



Attitudes toward Transgender Rights: Perceived Knowledge and Secondary Interpersonal Contact

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Abstract: Transgender people face an uncertain legal climate, and efforts to include gender identity in policies have been met with both successes and failures. These policies are often developed in the legislative process, which directly involve public opinion. To date, there is only one study analyzing American public attitudes toward transgender people. This research gap makes it unclear whether people in general understand what transgender means and whether public support for transgender rights depends on understanding and knowing transgender people. Since the population of transgender people is estimated to be smaller than that of lesbian, gay, and bisexual people, examining whether and how having a friend or family member who is lesbian or gay relates to transgender rights is important to understand political coalitions and attitude change. This study examines public attitudes about transgender rights in the USA. It finds that as respondents report being more informed about transgender people they tend to have more supportive attitudes. Interpersonal contact with someone who is lesbian or gay also leads to a secondary transfer of positive attitudes. About half of the secondary transfer effect operates through a mechanism of attitude generalization: contact positively affects the opinions people have on gay rights that then broaden to affect attitudes on transgender rights. Demographic characteristics also indicate that predictors of transgender attitudes are similar to previous studies regarding attitudes toward lesbians, gay men, and bisexuals. Further survey efforts need to consider inquiring about transgender rights and attitudes, as this remains a research gap in need of scholarly understanding.

Keywords: LGBTQ; public opinion; transgender; survey research

1. Introduction

Scholarship regarding the correlates of Americans' attitudes and opinions about lesbians, gay men, and (at times, implicitly) bisexual people (LGB) is vast.¹ A host of studies have investigated attitudes about LGB people, assessing the effects of interpersonal contact (Bramlett 2012, Dyck & Pearson-Merkowitz 2014, Garner 2013, Herek & Capitanio 1996, Herek & Glunt 1993, Lewis 2011, Skipworth, Garner & Dettrey 2010), intergroup contact (Flores 2014, Dyck & Pearson-Merkowitz 2012, Gaines & Garand 2010), media frames (Brewer 2003*b*, Brewer 2007), gender (Herek 2002), religion (Olson, Cadge & Harrison 2006), and partisanship (Brewer 2003*a*, Garretson 2014), and race (Lewis 2003). A majority of these studies uses either national probability-based surveys and/or is experimental. In light of this breadth, it may be surprising that there is only one study analyzing public attitudes about transgender people based on a nationally representative probability sample (Norton & Herek 2013).²

Transgender people face social stigma relating to minority stress (Herman 2013), have experiences of discrimination (Grant et al. 2011), and face physical and psychological violence (Lombardi et al. 2002). These experiences have relationships to suicidality among transgender people (Clements-Nolle, Marx & Katz 2006, Haas, Rodgers & Herman 2014). The findings from the National Transgender Discrimination Survey, a large convenience sample of transgender people, suggest that rates of transgender discrimination are high: approximately 78% of those surveyed report experience direct mistreatment or discrimination in the workplace (Grant et al. 2011). These experiences are linked to sex-classification policies that police gender, and:

[t]he political harm of sex-classification policies is that they transfer the crucial and deeply personal matter of sexual identity to administrative agents who then have power to use their normative ideas about gender to deprive people of their civil right to use public accommodations under their watch. (Fogg Davis 2014, p. 48)

It has historically been difficult to include gender identity or transgender status in existing non-discrimination policies. For decades, the courts did not acknowledge transgender people as a quasi-suspect class as is traditional for gender-based discrimination, and they did not recognize transgender discrimination as sex discrimination (Currah & Minter 2000). This failure of legal recourse led to legislative efforts to pass transgender-inclusive policies, which were successful in many municipal- and state-level efforts (Currah & Minter 2000). Recent cases and bureaucratic decisions identified transgender discrimination as sex discrimination (Geidner 2012, Geidner 2013, *Mia Macy v. Eric Holder* 2012). These expansions, however, have not stopped advocates from seeking legislation that clearly proscribes discrimination based on gender identity. As public policies continue to incorporate gender identity into non-discrimination laws, hate crime laws, and laws regarding public accommodations, it is important to assess the correlates of public opinion on these issues. Policy developments in legislative efforts are inherently made by the "political institutions," which are

majoritarian, representative bodies that are therefore likely responsive to majority constituent opinion (Miller & Stokes 1963, Stimson, MacKuen & Erikson 1995).

The relationship between public opinion and public policy is robust (Lax & Phillips 2009, Soroka & Wlezien 2010), so a greater understanding of attitude formation and its correlates regarding the rights of transgender people furthers this discussion. We know in LGB rights, for instance, that on certain issues, public opinion has to be at or in many cases greater than 50% in order for state policies to reflect such sentiment (Lax & Phillips 2009). To be able to evaluate whether and to what extent this may also be the case for transgender people, there first needs to be nationally representative surveys that ask people their attitudes about transgender rights. In this case, any analysis of the political representation of transgender people is limited by the available data. It is important to understand the attitudes of the public as they may directly affect policy, as residents have voted on the rights of transgender people in Anchorage, Alaska and Chattanooga, Tennessee, and they almost did in California and Houston, Texas. Additionally, social forces and structural factors, such as public policies, affect the health outcomes of LGB people (Hatzenbuehler 2010, Hatzenbuehler et al. 2014), and these factors likely also play an important role for transgender people. The relationship between public opinion and public policy may ultimately affect the health and well-being of minority populations.

It remains unclear to what extent people perceive themselves as knowledgeable of the experiences transgender people. Public education has been the most common framing strategy of newspaper articles that mention “transgender” (Tadlock 2014). Recently, television media has become inclusive of shows representing the lives of transgender people (e.g., *Orange Is the New Black*, *Transparent*, and *Transamerica*). These shows offer insight into hardships and a way of life of which they may have little knowledge. Public education has been a key movement strategy “[b]ecause the public is generally less familiar with transgender issues” (Taylor & Haider-Markel 2014, p. 276). The extent to which individuals believe that they have sufficient understanding of transgender rights and issues indicates whether this strategy has its intended effect.

The size of the transgender population is estimated to be smaller than that of the LGB population (Gates 2011). Given the presently available data, Gates (2011) estimates that 0.3% of the population identifies as transgender, which is about 12 times smaller than that of the LGB population.³ Transgender and LGB people share a common movement history and, while not without differences, are a political coalition (Minter 2006). Rights for transgender people are increasingly a part of the policy agenda for LGBT advocacy organizations (Nownes 2014, Taylor & Lewis 2014). As a political coalition, it may be the case that cisgender LGB people may advocate for transgender rights.⁴ For example, Taylor & Lewis (2014) note that “[b]ecause there are many more gay persons than openly trans individuals, it is also less likely that members of the public or legislators know transgender persons” (p. 118). Previous studies have shown that personally knowing and interacting with LGB people fosters positive changes in attitudes about LGB rights (Bramlett 2012, Dyck & Pearson-Merkowitz 2014, Garner 2013, Herek & Capitanio 1996, Herek & Glunt 1993, Lewis 2011, Skipworth, Garner & Dettrey 2010). How might

interactions with LGB people relate to attitudes about transgender rights? The transfer of interpersonal contact from LGB people to transgender rights may be a process through which the umbrella-coalition offers political advantages for transgender people. A previous study finds that people who report knowing someone who is lesbian or gay tend to have more positive general attitudes toward transgender people (Norton & Herek 2013), though it remains unclear if this further translates to the rights of transgender people.

In the following, I discuss the previous research studying attitudes toward transgender people. I then provide a set of theoretical expectations and discuss the nationally representative survey regarding transgender people for this analysis. I initially assess whether there are differences among members of the mass public in their reported familiarity with transgender people and rights. I then analyze the correlates of attitudes toward transgender people and situate the findings in relation to the previous research. I find that as respondents feel more competent about transgender people and issues, they have more positive attitudes toward transgender rights. I also find that knowing someone who is lesbian or gay positively affects attitudes toward transgender rights, while knowing someone who is transgender does not. I finally unpack a mechanism of knowing someone who is lesbian or gay and its relationship to attitudes toward transgender rights using mediation analysis.

1.1. Previous studies about public attitudes toward transgender people

A thorough review of the literature on student-based samples about attitudes toward transgender people is provided in Norton & Herek (2013, p. 738–739), so this review will focus on the primary attributes of that literature which situates this study. An obvious gap in the previous research about transgender people is whether respondents have an understanding of the definition of transgender. As noted in The Williams Institute's report on gender identity measures, collecting accurate data about transgender people needs to minimize "confusion among and misclassification of nontransgender people, who may be unfamiliar with the concept of gender identity" (GenIUSS, Gender Identity in U.S. Surveillance Group 2013, p. 3). If it is possible for people to misclassify themselves as transgender, then it is quite possible that they may not have a clear understanding of the concept when asked about their attitudes and opinions toward transgender people. In a nationally representative survey on 14–18 September 2011, the Public Religion Research Institute finds that 91% of Americans report hearing the term transgender. Of those who have heard of the term, 76% correctly respond in an open-ended question providing a definition of transgender that expressed greater familiarity with the term than not (Public Religion Research Institute 2011). These correct responses, though varied, define people who are transgender as persons who either have a gender identity or expression that differs from their assigned sex at birth, and most incorrect responses conflated transgender with sexual orientation. This indicates that there is a strong relationship between perceived understanding of transgender and factual familiarity with the term.

Familiarity, perceived or factual, may correlate positively with attitudes toward transgender people. The current study examines whether perceived knowledge positively affects attitudes toward transgender people. In other contexts, the level of knowledge people think they have is known to affect political attitudes while factual knowledge is a stronger predictor of behavior (Ellen 1994). Being informed is likely a positive correlate with attitudes toward transgender people, as greater perceived or factual information about transgender people likely reduces uncertainty (Alvarez & Brehm 2002). A potential expectation would be that perceived or factual familiarity produces understanding, and it would positively affect attitudes toward transgender rights.

In a sample of British college students, Tee & Hegarty (2006) find that respondents who have personal contact with LGB people positively correlate with support for civil rights for transgender people. The study also finds that interpersonal contact with transgender people has a weak and negatively insignificant correlation with support for such rights. Norton & Herek (2013) also find some indication that personally knowing a lesbian or gay person positively relates to feelings toward transgender people in the US context, and they term these phenomena as *secondary transfer effects* of interpersonal contact. The authors, however, do not ask respondents whether they personally know someone who is transgender, which limits the identification of secondary transfer effects. Schmid et al. (2012) note that without accounting for direct contact with the secondary outgroup (i.e., transgender people), it will be “difficult to assert with complete confidence that secondary transfer effects... [have] occurred *over and above* the effects of direct contact of the secondary outgroup” (47, emphasis original). This study investigates secondary transfer effects while also accounting for direct contact with transgender people.

Secondary transfer effects are thought to occur through certain mechanisms. Previous studies on other minority populations have theorized three distinct mechanisms: deprovincialization, social dominance orientation, and *attitude generalization* (Schmid et al. 2012; see e.g., Pettigrew 1997; Tausch et al. 2010). The current study examines whether the secondary transfer of interpersonal LG contact occurs through attitude generalization. Attitude generalization is a process whereby individuals condition their attitudes toward one group based upon their attitudes toward another. As Walther (2002) notes: “Many prejudiced people have never encountered the objects of their antipathy. Instead, attitudes are often based on prior experiences with similar attitudinal objects, on second-hand information, or on mere associations” (p. 921). Schmid et al. (2012) similarly show that knowing an immigrant reduces anti-immigrant attitudes that then reduce anti-Jewish and anti-gay attitudes in Europe. In this case, knowing someone who is lesbian or gay should increase support for LGB rights, which then may relate to more positive attitudes toward the rights of transgender people. I examine this hypothesized mechanism of secondary transfer effects via attitude generalization.

I also investigate whether secondary transfer effects occur in the US context while also accounting for whether respondents report knowing someone who is transgender. Based on Tee & Hegarty (2006), I expect that personally knowing someone who is LGB to be a positive correlate of transgender attitudes. I also investigate the effect of personally knowing someone who is transgender, which one line of research

on interpersonal contact expects to positively affect attitudes toward transgender people (e.g., King, Winter & Webster 2009), but Tee & Hegarty (2006) put this expectation into question from their study.

2. Data and measures

This study uses a nationally representative telephone survey conducted by the Opinion Research Corporation for the Public Religion Research Institute. The survey interviewed 1006 adults on 11–14 August 2011. The survey is weighted to adjust for sampling deficiencies due to nonresponse and coverage, and the weights are poststratified to population estimates using age, sex, geographic region, education, and race. To maintain the complex structure of the survey, survey weights are used in all analyses. The survey instrument contains questions about transgender rights, perceived familiarity with transgender people, and personally knowing people who are LGB or transgender. A summary of the variables for this analysis is provided in Table 1. The first four items in Table 1 are 4-point scales from Completely Disagree to Completely Agree.

2.1. Attitudes toward transgender rights

There are three measures of attitudes regarding the rights of transgender people. The first item measures whether transgender people should have the same rights and protections as the general public. The second item measures whether the legal protections afforded to LG people should also apply to transgender people. The third item measures whether Congress should enact policies that protect transgender people from job discrimination.⁵ The questions within this battery were randomly rotated in order to avoid question order biases. A majority of the public agrees with each item, but these measures are not without their limitations. The second item presumes that respondents know the current state of legal protections for gay and lesbian people, which may not be the case. However, the sentiment of that item is whether transgender people should be treated politically like LG people. I assume that respondents address the question with this underlying interpretation. These three items are measured without questions that reverse the directionality of the scale, which may encourage acquiescence bias (McClendon 1991). Also, respondents may still confound transgender people with LGB people; however, I conduct separate analysis for respondents who randomly received a definition of transgender, and the results remain the same (Appendix 3).

The three transgender attitude items are combined to form a latent variable of attitudes toward transgender rights. This process is done with confirmatory factor analysis, which combines the three indicators into a single continuous scale. All three measures use a similar response option set and are asked in the same battery, so a scale is a parsimonious way to measure and analyze attitudes toward transgender rights. The results of the factor analysis are provided in Table 2, and the three items load onto a single factor.⁶ To identify the factor, the mean is set to zero, and the variance is set to 1. Positive values indicate positive attitudes toward transgender rights while negative values reflect negative attitudes. After

Table 1. Summary statistics and question details of variables.

Item	Wording	Mean	SD	Min	Max
Transgender Attitudes 1	Transgender people deserve the same rights and protections as other Americans	3.59	0.72	1	4
Transgender Attitudes 2	Legal protection that apply to gay and lesbian people should also apply to transgender people	3.32	0.87	1	4
Transgender Attitudes 3	Congress should pass laws to protect transgender people from job discrimination	3.14	1.06	1	4
Perception of Information	I feel I am well informed about transgender persons and issues	2.87	0.99	1	4
Know Someone Transgender	Please tell me whether you have a close friend or family member member who is transgender	0.11	0.32	0	1
Know Someone LG	Please tell me if you have a close friend friend or family member who is gay or lesbian	0.58	0.49	0	1
Opinion on Same-Sex Marriage	All in all, do you strongly favor, favor, oppose, or strongly oppose allowing gay and lesbian couples to marry legally? (Strongly Favor/Favor = 1)	0.51	0.50	0	1
Republican	In politics, as of today, do you consider yourself a Republican, a Democrat, or an Independent? (Republican = 1)	0.33	0.47	0	1
	Do you lean more to the Democratic Party or the Republican Party? (Republican = 1)				
Democrat	In politics, as of today, do you consider yourself a Republican, a Democrat, or an Independent? (Democrat = 1)	0.44	0.50	0	1
	Do you lean more to the Democratic Party or the Republican Party? (Democrat = 1)				
Born Again	Would you describe yourself as a “born again” or evangelical Christian, or not?	0.25	0.44	0	1
College Graduate	What was the last grade in school you completed?	0.29	0.45	0	1
Black	Which of the following best describes your race?	0.12	0.33	0	1
Female		0.50	0.50	0	1
18–29 Years Old	What is your age?	0.19	0.39	0	1
30–44 Years Old	What is your age?	0.25	0.43	0	1
45–64 Years Old	What is your age?	0.36	0.48	0	1

Table 2. Measuring attitudes about rights for transgender people. Factor loadings are an estimate of measurement reliability, with greater loading values indicating stronger measurement.

Variable	Factor loadings	SE	<i>P</i> -value	<i>R</i> ²
Transgender Attitudes 1	0.823	0.03	≈ 0	0.753
Transgender Attitudes 2	0.818	0.03	≈ 0	0.746
Transgender Attitudes 3	0.687	0.03	≈ 0	0.565

the model is fit, the estimated mean of transgender attitudes is 1.15 with a variance of 1.45, indicating that people have on average more positive attitudes toward transgender people, but the variation about that average is wide.

While there is high internal consistency and reliability in the attitudes toward transgender rights factor, the measures for transgender attitudes are unconventional to previous studies (Walch et al. 2012). Subsequent studies should examine to what extent this factor correlates with other transgender attitudes scales. Also, policy-specific questions as opposed to questions regarding rights in general may or may not lead to different findings (e.g., policies regarding hate crimes or public accommodations) because they may have differing sources of variation.

2.2. Perceived knowledge

To measure perceived information regarding transgender people, respondents are asked whether they feel informed about transgender people and transgender rights issues. A majority of respondents perceives it has sufficient information about transgender people, as 67% responded that they agree with the statement. While perceived knowledge is not the same as factual knowledge, there is some indication that the two are strongly related (e.g., Public Religion Research Institute 2011), and studies on other topics have found that perception of knowledge, though correlated with measures of objective knowledge, has an independent effect on attitudes and behaviors (Ellen 1994, Radecki & Jaccard 1995, Raju, Lonial & Mangold 1995). There is no additional measure of how much factual knowledge respondents have regarding transgender people. The inclusion of open-ended questions would have facilitated in measuring whether objective knowledge and perceived knowledge have unique effects on transgender rights attitudes. While the present study lacks this covariate, it is able to assess whether randomly treating people with objective knowledge changes any of the results, which it does not (Appendix 3).

2.3. Interpersonal contact

Though the public feels adequately informed, only 11% of the respondents report actually knowing someone who is transgender. This lies in contrast to the 58% reporting knowing someone who is lesbian or gay. There is a relationship between these two forms of interpersonal contact, indicating

that respondents who know someone who is lesbian or gay are also more likely to know someone who is transgender. Since the estimated size of the transgender population is a fraction of that of the LGB population (Gates 2011), the differences between reports of knowing LG people and transgender people are likely reflective of their relative prevalence in the population.

Interpersonal contact with LG people has consistently been shown to positively correlate with attitudes toward LGB people and rights (Bramlett 2012, Dyck & Pearson-Merkowitz 2014, Garner 2013, Herek & Capitanio 1996, Herek & Glunt 1993, Lewis 2011, Skipworth, Garner & Dettrey 2010) and transgender people (Norton & Herek 2013, Tee & Hegarty 2006). The bivariate relationship between attitudes on transgender rights and interpersonal transgender contact is positive ($b = 0.32$; $SE = 0.03$; $p = .07$), indicating that interpersonal contact operates as expected. Since both forms of contact are measured in this study, direct effects and secondary transfer effects can be examined.

2.4. Favorable LGB rights attitudes

To test the hypothesized mechanism of attitude generalization, this study relies on a measure regarding opinions on legal recognition of marriages for same-sex couples. About half of the respondents support same-sex marriage. Though legal recognition of marriages for same-sex couples may be considered more broadly as being an LGBT issue, because some transgender people may be in committed same-sex relationships, the public discourse on this topic has primarily constituted the issue as gay (e.g., Stone 2012; see also Lewis et al. 2014). This is also reflected in survey experiments, where varying “homosexual,” “gay or lesbian,” or “same-sex” couples has no effect on how the mass public responds to questions regarding marriage recognition (McCabe & Heerwig 2011).

3. Analysis and results

The data are analyzed in three separate steps. The correlates of perceived knowledge are initially analyzed. This explores whether and to what extent people who report greater knowledge about transgender people may be biased toward specific subsets of the population. I then use the structural equation modeling to examine the correlates of the attitudes toward transgender rights factor, which estimates the factor and the regression simultaneously. The covariates in the model include perceived knowledge of transgender people and rights, having a friend or family member who is lesbian or gay, and having a friend or family member who is transgender. This examines whether subjective or perceived knowledge relates to how supportive people tend to be on transgender rights. The analysis also provides an assessment of interpersonal transgender contact and secondary transfer of LG contact. To determine whether attitude generalization explains secondary transfer effects of contact with a lesbian or gay person, I then estimate a mediation model positioning opinions on same-sex marriage between LG contact and attitudes toward transgender rights. Also included are controls for basic demographic characteristics, which are limited to race, ethnicity, gender, age, partisanship, and identification as an

Table 3. Ordinal logistic regression results on perception of information about transgender people and their rights. Regression coefficients are unstandardized.

Variable	DV = Perception of Information		
	Estimate (<i>b</i>)	SE	<i>P</i> -value
Know Someone Transgender	-0.08	0.26	0.762
Know Someone LG	0.78	0.16	≈ 0
Democrat	0.04	0.23	0.846
Republican	-0.38	0.24	0.120
Born Again	0.10	0.19	0.610
College Graduate	0.56	0.16	0.001
Black	0.25	0.22	0.261
Latino	0.13	0.33	0.687
Female	0.13	0.16	0.413
18–29 Years Old	-0.18	0.27	0.496
30–44 Years Old	0.01	0.22	0.962
45–64 Years Old	0.22	0.17	0.210
Cut 1	-1.38	0.26	
Cut 2	-0.15	0.23	
Cut 3	1.57	0.24	
Pseudo- <i>R</i> ²	0.03		
<i>N</i>	966		
AIC	2450.49		
BIC	2523.58		
Log-likelihood	-1210.24		

Note: AIC, Akaike information criterion; BIC, Bayesian information criterion

Evangelical Christian. The survey did not document other potential covariates that previous studies indicate as significant predictors of transgender attitudes such as religiosity or authoritarianism (Norton & Herek 2013), which may underspecify the models.

3.1. Correlates of perceived knowledge

The results of the analysis on perceived knowledge are reported in Table 3. Respondents who know someone lesbian or gay are more likely to perceive that they are more knowledgeable of transgender people and their rights. The likelihood for respondents to completely agree that they are well informed changes by 15.3% (SE = 3.1, $p < .001$) if they have a close friend or family member who is lesbian or gay. Respondents who have a college degree are more likely to report higher levels of perceived knowledge by a similar magnitude. This effect likely relates to both the exposure to diversity that corresponds with the college experience and critical thinking that challenges previous beliefs (e.g., Lottes & Kuriloff 1994). No other correlate reaches statistical significance.

3.2. Correlates of attitudes toward transgender rights

The results of the analysis on attitudes toward transgender rights are provided in Table 4. All of the fit statistics indicate that the model is an appropriate fit to the data, which ensures that the parameter estimates in the model are valid. Both fit indices are above the recommended minimum of 0.95, the root mean square error of approximation (RMSEA) is below 0.05 with a lower bound of the 95% confidence interval including zero, and the chi-square goodness of fit indicates no significant differences between the saturated model and the model proposed (Hu & Bentler 1999).⁷

Since the transgender attitudes factor is continuous, the coefficients are interpreted similarly to traditional OLS estimates. The results indicate that respondents who increasingly feel they have greater knowledge of transgender people and transgender rights issues are increasingly more positive in their attitudes toward transgender people. This result corresponds with studies regarding positive attitude changes with increased familiarity about minorities. Changing public attitudes on LGB rights corresponds with increased coverage of LGB people in popular media (Garretson N.d.). A likely mechanism is that familiarity generates a form of parasocial contact, which corresponds with empathy and attitude change (Batson et al. 1997). Since those who perceive they have greater knowledge on this topic tend to be respondents who have greater educational attainment, it is also likely that the college environment fosters greater support for transgender people. The observed effect of college education is not statistically significant, indicating that the perception of information may account for this effect.⁸ There are likely many other avenues that people may take in facilitating their understanding and knowledge about transgender people.

The results also indicate that, after including all of the covariates, respondents who report having a transgender family member or friend have a weakly negative and insignificant relationship to attitudes on transgender rights. The results indicate that respondents who report having a lesbian or gay family member or friend have a strongly positive effect on attitudes toward transgender rights. This finding replicates the secondary transfer effect that is observed in a student sample in Tee & Hegarty (2006), and it complements the findings in Norton & Herek (2013) with the additional covariate of knowing someone who is transgender. The effect of knowing someone who is LG is the largest positive covariate on transgender attitudes.

The controlling covariates indicate that many of the demographic attributes about respondents that correspond to LGB attitudes operate similarly for attitudes toward transgender rights. Respondents are more positive on the transgender attitudes factor if they are Democrats, are female, and are younger. Respondents are more negative on the transgender attitudes factor if they are Republicans, identify as Born Again, and identify as Black.

3.3. Secondary transfer effects and attitudes generalization

The secondary transfer of positive attitudes from LG contact to attitudes toward transgender rights is among the largest positive covariates. A hypothesized mechanism from LG contact to positive transgender rights attitudes is attitude generalization. The secondary transfer of interpersonal contact

Table 4. Structural regression results on attitudes toward transgender rights. Regression coefficients are unstandardized.

Variable	DV = Transgender Attitudes Scale		
	Estimate (<i>b</i>)	SE	<i>P</i> -value
Perception of Information	0.147	0.051	0.004
Know Someone Transgender	-0.008	0.201	0.969
Know Someone LG	0.530	0.105	≈ 0
Democrat	0.507	0.153	0.001
Republican	-0.361	0.155	0.020
Born Again	-0.356	0.115	0.002
College Graduate	0.174	0.115	0.132
Black	-0.590	0.170	0.001
Latino	-0.194	0.250	0.439
Female	0.475	0.109	≈ 0
18–29 Years Old	0.478	0.188	0.011
30–44 Years Old	0.217	0.163	0.130
45–64 Years Old	0.138	0.117	0.236
R^2	0.311		
N	963		
χ^2_{26}	26.42		0.440
CFI	1.00		
TLI	0.999		
RMSEA	0.004; 95% CI [0.00, 0.026]		
WRMR	0.54		

Table 5. Mediation analysis from LG contact to attitudes toward transgender rights. Estimated effects are adjusted according to Imai, Keele, and Tingley (2010).

	DV = Transgender Attitudes Scale		
	Estimate (<i>b</i>)	SE	<i>P</i> -value
Mediation	0.37	0.09	≈ 0
Direct	0.44	0.15	0.002
Total	0.81	0.03	≈ 0
<i>N</i>	965		
AIC	5568.51		
BIC	5858.52		
Log-likelihood	-2795.26		

may operate through support of LGB rights. To examine this mechanism, opinions on same-sex marriage are positioned as a mediator between LG contact and attitudes toward transgender rights. The results of the mediation model are reported in Table 5. Imai, Keele & Tingley (2010) show that traditional mediation analysis produces unreliable and inconsistent estimates when dependent variables are not continuous, so I report the results using the adjustments they recommend for causal mediation estimation. The other covariates are also included in this model, which includes controlling for transgender interpersonal contact. By controlling for this form of interpersonal contact, secondary transfer effects and the hypothesized mechanism are more clearly specified.

The results of the mediation analysis indicate that LG contact is a significantly positive predictor of opinions on same-sex marriage, and opinions on same-sex marriage are also significantly and positively related to attitudes toward transgender rights. The mediation and direct effect of LG contact are positive and significant, which indicates that attitude generalization partially mediates the effect of LG contact. About half of the total effect of LG contact operates through attitude generalization (percent mediated = 45.8, SE = 10.04, $p < .001$).

4. Discussion

The present analyses provide significant added insights using a national probability-based sample and also replicate findings from previous studies. First, these analyses are the first to examine attitudes toward the rights afforded to transgender people as opposed to general feelings toward them (Norton & Herek 2013) or transphobia (Walch et al. 2012). Though rights, feelings, and transphobia are potentially highly correlated, the relationship is likely not perfect. Second, Norton & Herek (2013) find that educational attainment is positively related to transgender feeling thermometer scores, and the present study finds a similar relationship with perceived knowledge about transgender people. On rights, however, educational attainment is only a significant covariate when perceived knowledge is not included (Appendix 2). This suggests that previous studies finding positive effects of educational attainment may be due to how much knowledge respondents believe they have on certain topics. Other studies have noted that the college experience influences greater exposure to diversity and critical thinking that challenges previous beliefs

(Lottes & Kuriloff 1994). This also indicates that student-based samples on this topic, which comprise the majority of the studies in the USA, may encompass the portion of the population that has the greatest amount of knowledge about transgender people. Third, the present study builds upon the findings of Tee & Hegarty (2006) and Norton & Herek (2013) who find secondary transfer effects of LG contact. It builds upon the two previous studies by accounting for transgender contact effects and by using a nationally representative sample. Finally, it has been theorized that secondary transfer effects occur through a process of attitude generalization (Schmid et al. 2012, Tausch et al. 2010). The current study advances the literature by showing that this mechanism also operates regarding LG contact and attitudes toward transgender rights.

The dearth of studies on public attitudes about transgender people indicates a great need for scholars to include such items in nationally representative samples. Without sufficient data, attitudes about transgender people are left to anecdote, and transgender people are relegated to a silent class of persons in public opinion research. The findings from this study support the secondary transfer effect, which has been only observed while controlling for primary interpersonal contact in a British student sample. Since only 11% of the respondents report having a friend or family member who is transgender, and approximately 0.3% of the population identifies as transgender (Gates 2011), broader contact with LGB people indicates that there is a transfer of attitudes about LGBs to transgender people.

The results of the mediation analysis indicate this more clearly, with about half of the secondary transfer effect explained by attitude generalization. There is substantial overlap among respondents who know both someone who is lesbian or gay and who know someone who is transgender. Of respondents who have a close family member or friend who is lesbian or gay, 18.94% report knowing someone who is transgender, while among respondents who lack a close lesbian or gay friend or family member, 0.77% have a close family or friend who is transgender.⁹ Interpersonal contact may not reduce prejudice only with the group one is having contact. It can also reduce prejudices to other minority groups (Schmid et al. 2012). The research analyzing interpersonal contact with lesbians and gay men consistently shows that there are positive effects on attitudes about them (Bramlett 2012, Dyck & Pearson-Merkowitz 2014, Garner 2013, Herek & Capitanio 1996, Herek & Glunt 1993, Lewis 2011, Skipworth, Garner & Dettrey 2010). The transfer of these effects to transgender people indicates that people in general apply one reduction of prejudice to another group.

How this mechanism operates deserves further unpacking. Do people who have a close lesbian or gay friend or family member then make friends with transgender people? And, if so, does this explain why the secondary transfer effect is present but the direct effect of transgender contact is insignificant? While secondary transfer effects are generally about groups that have no relation to the contacted group member, the proximity of transgender people to LGB people in political coalitions (e.g., the LGBT “community”; cf. Currah, Juang, and Minter 2006) potentially leads to stronger effects than contact with other minority groups. These are research questions and hypotheses for future studies.

The Public Religion Research Institute shows that respondents who report familiarity with the term transgender are more likely to provide a more accurate definition of transgender. The results from the analysis show that familiarity relates positively to attitudes about transgender people. Having a close friend or family member who is lesbian or gay is a significant predictor of this perceived knowledge, and attaining a college education is also significant. The college experience may influence how much information one has about transgender people and rights, which may subsequently affect their attitudes.

Additionally, attitude changes on LGB rights relate to simultaneous dynamics of interpersonal contact, generational change, and parasocial contact. If representations of LGB people in mass media account for some of the attitude change about LGBs and LGB rights (Brewer 2003a, Garretson N.d.), then how might representations of transgender people also build on the familiarity about transgender people and transgender rights? A key strategy of transgender advocacy organization and news media has been to educate the mass public about transgender people. With contemporary media embracing performers who are openly transgender (e.g., Laverne Cox in the popular Netflix show *Orange is the New Black*), it remains unknown how this may translate to greater objective and subjective knowledge of the experiences of transgender people. Additionally, what are the processes people take to translate awareness to political support? This initial analysis finds that the people who are likely to have more positive attitudes toward transgender people tend to be the same types of people who are supportive of LGBT rights in general.

This is the second nationally representative study on attitudes toward transgender people, and it is unique in its focus on attitudes on rights. And it leaves the topic with more questions than it addresses, and further research is needed. Transgender people face social stigma, and they face unique stressors that result in negative outcomes in health, economics, and livelihood (Clements-Nolle, Marx & Katz 2006, Currah & Minter 2000, Fogg Davis 2014, Grant et al. 2011, Haas, Rodgers & Herman 2014, Herman 2013, Lombardi et al. 2002). Public policy may be one avenue to benefit the health outcomes for stigmatized groups (cf. Hatzenbuehler 2010, Hatzenbuehler et al. 2014). Those seeking relief from such stigma have taken to political institutions (Currah & Minter 2000). The development of transgender advocacy organizations to pass policies that incorporate gender identity and transgender status has taken both legal and political tracks. Policy development inherently requires legislation, and policy that rests on majority vote generally reflects public sentiment. Given the breadth and depth of the research on public attitudes about LGB people, there is a great need to fill a gap in the research on public attitudes about transgender people.

Finally, perceived knowledge and secondary interpersonal contact also addresses the politics of other groups, especially about minority populations that may face social stigma when one's minority status may not be known. These minority groups may be in coalition with others who advocate for their rights. For example, attitudes toward the rights of undocumented Latino immigrants are related to cultural affinity with and racism toward Latinos in general (Cowan, Martinez & Mendiola 1997, Espenshade & Calhoun 1993). How might interpersonal contact with documented or native Latinos broaden support

for the rights of undocumented immigrants? One's minority status may be concealable like that of LGBT people or for undocumented immigrants. People have fewer opportunities to interact with certain minority populations, so how do people change their attitudes regarding the rights of those populations? People may generalize their interactions with one minority population to attitudes toward other minority groups, increasing both their perceived knowledge and support for the rights of other minority groups. Do minorities who are a part of the same or proximate political coalitions have stronger secondary transfer effects than that of other minorities? If so, then this may provide an additional benefit to advocacy coalitions, where people condition their attitudes on one coalition group based on their interactions with another.

Notes

¹Throughout the manuscript I use LGBT, LGB, and LG to specifically reference different subsets of the lesbian, gay, bisexual, and transgender population. This is done for conceptual clarity of the current study and previous studies.

²The term "transgender people" is used throughout to describe people "whose gender identity or expression is different from those traditionally associate with their sex assigned at birth" (Herman 2013, p. 65).

³Some transgender people may also identify as LGB, which means that they be counted in both estimates of the LGB and transgender population. Direct comparison of these population estimates is imprecise, but it is the best available at the current moment.

⁴"Cisgender" is a term that refers to people whose gender identity or expression is the same as is traditionally associated with their assigned sex at birth (see Aultman 2014).

⁵A random half of the respondents received an explicit definition of transgender prior to this battery, which resulted in insignificant differences in the overall results. Analyses are combined for this analysis, and including a control for this treatment does not alter the results (see also Appendix 3).

⁶Table 2 reports the results of the measurement component of the structural equation model. The fit statistics are in Table 4 with the regression results. The models are estimated in *Mplus* 7.11, which incorporates the ordinal nature of the dependent variables. The model is estimated using weighted least squares with mean adjusted variance (Muthén & Muthén 1998–2014).

⁷Evaluating model fit in multivariate structural equation model requires the reporting of multiple fit statistics. I report the chi-square statistic, Tucker Lewis Index (TLI), comparative fit index (CFI), RMSEA, and weighted root mean square residual fit index (WRMR). The chi-square should be statistically insignificant, both TLI and CFI should be above 0.95, the RMSEA should be small and have 0 in its 90% confidence interval, and the WRMR should be less than 1.

⁸A subsequent mediation model was investigated, which indicated that a portion of the effect of college education was mediated through perceived knowledge. However, the mediation and direct effects did not reach statistical significance, which may have more to do with analytical power.

⁹An interaction between LG interpersonal contact and transgender interpersonal contact results in insignificant conditional effects; this may be due to insufficient analytical power. See also Appendix 2 for separate auxiliary models for each key covariate (e.g., perceived knowledge, LG contact, and transgender contact).

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A. Auxiliary regressions analyzing the dependent variables separately

The manuscript relies on a scale measuring attitudes toward transgender people. This appendix provides results of multivariate ordered logit regressions on each of the dependent variables. Though the primary findings do not substantively change, the results for Transgender Attitudes 3 provide some indication of difference. The effect of familiarity is positive but is not quite statistically significant, and the effect of having a transgender friend or family member changes to a positive direction, though still statistically insignificant. As this measure had the lowest factor loading, it is less surprising that this measure has greater unique effects. The estimated effects in Table A1 do not significantly vary across the three dependent variables. Only three variables, identifying as a Republican, having attained at least a college degree, and being within 18–29 years old, have significant differences in estimated effect sizes.

Table A1. Auxiliary regressions on transgender attitudes. Regressions are ordered logistic regressions that estimated in a single multivariate model, and the standard errors are in the parentheses.

Variable	DV = Trans. Att. 1	DV = Trans. Att 2	DV = Trans. Att. 3
Perception of information	0.14 (0.05)**	0.12 (0.05)**	0.08 (0.05)
Know Someone Transgender	0.00 (0.23)	-0.13 (0.17)	0.17 (0.19)
Know Someone LG	0.43 (0.12)***	0.39 (0.10)***	0.41 (0.10)***
Democrat	0.46 (0.16)**	0.28 (0.14)	0.46 (0.14)***
Republican	-0.09 ^a (0.16)	0.13 (0.14)**	0.01 ^a (0.14)*
Born Again	-0.26 (0.12)**	-0.30 (0.11)**	-0.28 (0.11)*
College Graduate	0.29 ^a (0.13)*	0.13 (0.11)	0.01 ^a (0.11)
Black	-0.56 (0.19)**	-0.41 (0.17)*	-0.41 (0.16)*
Latino	-0.11 (0.26)	-0.20 (0.24)	-0.13 (0.26)
Female	0.27 (0.12)*	0.41 (0.10)***	0.40 (0.10)***
18–29 Years Old	0.71 ^a (0.23)**	0.27 (0.18)	0.24 ^a (0.18)
30–44 Years Old	0.20 (0.17)	0.16 (0.16)	0.22 (0.15)
45–64 Years Old	0.18 (0.12)	0.07 (0.11)	0.009 (0.10)
Cut 1	-0.94 (0.23)	-0.94 (0.21)	-0.43 (0.20)
Cut 2	-0.48 (0.23)	-0.45 (0.21)	-0.13 (0.20)
Cut 3	0.57 (0.23)	0.72 (0.20)	0.80 (0.20)
<i>N</i>	963		
χ^2_{48}	190.07		

* $p < .05$; ** $p < .01$; *** $p < .001$ (two-tailed)

^aDifferences between coefficients are significant at $p < .05$ (two-tailed)

B. Auxiliary regressions analyzing key covariates separately

Only full model regressions are provided in the final study, and since there is substantial overlap among respondents who report knowing someone who is transgender and someone who is LGB, this appendix provides regression results analyzing the key covariates separately on attitudes toward transgender people. The effects of both LG interpersonal contact and perceived knowledge remain positive and statistically significant, while the effect of transgender interpersonal contact is now positive though statistically not distinguishable from zero. As noted in the main document, the effect of transgender interpersonal contact is significant when there are no other covariates in the model.

Table A2. Auxiliary regressions on attitudes toward transgender people, analyzing each key covariate separately.

Variable	DV = Perception of Information		DV = Transgender Attitudes Scale		
	(1)	(2)	(3)	(4)	(5)
Perception of information	-	-	0.19 (0.05)***	-	-
Know Someone Transgender	0.22 (0.25)	-	-	0.24 (0.19)	-
Know Someone LG	-	0.76 (0.16)***	-	-	0.58 (0.10)***
Democrat	0.07 (0.24)	0.05 (0.23)	0.51 (0.15)***	0.52 (0.15)***	0.51 (0.015)***
Republican	-0.42 (0.25)†	-0.37 (0.24)	-0.38 (0.15)*	-0.39 (0.13)**	-0.38 (0.15)*
Born Again	0.04 (0.19)	0.09 (0.19)	-0.37 (0.11)***	-0.36 (0.11)***	-0.33 (0.11)**
College Graduate	0.60 (0.16)***	0.56 (0.17)***	0.20 (0.11)†	0.27 (0.11)*	0.24 (0.11)*
Black	0.25 (0.22)	0.25 (0.17)	-0.56 (0.17)***	-0.53 (0.16)***	-0.55 (0.17)***
Latino	0.08 (0.36)	0.13 (0.33)	0.52 (0.25)	0.51 (0.24)	0.47 (0.25)
Female	0.20 (0.16)	0.13 (0.16)	0.52 (0.11)***	0.51 (0.10)***	0.47 (0.11)***
18–29 Years Old	-0.10 (0.27)	-0.19 (0.27)	0.55 (0.19)**	0.53 (0.19)**	0.48 (0.19)**
30–44 Years Old	0.14 (0.21)	0.01 (0.22)	0.33 (0.16)*	0.32 (0.16)*	0.24 (0.16)
45–64 Years Old	0.26 (0.17)	0.22 (0.17)	0.16 (0.12)	0.18 (0.11)†	0.16 (0.11)
<i>N</i>	966	966	963	990	990
χ^2_{22}			24.00	29.36	24.92
CFI			0.998	0.993	0.997
TLI			0.996	0.988	0.995
RMSEA [90% CI]			0.01 [0, 0.03]	0.02 [0, 0.03]	0.012 [0, 0.03]
WRMR			0.54	0.61	0.57
AIC	2493.78	2458.04			
BIC	2562.00	2526.27			

† $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$ (two-tailed)

C. Multi-group analyses to assess whether objective knowledge generates any differences in reported effects

A random half of the sample received the following definition of transgender before asking the questions used to develop the attitudes toward transgender rights scale: “The term ‘transgender’ applies to people who live out their gender in a way that does not match the sex listed on their original birth certificate, or who physically change their sex.” Since a random half of the sample was treated with objective knowledge, I can assess whether respondents in the treatment and control groups have any significant differences across the analyses that were performed. I do this by reporting the results of chi-square difference tests from multiple group analyses. I test whether allowing the models to estimate unique parameters for the treatment and control groups (Variant) results in a more optimal model fit than when the parameters are constrained to be equal across conditions (Invariant). I re-analyze every model in the study, including the appendices in Table A3. I find that there are no significant differences if I constrain the treatment and control groups to equality on all parameters in any of the models reported in this study.

Table A3. Difference testing from multiple group analyses allowing parameters to be uniquely estimated across groups (Variant) and constrained to equality (Invariant).

Model	Variant	Invariant	$\Delta\chi^2$ (df)
DV = Perceived knowledge	0.00	7.44	7.90 (12)
DV = Attitudes toward transgender scale	412.32	355.08	11.46 (13)
Mediation model	87.09	104.27	26.12 (27)
Separate dependent variable model	0.00	45.02	45.71 (48)
Appendix B Model 1	0.00	9.35	9.88 (11)
Appendix B Model 2	0.00	6.72	7.26 (11)
Appendix B Model 3	54.47	62.55	10.78 (11)
Appendix B Model 4	59.64	61.30	8.64 (11)
Appendix B Model 5	53.14	58.87	9.29 (11)

Note: The Variant column reports chi-square fit statistics from a multiple group model that allows the treatment and control groups to have unique parameter estimates. The Invariant constrains both groups to have equal parameter estimates. The $\Delta\chi^2$ column reports whether these two models are significantly different from one another.