confirmed.

Mediation analyses

Overall, all types of essentialist beliefs and avoidant discrimination were significantly higher in regard to male than female targets. Because essentialist beliefs and prejudice can each influence the other (Hegarty, 2020), we ran two sets of multiple mediation analyses using Hayes' (2013) PROCESS macro for SPSS and bias-corrected 95% confidence intervals

Table 1. Reliability, mean, (standard deviation) across target gender for each dependent variables (Study 1)

Dependent variable	α	Target gender	
		Male speakers	Female speakers
Essentialist beliefs			
Immutability	.80	3.54 (1.04)	2.91 (1.01)
Discreteness	.87	3.51 (1.11)	2.50 (1.08)
Controllability	.88	3.46 (1.20)	3.07 (1.15)
Prejudice	.86	3.00 (1.30)	3.23 (1.38)
Avoidant Discrimination	.74	3.19 (.80)	2.88 (.84)

Table 2. Mediation analyses for Study I. Indirect effects

Path	Dependent variables					
	Avoidant Discrimination			Prejudice		
IV → mediator	B	SE	CI 95%	b	SE	CI 95%
Target Gender → Immutability	.11	.04	[0.05, 0.19]	.06	.05	[-0.03, 0.16]
Target Gender → Discreteness	.21	.05	[0.11, 0.31]	.38	.08	[0.23, 0.56]
Target Gender → Controllability	.09	.03	[0.03, 0.15]	.16	.06	[0.06, 0.27]

Note. $N = 363$. Target gender was coded 0 for female and 1 for male. CI = 95% confidence intervals.

(1,000 bootstrap resamples). By so doing, we avoided the common error of presuming and testing only one causal explanation of correlations within correlational data (Fiedler, Harris, & Schott, 2018), since literature on essentialist beliefs amongst majority groups provided evidence for both paths (Hegarty, 2020). The first set of analyses (Table 2) considering target gender as the independent variable, types of essentialist beliefs as mediators, and prejudice and avoidant discrimination as separate dependent variables showed significant indirect effects. All three essentialist beliefs explained greater avoidant discrimination towards male than female speakers, whilst higher prejudice for male targets was only explained by discreteness and controllability. The second set of analyses considered target gender as independent variables, prejudice and avoidant discrimination as multiple mediators, and the types of essentialist beliefs as three separate dependent variables (Table 3). Avoidant discrimination emerged as a significant mediator of the target gender effects observed on endorsement of all three types of essentialist beliefs. The higher levels of avoidant discrimination for male targets explained the higher endorsement of all essentialist beliefs. Instead, prejudice did not significantly mediate the relationship between target gender and beliefs. Overall, these analyses partially confirmed Hypothesis 2 and suggested a stronger relationship between the types of voice essentialist beliefs and avoidant discrimination than between essentialist beliefs and prejudice.

Discussion

Voice essentialist beliefs, especially discreteness, and avoidant discrimination were stronger in regard to male than female speakers. Importantly, greater endorsement of discreteness and controllability beliefs for male targets was associated with both higher

Table 3. Mediation analyses for Study I. Indirect effects

Path	Dependent variables								
	Immutability			Discreteness			Controllability		
IV → mediator	b	SE	CI 95%	b	SE	95% CI	b	SE	95% CI
Target Gender → Avoidant Discrimination	.19	.06	[0.08, 0.30]	.22	.06	[0.10, 0.33]	.22	.07	[0.09, 0.36]
Target Gender → Prejudice	-.07	.04	[-0.15, 0.02]	-.09	.06	[-0.20, 0.02]	-.10	.06	[-0.22, 0.03]

Note. $N = 363$. Target was coded 0 for female and 1 for male. CI = 95% confidence intervals.

prejudice and avoidant discrimination (see Haslam & Levy, 2006). Our finding that belief in immutability was *positively* related to avoidant discrimination did not confirm our hypothesis, based on the SO-category literature, that the belief that SO is immutable would be correlated with lower prejudice (Hegarty, 2020). As Prentice and Miller (2007) suggested, in some cases immutability beliefs reduce the ‘responsibility’ of belonging to the (SO) category, whilst in other situations beliefs about immutable characteristics (e.g., SO-voice) emphasize negative traits involved in stigmatization (Kahn & Fingerhut, 2011). Sounding gay implies a ‘deviation’ from heteronormativity, inferiority, and stereotyping (Fasoli & Maass, 2018). Here, believing that gay-sounding voices are immutable may have highlighted the inferior status and stereotyping of gay-sounding speakers rather than a justification for their voices. Thus, a positive relationship between immutability beliefs and avoidant discrimination emerged. Such an association emerged with regards to the avoidance of gay-sounding speakers but not to anti-gay prejudice. Hence, this result underscores the point that stigmatization has a different relationship to essentialist thinking when category-trait associations are considered.

Past studies suggested potentially different associations between essentialism and prejudice (see Hegarty, 2020). Thus, we tested essentialist beliefs and prejudice/avoidant discrimination as both the mediators and the outcomes in our analyses. All significant differences in essentialist beliefs types by target gender were explanatory of such group differences in stigmatization. Group differences in avoidant discrimination also predicted differences in the endorsement of all three essentialist beliefs. However, prejudice was not related to all three essentialist beliefs. Whilst voice discreteness and controllability explained target gender differences in prejudice, higher levels of prejudice towards gay men did not predict endorsement of the different types of essentialist beliefs for male speakers. This suggests that voice essentialist beliefs are more interconnected with *avoidant discrimination* than with *prejudice*. Taking into consideration our distinction between prejudice and avoidant discrimination, it becomes clear that SO-voice essentialist beliefs are strongly linked with avoidance from individuals, especially men, who sound gay (Fasoli et al., 2017) rather than with negative evaluations and lack of support for gay men as a group. Thus, such beliefs are more likely to introduce stigma of individuals deviating from the heterosexual norm expressed through voice in social interactions (Fasoli & Maass, 2018). For this reason, Study 2 examined essentialist beliefs about the voice from the targets’ perspectives.

STUDY 2

Research on sexual minorities and essentialist beliefs is scarce. So far, only a study showed that sexual minorities endorse SO-category essentialist beliefs differently when their identities are denied than when they are devalued and discriminated (Morton & Postmes, 2009). Similarly, studies of LG individuals’ perception of sounding gay are limited to their understanding of whether or not voice reveals SO (Fasoli et al., 2018) and general dislike for sounding gay (Mann, 2012). Here, we examined whether internalization of different essentialist beliefs affects their perceptions of what their voices sound like, moving to an understanding of whether beliefs predict an attribution of a SO-trait. LG individuals may be aware that being perceived to sound LG can result in avoidance and discrimination (Fasoli et al., 2017), and thus expect to face stigma. Also, essentialist beliefs are related to stigma and self-efficacy (Hoyt, Burnette, Thomas, & Orvidas, 2019; Hoyt et al., 2019), suggesting that beliefs could influence stigma management in the form of vigilance. Study 2 examined associations between LG expectations of rejection and vigilance on the one hand and their

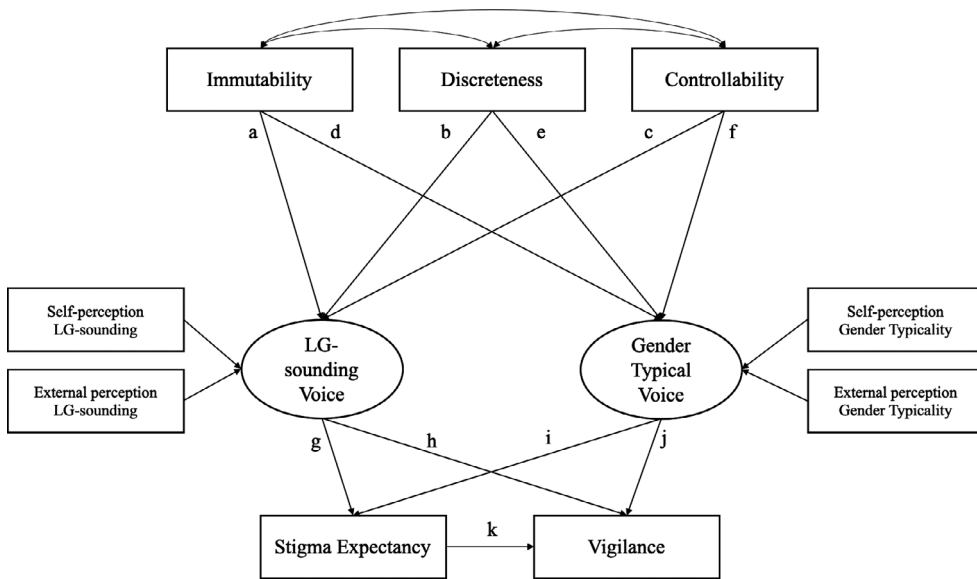


Figure 2. Hypothesized model. Note. Circles represent latent variables and rectangles refer to measured variables.

endorsement of voice essentialist beliefs and vocal self-perceptions on the other. We predicted that endorsement of voice essentialist beliefs will indirectly affect expectations of rejection and vigilance through the LG individuals’ beliefs that their own voices sound lesbian/gay.

Figure 2 illustrates the hypothesized associations. We first expected that immutability and discreteness beliefs would positively predict perception of one’s voice as LG-sounding (path a and b; Hypothesis 1a), whilst controllability beliefs would negatively predict such perception (path c; Hypothesis 1b). Importantly, perception of one’s voice as LG-sounding was expected to positively predict expectations of rejection and vigilance (path g and h; Hypothesis 2). Expectations of rejection reflect the experience of being stigmatized because of the sound of one’s voice, whilst vigilance relates to ways of coping with it. The two variables should be positively associated because both are associated with stigma anticipation (path k; Hypothesis 3). Finally, we expected the LG-sounding perception to mediate the effect of essentialist beliefs on expectations of rejection and vigilance (Hypothesis 4). LG individuals who believe in voice immutability and discreteness might be more likely to expect to ‘sound LG’ to others and, thus, to expect rejection. In contrast, belief in voice controllability assumes that LG people have the agency to control their voices (Mann, 2012; Piccolo, 2008), and should be negatively correlated with expectations of rejection occasioned by sounding LG.

We also examined the impact of voice essentialist beliefs on perception of sounding gender typical. When voice is concerned, distinct acoustic cues predict perception of speakers as sounding LG and gender atypical (Munson, 2007), implying these two features need to be considered separately. Still, SO beliefs go hand in hand with perceptions of gender atypicality (Fasoli et al., 2018). Hence, beliefs about voice as a SO-trait could be related to self-perceptions of sounding gender typical. Believing voice as a SO-trait is immutable and discrete was expected to relate to LG participants’ perceptions of sounding less gender typical, confirming common stereotypes (path d and e; Hypothesis

5a), whilst controllability beliefs were expected to be associated with higher perceptions of sounding gender typical (path f; Hypothesis 5b). Self-perceptions of gender-atypical traits have been found to trigger stress (Jacobson, Cohen, & Diamond, 2016; Martin-Sotrey & August, 2016) and internalized stigma (Salvati, Pistella, & Baiocco, 2018), and to be relevant for wellbeing (Rieger & Savin-Williams, 2012). Thus, we predicted that sounding less gender typical would be related to more rejection expectancy and vigilance (path i and j; Hypothesis 6).

Because men believe their voices to reveal their SO more than women (Fasoli et al., 2018) and men care about gender typicality more than women (Vandello, Bosson, Cohen, Burnaford, & Weaver, 2008), we explored whether these effects were more pronounced for gay men than lesbian women.

Method

Participants

In total, 159 participants took part. We excluded those who did not identify as LG ($n = 12$), leaving 147 native English speakers (77 gay men and 70 lesbian women, 79 British, $M_{\text{age}} = 31.18$, $SD = 9.86$), mostly non-religious (41.5%) and liberal (76.6%). First, a G*Power sensitivity analysis for bivariate correlations with α error probability = .05 and $1 - \beta = .80$, indicated that our sample was sufficient to detect a medium effect size $d = .25$. The sample also exceeded the ($104 + 5$ variables number) number indicated for multiple regression analyses detecting medium effect size (Tabachnick & Fidell, 2013). A Soper's (2020) power analyses suggested that 136 was the minimum sample to detect medium effect size $d = .25$ in a model with two latent and five observed variables and $1 - \beta = .80$. Hence, our sample was adequate to detect medium effect sizes.

Procedure

We recruited LG participants through Prolific Academic (rewarded £3). After consenting to take part, they reported their nationality, native language, age and gender, and ingroup identification. Then, they completed measures of essentialist beliefs, self and external perception of LG-sounding and gender-typical sounding voices, stigma expectancy, and vigilance. Participants also reported experience everyday discrimination and described and rated personal experiences of being noticed as LG because of voice along with experience-related variables that are not analyzed in this paper (see Supplementary Materials). Participants also reported their SO, religion, education, and political orientation.

Measures

Essentialist beliefs

We used the same scale as in Study 1 but here items referred to participants' own gender. Higher scores indicated higher endorsement of discreteness, immutability, and controllability beliefs.

LG-sounding voice

Three items (e.g., 'Do you think you sound gay/lesbian to others?') measured *self-perception* of sounding gay whilst a single item ('Do you think people perceive your voice

as sounding gay/lesbian?') measured *external perception* of sounding gay to others on a scale from 1 (*not at all*) to 7 (*very much*). These two measures formed a latent variable in the model (*LG-sounding voice*).

Gender-typical voice

Self-perception of sounding feminine/masculine was measured on a 7-point semantic differential (Fasoli et al., 2018). Two items measured *external perception* of voice gender typicality (i.e., 'Do you think people perceive your voice as sounding masculine/feminine?') on a scale from 1 (*not at all*) to 7 (*very much*). These items were negatively correlated for both gay men and lesbian women ($r_s < .45$, $p_s < .001$), recoded, and averaged. The higher the score, the more gender typical the voice was perceived to sound like. These two measures formed a latent variable in the model (*gender-typical voice*).¹

Expectations of rejection

Rejection expectancy was measured on a 7-item stigma scale adapted from Meyer et al. (2008) (e.g., 'Most people will try to avoid a person who sounds like me'). Answers were provided on a scale from 1 (*strongly disagree*) to 7 (*strongly agree*). Items were averaged so that higher scores indicated higher expectations of stigma.

Vigilance

A 6-item scale measured the frequency of engagement with voice-related vigilance (e.g., 'How often do you try to avoid certain social situations and persons (who may deride you because of your voice)?', see LaVeist, Thorpe, Pierre, Mance, & Williams, 2014). Answers were provided on a scale from 1 (*never*) to 5 (*very often*). Items were averaged so that higher scores indicated more frequent vigilance.

Results

Preliminary analyses

Table 4 reports reliability, means, and correlation between variables. Compared to lesbian women, gay men endorsed voice discreteness, immutability, and controllability beliefs more, and also reported greater expectations of rejection and vigilance ($t_s > 3.18$, $p_s < .002$). Moreover, gay men perceived their voices to sound more gay and less gender typical than lesbian women did ($t_s > 2.81$, $p_s < .006$).

Hypotheses testing

The hypothesized relationships amongst variables are illustrated in Figure 2. We used SEM in AMOS 23 to analyze the associations between voice essentialist beliefs (immutability, controllability, discreteness) and LG-sounding voice and gender-typical voice and whether LG-sounding voice and gender-typical voice were associated with expectations of rejection and vigilance.

¹ Participants also rated their voices on 7-point semantic differential items: *soft/loud*, *pleasant/unpleasant*, *weak/strong*, and *low-pitched/high-pitched*. Gay men rated their voices as louder but as less pleasant than lesbian women did ($t_s > 2.04$, $p_s = .04$).

Table 4. Reliability, means (standard deviations), and correlations of the all variables across gender (Study 2)

Variable	α	Gay/lesbian	Gay men	Lesbian women	1	2	3	4	5	6	7	8	9
1. Immutability beliefs	.77/.73		3.15 (1.03)	2.03 (.98)	–	.14	.61**	.29*	.47**	–.09	.01	–.05	.03
2. Discreteness beliefs	.75/.80		2.86 (1.05)	2.09 (1.13)	.53**	–	.05	.45**	.31**	–.09	–.17	.12	.02
3. Controllability beliefs	.78/.84		3.19 (1.55)	1.87 (.85)	.12	–.02	–	.34**	.18	.06	.16	.19	.03
4. Self-perception LG-sounding voice	.70/.76		3.01 (1.49)	1.62 (.98)	.23*	.20	.06	–	.56**	–.13	–.21	.24*	.17
5. External-perception LG-sounding voice	--		3.64 (2.11)	1.51 (1.09)	.23*	.20	–.25**	.66**	–	–.40**	–.45**	.21	.21
6. Self-perception gender-typical voice	--		4.34 (1.54)	5.03 (1.42)	–.18	–.03	.23*	–.60**	–.78**	–	.74**	.04	–.12
7. External-perception gender-typical voice	.93/.83		4.57 (1.50)	5.24 (1.39)	–.21	–.02	.26*	–.56**	–.73**	.79**	–	.01	–.28*
8. Expectations of Rejection	.72/.73		2.55 (1.11)	2.03 (.80)	.13	.21	–.25*	.34**	.61**	–.50**	–.41**	–	.37**
9. Vigilance	.89/.86		2.32 (.98)	1.70 (.75)	.18	.25**	–.01	.58**	.60**	–.43**	–.39**	.60**	–

Note. $n = 77$ gay men (below diagonal) and $n = 70$ lesbian women (above diagonal).

* $p < .05$; ** $p < .01$.

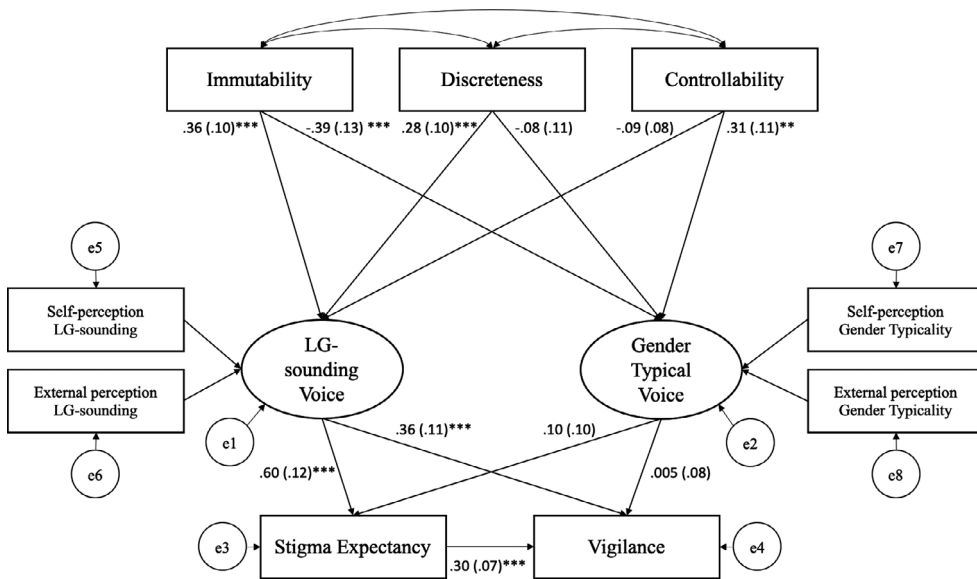


Figure 3. Model with unstandardized coefficients (standard errors). Note. Circles represent latent variables and rectangles refer to measured variables; * $p < .05$, ** $p < .01$, and *** $p < .001$.

The hypothesized model demonstrated adequate fit (CFI = .962, TLI = .921, RMSEA = .097). Results are reported in Figure 3. Confirming Hypothesis 1a, immutability and discreteness beliefs positively predicted self-perceptions of sounding LG. Believing that LG and heterosexual voices are different was associated with LG participants’ perception of their voices as LG-sounding. Controllability did not predict LG-sounding voice self-perception, disconfirming Hypothesis 1b. In contrast, belief that one’s voice was gender typical was positively predicted by controllability beliefs and negatively predicted by immutability beliefs, supporting Hypothesis 5b and, partially, Hypothesis 5a. Believing that voices are immutable induced participants to think that they sounded less gender typical, whilst believing that people can control their voices was associated with higher perceptions of sounding gender typical.

Confirming Hypothesis 2, perceiving that one had a LG-sounding voice positively predicted both expectations of rejection and vigilance. Disconfirming Hypothesis 6, perceiving that one had a gender-typical voice predicted neither of these variables. Beliefs about SO, not gender, predicted stronger expectations of rejection and vigilance engagement. The link between expectations of rejection and vigilance was also statistically significant, confirming Hypothesis 3. LG participants who expected to encounter more rejection were more frequently vigilant.

Bootstrapping procedures with 1,000 samples were used to calculate 95% bias-corrected confidence intervals (CI) around the estimates of indirect effects. Bias-corrected CIs that did not span 0 indicated statistically significant indirect effects. Both immutability and discreteness beliefs had an indirect effect on both expectations of rejection (immutability: $\beta = .17$, $SE = .05$, 95% CI [0.08, 0.29] and discreteness: $\beta = .36$, $SE = .07$, 95% CI [0.04, 0.32]), and on vigilance (immutability: $\beta = .18$, $SE = .05$, 95% CI [0.09, 0.29] and discreteness: $\beta = .15$, $SE = .07$, 95% CI [0.03, 0.31]).

We also tested gender differences in the hypothesized associations specified in Figure 2 using multi-group SEM (Byrne, 2004). There were no participant gender

differences here in the associations between the three types of beliefs and LG-sounding voice and gender-typical voice because imposition of equality constrains on these effects did not significantly worsen the model fit, $\Delta\chi^2(2)$ ranged from 2.03 to 2.19, $ps = .34$ to $.36$. Similarly, no gender differences emerged when the association between expectations of rejection and vigilance was constrained to be equal across men and women, $\Delta\chi^2(1) = .94, p = .33$.

However, constraining the associations between gender-typical voice and rejection expectancy and vigilance across men and women did significantly worsen the fit of the model to the data, $\Delta\chi^2(2) = 6.90, p = .03$. Belief that one's voice communicated SO (LG-sounding voice) predicted both expectations of rejection and vigilance for gay men, but only predicted expectations of rejection for lesbian women, and to a lesser extent than it did for gay men (see Table 5). Constraining the effects of LG-sounding voice on stigma and vigilance across genders also produced a worse fitting model, $\Delta\chi^2(2) = 8.83, p = .01$. Gender-typical voice was positively associated with vigilance in gay men and negatively associated in lesbian women (Table 5). Hence, gay men who perceived their voices as gender typical (masculine-sounding), and lesbian women who perceived their voices as gender atypical (masculine-sounding) were more vigilant. No links between LG-sounding voice and the other variables were found.

Discussion

Study 2 demonstrated that some types of essentialist beliefs are related to voice self-perceptions that, in turn, are associated with expectations of rejection and vigilant behaviour to avoid stigma. This study builds on previous findings on voice self-perception (Fasoli et al., 2018) and essentialist beliefs amongst sexual minorities (Morton & Postmes,

Table 5. Multi-group comparison of structural equation model comparing associations between essentialist beliefs, gay sounding, gender typicality, expectations of rejection, and vigilance for gay men and lesbian women

Pathway	Gay men			Lesbian Women		
	Unstandardized estimate	SE	p	Unstandardized estimate	SE	p
<i>Tier One</i>						
Controllability → LG voice	−0.26	.10	.01	−0.06	.09	.47
Discreteness → LG voice	0.08	.11	.46	0.19	.09	.04
Immutability → LG voice	0.25	.12	.04	0.31	.10	.00
Controllability → Gender-typical voice	0.42	.12	<.001	0.28	.22	.19
Discreteness → Gender-typical voice	0.17	.13	.19	−0.22	.23	.34
Immutability → Gender-typical voice	−0.44	.14	.00	−0.20	.25	.41
<i>Tier Two</i>						
LG voice → Expectations of rejection	0.92	.36	.01	0.41	.21	.04
LG voice → Vigilance	0.97	.37	.01	0.01	.17	.94
Gender-typical voice → Expectations of rejection	0.23	.27	.39	0.11	.09	.24
Gender-typical voice → Vigilance	0.43	.24	.08	−0.15	.08	.04
Expectations of rejection → Vigilance	0.21	.12	.08	0.35	.10	<.001

2009). Here, we showed that LG participants who believe that voices of LG and heterosexual people are different and allow for SO detection (discreteness), as well as that voices of these two groups are deep rooted (immutability), are likely to think they sound LG and less gender typical themselves. However, whether they perceive their voices to sound gender typical seems related to their beliefs about the control that speakers have over their voices. Relevant to the stigma literature (Meyer, 2003), vigilance was positively predicted by both the perception of sounding gay and gender typical (masculine-sounding) amongst gay men, but only by the perception of sounding gender atypicality (masculine-sounding) amongst lesbian women. In line with the minority stress model (Frost, 2011; Meyer, 2003), gay men who believe that they sound gay may become vigilant to avoid being stigmatized. Moreover, gay men who believe they sound masculine may do so particularly because sounding gender-conforming allows them to maintain a 'high status' and wellbeing (Puts, Hodges, Cárdenas, & Gaulin, 2007; Sirin, McCreary, & Mahalik, 2004; Skidmore, Linsenmeier, & Bailey, 2006). Gay men's masculinity self-perception is related to wellbeing (Hunt, Morandini, Dar-Nimrod, & Barlow, 2020) and, when threatened, leads them to enhance their similarity with masculine gay men and distance from feminine gay men (Hunt, Fasoli, Carnaghi, & Cadinu, 2016). Vigilance by masculine-sounding gay men may imply a desire to maintain the 'privileged' status given by being gender conforming whilst sounding gay exposes them to discrimination risks. Lesbian women may care less about their voices because people usually focused on their appearance more when their SO is concerned (Hayfield, 2013). Still, they need to be attentive to how gender atypical they sound because sounding masculine creates disadvantages in certain situations but advantages in others (e.g., when they want to be perceived as competent vs. attractive; Klofstad, Anderson, & Peters, 2012; Krahe & Papakonstantinou, 2019). Lesbian women report more discrimination due to gender atypicality than gay men (Gordon & Meyer, 2007) and their gender expression, not their SO, exposes them to stigma within and outside their community (see Levitt & Horne, 2002). This may explain why they were particularly vigilant about their gender-atypical voice.

GENERAL DISCUSSION

Study 1 showed that heterosexuals endorsed voice essentialist beliefs (especially discreteness) that are strongly related with avoidant discrimination towards LG-sounding individuals. Study 2 showed that believing in discrete immutable differences between LG and heterosexual voices was related to LG individuals' beliefs that they sounded LG themselves and their expectations of rejection, particularly amongst gay men. All together, these findings evidence a novel role for essentialist beliefs about auditory gaydar in enacting and anticipating stigmatization.

Our work extends the SO-trait essentialism literature, in several respects. First, whilst previous studies merely focused on beliefs about genetic explanations for common SO stereotypes (e.g., promiscuity, Kahn & Fingerhut, 2011), we examined different essentialist beliefs referring to a SO-trait that triggers SO categorization (gaydar) and discrimination in everyday interactions (Fasoli et al., 2016). We found that voice can be conceptualized as discrete and immutable, but also as controllable. Beside believing in vocal differences that make LG people detectable, both heterosexual and LG individuals believe that individuals could intentionally make their group membership salient, potentially emphasizing intergroup differences (see Herek, 1998). We not only showed

that the discreteness, immutability, and controllability beliefs can co-exist, but also that they all predict avoidant discrimination amongst heterosexuals (Study 1). Future research should examine the degree to which specific SO-trait essentialist beliefs can explain engagement in discriminatory behaviours across a variety of contexts (see Hoyt et al., 2019).

Moreover, we extended our investigation to examine voice beliefs and their implications for the target's perspective (Crocker, Major, & Steele, 1998). The endorsement of essentialist beliefs can be related to how individuals understand and engage in social identities (Bastian & Haslam, 2008) when those identities are threatened by denial or discrimination (Morton & Postmes, 2009). We showed here that discreteness and immutability beliefs predict how voice, as a SO-trait, is related to how LG people perceive themselves. Importantly, perceiving oneself to sound LG leads to expectations of rejection and vigilance, which are two stressful outcomes specific to being LG. Hence, these findings contribute to the burgeoning literature on minority stress and suggest minority stress theory (Meyer, 2003) can be expanded to include voice perceptions as an aspect of the experience of the stigmatized status afforded to LG people (Meyer et al., 2008).

Building on studies showing that heterosexuals discriminate against LG-sounding speakers (Fasoli et al., 2017; Fasoli & Hegarty, 2020), and that higher prejudice predicts lower gaydar accuracy (Brewer & Lyons, 2016; Rule et al., 2015), we demonstrated that heterosexuals who are most likely to stigmatize LG-sounding others believe that LG people's vocal differences are deep-rooted and that LG people sometimes modify their voices to conceal or to emphasize their SO. Voice essentialist beliefs may both engender heterosexuals' avoidance of LG-sounding people and justify their prejudice against people that sound LG. Future research should test whether different voice essentialist beliefs predict the expression and justification of discrimination towards individuals who sound LG (Fasoli & Maass, 2018), just as other essentialist beliefs about SO itself may both engender and justify prejudice (Hegarty & Golden, 2008).

Across two studies we found that essentialist beliefs were endorsed more amongst both heterosexual and LG participants thinking about gay men rather than lesbian women. This is surprising because no target gender differences are observed in the SO essentialist beliefs literature (Haslam & Levy, 2006; Hubbard & Hegarty, 2014). Also, a recent study found stronger discrimination against lesbian-sounding women than gay-sounding men applying for leadership positions (Fasoli & Hegarty, 2020). However, stereotypes communicated through mass media particularly describe voice as a SO cue for men (Cartei & Reby, 2012). Men, more than women, believe that their own voices reveal their SO (Fasoli et al., 2018). Some gay men associate a negative connotation with sounding gay and try to avoid such stereotypical speech (Mann, 2012; Piccolo, 2008). On the whole, the literature suggests that gay has been socially constructed to be about gay men only, but that direct discrimination against women is also observed. In Study 2, voice-based stigma expectations and vigilance were stronger for gay men. Lesbian women may experience gaydar-related discrimination and attribute it to factors other than SO (e.g., gender and appearance) more than gay men do. This calls for more research on LG individuals' experiences and on the intersection between SO, gender, and gender presentation, even when such categories are conveyed by voice. This is a crucial point in the discussion of 'discrimination by perception' at the basis of debates in court cases dealing with gender and SO discrimination (Castle, 2012).

Limitations and future directions

Future research should replicate our work in different samples and contexts. Study 2, especially, involved the minimum sample to detect medium effect size but larger samples could be recommended. Also, our LG sample of English-speaking participants was not representative of everybody, and language can moderate SO judgements (Sulpizio et al., 2015, 2019). Attitudes towards language and its sound influence how the speaker of a given language is perceived (Schoel et al., 2013). Like research on auditory gaydar, this research needs to be broadened beyond a study of English language speakers.

In this research, we focused on voice as a SO-trait. We did not compare whether beliefs about different SO cues (e.g., face, voice, and gait) would provide the same pattern of results. For instance, perceived intentionality in gait and face is linked to negative evaluations when SO judgements are assessed (Lick et al., 2014). Future research could expand our work and test whether similar essentialist beliefs emerged when comparing SO cues and whether they predict stigmatization equally. Our work was also correlational and thus casual relations cannot be assumed. Experimental studies testing whether essentialist beliefs predict SO judgements would contribute to research examining the role of prejudice (Rule et al., 2015) and listeners' motivations not to appear prejudiced (Alt, Lick, & Johnson, 2020) on gaydar. Research on visual gaydar (Cox, Devine, Bischmann, & Hyde, 2016) has shown that making individuals believing that gaydar is a myth affects their SO judgements. Also, exposure to discreteness beliefs increases individuals' acceptance of inequality (Morton et al., 2009). Hence, manipulating information about voice essentialist beliefs may change the way in which listeners make gaydar judgements as it does in other fields (see Haslam & Ernst, 2002).

Finally, the relationship between LG individuals' endorsement of the voice essentialist beliefs and stigmatization against ingroup members should be examined. Do voice discreteness, immutability, and controllability beliefs trigger avoidance of LG-sounding speakers in LG individuals as it happens in heterosexuals? Gay men tend to avoid ingroup members portrayed in a stereotypical way when they feel pressure to conform to norms (Hunt et al., 2016). If sounding gay is seen as a 'stereotypical speech' (Mann, 2012; Podesva, 2007) that represents a deviation from norms and elicits negative attitudes (see Taywaditep, 2002), then controllability beliefs may be associated with stigmatization of gay-sounding ingroup members. Similarly, research should consider whether heterosexual individuals, especially men, similarly engage in anticipated rejection and vigilance if they believe that they sound LG. Heterosexual men who believe that they themselves sound gender atypical are aware of the likelihood to be miscategorized as gay (Fasoli et al., 2018). This awareness could lead them to be vigilant and expect rejection (Bosson, Prewitt-Freilino, & Taylor, 2005; Prewitt-Freilino & Bosson, 2008), especially if they believe they cannot control their voices.

Conclusion

Our findings represent an important extension of essentialism and gaydar research. We provided knowledge on how trait essentialist beliefs referring to voice are associated with the enactment of stigma towards LG people by heterosexuals and how they have an impact on LG people's everyday experiences of and attempts to cope with being stigmatized. Overall, our work allows us to better understand the relationship between voice beliefs and stigmatization that can inform interventions aiming to dismantle SO-voice stereotypes and associated stigma.

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Conflicts of interest

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Author contributions

Fabio Fasoli, Ph.D. (Conceptualization; Data curation; Formal analysis; Funding acquisition; Investigation; Methodology; Project administration; Visualization; Writing – original draft; Writing – review & editing) Peter Hegarty (Conceptualization; Funding acquisition; Methodology; Supervision; Writing – original draft; Writing – review & editing) David M. Frost (Conceptualization; Formal analysis; Methodology; Writing – original draft; Writing – review & editing)

Ethics

These studies have received a favourable opinion from the Ethic Committee of the University of Surrey.

Data Availability Statement

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

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Supporting Information

The following supporting information may be found in the online edition of the article:

Supplementary Materials about the voice essentialist beliefs scale and additional analyses