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Political Solidarity: A Theory and a Measure

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Abstract

Political solidarity is often key to addressing societal injustice. Yet social and political psychology are without a common definition or comprehensive measure of this construct, complicating advancements in this burgeoning field. To address these gaps, we advance a novel understanding and measure of this construct. We conceptualized political solidarity as a construct consisting of three factors—allyship with a minority outgroup, a connection to their cause, and a commitment to working with them to achieve social change—that can emerge within and across social groups. Five studies empirically supported our conceptualization and measure; all participants were Canadian university students. In Study 1, 1,594 participants completed the initial 30-item pool. A series of exploratory factor analyses, along with indices of factor retention, supported the three-factor model. We retained three items per factor to create the 9-item Political Solidarity Measure (PSM). This three-factor model adequately fit Study 2 data (N = 275). In Study 3 (N = 268), we found evidence of the PSM's convergent and discriminant validity. Studies 3 and 4 assessed the PSM's retest stability in the medium-term (three to six months; Study 3) and short-term (a three-week period; Study 4; N = 126). Finally, we demonstrate the PSM's predictive validity in Study 5 (N = 221). Controlling for modern racism, political orientation, and gender, PSM scores predicted collective action intentions and behavior benefitting the outgroup: Participants who reported higher political solidarity donated more to the outgroup's cause and were more likely to agree to create a message of support.

Keywords: political solidarity, collective action, scale development, scale validation, intergroup relations

Non-Technical Summary

Background
Despite progress towards intergroup equality worldwide, many minority groups are still seeking equitable treatment. One route to resolving these inequalities is through political solidarity.

Why was this study done?
There isn't a comprehensive definition of political solidarity or way to assess it. A measure would allow researchers and advocates to quantify political solidarity and better compare the levels of political solidarity across different studies, contexts, and points in time. For example, measuring political solidarity for a particular "cause" before and after an advocacy campaign would help to determine if the advocacy campaign increased peoples' solidarity.

What did the researchers do and find?
First we carefully reviewed existing research and studied social movements. This review suggested that political solidarity has three aspects: allyship with the minority outgroup, a connection to their cause, and a commitment to work with them for social change. To develop a reliable and valid measure of political solidarity, we then conducted five studies, following best practices in measurement science. Through our work, we developed the "Political Solidarity Measure" or "PSM." The PSM is a questionnaire: People who complete the PSM indicate how much they agree or disagree with nine

statements tailored to a specific group or cause (e.g., "I stand in solidarity with _____"). A set of statements assess each of the three aspects of solidarity. Importantly, we found the PSM predicted solidarity in both attitudes and behavior. In one study, people who scored higher on the PSM were more likely to create a public message of support for the outgroup and donate money to a related charity.

What do these findings mean?
Political solidarity refers to how much people feel they're an ally of, connected to, and committed to working for social change with an outgroup. The PSM is a valid and reliable measure of political solidarity.

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Despite much progress towards equality, many minority groups worldwide still seek equitable treatment. Consider the Canadian context. Women earn less money than do men, even when considering hours worked, experience, and education (McInturff & Lambert, 2016). Transgender people are at an increased risk for various physical and mental health struggles due to structural barriers to employment and medical care (Bauer & Scheim, 2015) and high rates of physical and verbal abuse (Égale, 2011). Of particular gravity is the experience of Indigenous Peoples in Canada, where Indigenous Peoples are overrepresented in the justice system (Reitano, 2017), are less likely to have clean running water (Neegan Burnside, 2011), and experience poorer health care (Allan & Smylie, 2015).

How can these and other striking inequities be rectified? In many cases, the work needed for social change is undertaken by members of the impacted groups themselves. For nearly 20 years, members of Shoal Lake #40 First Nation reserve have been unable to drink their tap water—while simultaneously providing drinking water to the nearby City of Winnipeg. One of many powerful instances of the residents' advocacy was in 2016 when Linda Redsky travelled to Geneva to address the United Nations on the state of her community's drinking water (CBC, 2016). Instances such as these, of people fighting to advance the rights and dignities of their own group, are in some ways unsurprising; after all, one might intuit that ingroup members would know the most about their struggles and thus be most motivated to achieve equitable outcomes (but see Freire, 1970; Hafer & Bègue, 2005; Jost, 1997, 2017; Jost & Banaji, 1994; Lerner, 1980; van Zomeren, Postmes, & Spears, 2008; Wright, Taylor, & Moghaddam, 1990).

Sometimes, however, ingroup-led activism is supported by the efforts of outgroup members. If done in a respectful and empowering way, the support of outgroup members can be an important part of reaching the ingroup's goals (but see Scholz, 2008). One way that outgroup members can do this is through raising awareness among their group. People tend to react more positively to claims of discrimination against a group when the claims are pre-

sented by members of a non-impacted outgroup, rather than the impacted group themselves (Czopp & Monteith, 2003; Kaiser & Miller, 2001; Mallett, Huntsinger, Sinclair, & Swim, 2008; Yeung, Kay, & Peach, 2014). Outgroup members who belong to high status groups can be particularly impactful, as their relative social and economic power can be instrumental in advancing social change for the group (Mallett et al., 2008; Scholz, 2008). Following this logic, members of Shoal Lake #40 used "very strategic advocacy in getting White faces and conservatives onboard" (C. Cotten, Personal communication, January 14, 2016). This involved partnering with prominent White Winnipeggers, including award-winning Christian musician Steve Bell and conservative Member of Parliament Joy Smith, who used their platforms to raise support for the issue (Bell, 2015; CBC, 2015). According to Shoal Lake #40, the pressure elicited by these outgroup members is what compelled all levels of Canadian government to commit to bringing clean running water to their community (C. Cotten, Personal communication, January 14, 2016).

Instances such as these—of outgroup members supporting others in their quest for equality—are the focus of this paper. Specifically, we sought to develop and validate a quantitative measure of this construct, termed *political solidarity*. To measure a construct, however, it is necessary to first define it.

Political Solidarity

We define political solidarity as the degree to which a person "stands with" a minority outgroup and their cause and is committed to working alongside them to achieve the desired social change (see also Starzyk, Neufeld, El-Gabalawy, & Boese, 2019). Here, the terms "minority" and "majority" respectively refer to social groups in a given context that have lower and higher levels of social status, power, or privilege (Tajfel, 1981; van Zomeren et al., 2008; see also Seyranian, Atuel, & Crano, 2008). Political solidarity can emerge across and within these status categories: A majority group member can feel political solidarity towards a minority outgroup (Greenwood, 2015; Stavrova & Schlösser, 2015; Subašić, Reynolds, & Turner, 2008; Turner & Reynolds, 2004; Wiley, Srinivasan, Finke, Firnhaber, & Shilinsky, 2013), and a minority group member can feel political solidarity towards a minority outgroup (Craig & Richeson, 2012, 2014; Glasford & Calcagno, 2012; Starzyk et al., 2019; Vollhardt, Nair, & Tropp, 2016; but see Calcagno, 2017).

The above articulation of political solidarity emerges from an examination of academic literature within and beyond social and political psychology, as well as the understandings and actions of related organizations and social movements. As outlined below, our review suggested that political solidarity consists of three components: allyship with the minority outgroup, a connection to their cause, and a commitment to social change. Note that although some authors view political solidarity as a process (Subašić et al., 2008) or as synonymous with social action (i.e., an outcome; Glasford & Calcagno, 2012), we view it as a psychological state (like other attitudes towards social issues; Conley, 1984); we nonetheless review all perspectives below.

Components of Political Solidarity

Allyship with the minority outgroup — Political solidarity is inherently relational, involving a feeling of allyship with the minority outgroup. Allyship is thus here defined as a sense of connection or unity with the outgroup (Scholz, 2008). To illustrate, consider how in social movements people sometimes refer to the outgroup as their brothers or sisters, or express feelings of brotherhood or sisterhood with the outgroup, which connote a relational bond or "togetherness."

It is important to note that allyship is distinct from outgroup identification. Although psychologists often view ingroup identification as a precursor to or synonymous with *ingroup* solidarity (e.g., Leach et al., 2008), we contend that a parallel process of outgroup identification for *political* solidarity is possible but perhaps less likely and also unnecessary for allyship. Identifying with an outgroup is presumably less common than identifying with one's ingroup, given that group identification stems from group membership (Tajfel & Turner, 1979). Although it is possible to forge a superordinate identity among groups (Cortland et al., 2017), doing so can backfire, such as by lessening solidarity (Craig & Richeson, 2014, 2016) or increasing hostility and intergroup competition (Noor, Shnabel, Halabi, & Nadler, 2012). Evoking a common identity also runs the risk of minimizing important group differences in lived experience (Dovidio, Gaertner, & Saguy, 2007; Shnabel, Halabi, & Noor, 2013) or ignoring injustices and power imbalances (Saguy, 2018; Saguy, Tausch, Dovidio, & Pratto, 2009; Wright & Baray, 2012), all of which can be key to addressing the social injustice at hand (hooks, 1984; Scholz, 2008; Shnabel & Ullrich, 2016). Further, a person can experience political solidarity with an outgroup without experiencing the same disadvantage and may therefore be unable to identify with the group on the basis of that disadvantage—as illustrated by the White Winnipeggers who had clean tap water yet campaigned in support of the Indigenous Peoples of Shoal Lake #40. For these reasons, identification with the minority outgroup may sometimes be part of allyship but is not necessary for allyship.

Connection to the minority outgroup's cause — Allyship can stem from or reinforce a connection to the outgroup's cause, which is another component of political solidarity. By "cause connection", we mean feelings of responsibility to the minority outgroup's cause. As Subašić et al. (2008) have suggested, this connection can be so strong that a person develops "a sense of common cause" (p. 331) and "comes to embrace the minority's cause as [their] own" (p. 331). For example, because feminism is typically associated with womyn's issues, cisgender men are in some ways the outgroup. But even cisgender men can be feminists if they come to develop a sense of common cause with feminism. Yet political solidarity involves more than agreeing that a cause is important; it also involves a commitment to do something about it.

Social change commitment — The third component of political solidarity is social change commitment. Subašić et al. (2008) asserted that political solidarity involves "not only help[ing] the minority but also challeng[ing] the authority and the status quo" (p. 345) as well as "existing intergroup power relations [to] achieve social change" (p. 331). Similarly, in differentiating political solidarity from other forms of solidarity, philosopher Scholz (2008) argued that political solidarity is uniquely characterized by "a conscious commitment to join with others in struggle to challenge a perceived injustice" (p. 34). Indeed, social movements are typically organized around dismantling a perceived injustice to create social change. The political agreement of Solidarity-US (2013), for example, calls for radical social change that "shatters the foundations of patriarchy, white supremacy, settler-colonialism, and capitalist rule" ("Basis of Political Agreement", point 3). We therefore use the term "social change commitment" to refer to a dedication to work alongside an outgroup for their desired cause.

The Case for a Measure of Political Solidarity

No existing measures capture political solidarity as articulated above. Existing measures of solidarity—whether in the context of within group, intraminority, or political solidarity—are typically uni- or bi-dimensional. For instance, existing measures assess positive emotions towards the group (Dragojevic & Giles, 2014; Wheeless, 1976), identification with the group (Doosje, Ellemers, & Spears, 1995; Leach et al., 2008; Wiley et al., 2013), and beliefs that the ingroup and outgroup should "stick together" (Glasford & Calcagno, 2012, Study 1). Other measures relate

to various forms of support, such as prosocial attitudes towards the outgroup (Stavrova & Schlösser, 2015; Vollhardt et al., 2016), expressions of support for resolving the outgroup's cause (Cortland et al., 2017), empathic concern towards the outgroup (Papacostas, 2012), and collective action intentions to help address the outgroup's cause (Chayinska, Minescu, & McGarty, 2017; Dixon et al., 2017; Glasford & Calcagno, 2012, Study 2; Saab, Tausch, Spears, & Cheung, 2015; Subašić, Schmitt, & Reynolds, 2011). A notable exception to the uni- or bi-dimensional measurement of solidarity comes from Smith, McGarty, and Thomas (2018), who assessed Twitter users' solidarity with refugees by coding the proportion of their tweets that communicated pro-refugee sentiment, affiliation, loyalty, and collective action.

Though appropriate in certain situations, none of these measures can assess the tripartite political solidarity advanced earlier. Imagine, for example, studying men's political solidarity with women with only a measure of positive emotions towards women, which is somewhat akin to the understanding of allyship articulated above. A benevolently sexist (Glick & Fiske, 1997) man might have very positive emotions towards women, such as warmth and trust. But because benevolent sexism involves wanting to keep women in subordinate societal roles, he would likely not feel connected to women's movements or be committed to engendering gender equality. Measuring only positive emotions as an indicator of political solidarity would in this case lead to a false positive, ignoring the important facets of cause connection and commitment to social change. To build a comprehensive theory and body of literature on political solidarity, it is necessary to develop a more comprehensive measure that taps each of the three hypothesized components.

A comprehensive measure of political solidarity would also yield practical benefits and applications. For example, such a measure would reveal groups of people whose political solidarity is notably high or low; with this information, researchers and advocates could tailor interventions according to a demographic's existing solidarity levels. Those interested could also track political solidarity over time, such as in response to world events, advocacy campaigns, or laboratory-based interventions. A political solidarity measure would also facilitate cross-study comparisons of impacts of efforts to imbue solidarity. Although this kind of comparison is possible when each study uses a different measure, an advantage of using the same measure is that it would minimize differences in effect sizes due to differences in measurement. As the body of research on political solidarity grows, so too does the need for a validated, comprehensive measure.

The Current Research

The goals of the current research were to develop a comprehensive measure of political solidarity, the Political Solidarity Measure (PSM), and validate it with university students. Although we hope that researchers will use the PSM in a variety of settings, we expected many researchers would administer the PSM to university student samples. Due to this and the fact that university students are often driving forces of social movements (Hunt, 2018; Juris & Pleyers, 2009), we sampled university students. We conceptualized political solidarity as consisting of three factors: Allyship, Cause Connection, and Social Change Commitment. We then created 30 items, 10 per each hypothesized factor. In Study 1, we conducted an exploratory factor analysis to assess the items' underlying factor structure and selected items to form the final 9-item scale. A confirmatory factor analysis verified the items' factor structure in Study 2. In Studies 3 and 4, we assessed the PSM's test-retest reliability to demonstrate its stability in the medium-term (i.e., 3-6 months) and short-term (i.e., 3 weeks), respectively. To show that the PSM relates to theoretically-relevant constructs and is distinct from theoretically-irrelevant constructs, Study 3 also

tested the PSM's convergent and discriminant validity. Finally, to establish the PSM's predictive validity, in Study 5 we assessed whether higher PSM scores positively associated with collective action behaviors and intentions.

Study 1: Exploratory Factor Analysis and Construction
of the Political Solidarity Measure

The goal of Study 1 was to create the final set of PSM items by testing the factor structure of a larger pool of items. We expected three factors might emerge: Allyship, Cause Connection, and Social Change Commitment. Despite having a hypothesis about the factor structure, an exploratory factor analysis was more appropriate than a confirmatory factor analysis because no prior research has investigated or suggested this factor structure (Finch & French, 2015). We also aimed to create a brief scale.

Method

Participants

The initial sample comprised 1,775 participants from an Introduction to Psychology research participation pool at a mid-sized university on the Canadian prairies; participants received a research participation credit towards their course grade. We excluded participants who did not complete an outgroup version of the PSM (to ensure we were assessing political solidarity; n = 64), who did not complete any of the PSM items (n = 18), or who completed the survey in fewer than 5 minutes (to account for speeding/unconscientious responding; n = 13). The final sample comprised 1,594 participants who were on average 19.85 (SD = 4.40) years old; 69% were women and 53% were White (for more demographic information on all studies, see Appendix A of the Online Supplemental Materials [OSM]). This sample size is sufficiently large that the factor structure is likely to generalize to similar samples (Clark & Watson, 1995; DeVellis, 2012; Tinsley & Tinsley, 1987; Williams, Brown, & Onsman, 2010).

Procedure and Materials

Item pool generation — During summer 2015, we generated an initial pool of 30 items with 10 items per hypothesized factor (e.g., "I feel a sense of solidarity with ____"; see OSM Appendix B). We independently wrote items informed by our definition of political solidarity, a definition and example item for each hypothesized factor, and a list of best practices in item-writing (Clark & Watson, 1995; DeVellis, 2012; Furr, 2011). So that future researchers could easily adapt the items, we also ensured that items did not refer to a specific group or issue. All items used a 7-point scale anchored at 1 = *strongly disagree* and 7 = *strongly agree*. We created the final 30-item pool through discussion.

Item reduction and selection — Participants completed the PSM items as part of a larger online mass-testing survey about various social groups and issues; we report only the relevant measures and procedures here. At the start of this study, participants provided informed consent and demographic information. Midway through, participants read a description of one of six possible issues: an inquiry into missing and murdered Indigenous women and girls (MMIWG), reconciliation with Indigenous Peoples in Canada, Black Lives Matter Canada, accepting more Syrian refugees into Canada, gendered income equality, and transgender rights (see OSM Appendix B for descriptions). We programmed the survey to use participants' demographic information to randomly assign them to an outgroup issue: Indigenous participants did not receive MMIWG or reconciliation; Black participants did not

receive Black Lives Matter; participants who were not born in Canada did not receive admitting Syrian refugees; women did not receive gendered income equality; and participants whose sex at birth did not match their current gender expression did not receive transgender rights. OSM Appendix C shows the breakdown of participants who completed each issue, for all studies. The rationale for this variety of issues was to maximize the possibility of each participant having an outgroup issue and subsequently increase the potential generalizability of this research. After reading the description, participants completed the 30 initial items, which auto-populated with the corresponding group name. At the end of the survey, we asked participants whether they belonged to that group; this informed our exclusion criteria. The University's Human Research Ethics Board approved this research.

Results

Preliminary Analyses

We inspected the data using SPSS Software (version 21). Table 1 contains the descriptive statistics for the initial 30 items; see OSM Appendix D for their covariance matrix. Several tests indicated that the data were appropriate for factor analysis; KMO = .98; for Bartlett's Test of Sphericity, $\chi^2(435) = 46{,}144.08$, $p < .001$; all r were above .30 and below .90 (Yong & Pearce, 2013).

Table 1

Study 1: Descriptive Statistics for Initial PSM Item Pool

Item	M	SD	Skew (*SE*)	Kurtosis (*SE*)
I feel a sense of "brotherhood" or "sisterhood" with X	4.17	1.55	-0.15 (.06)	-0.41 (.12)
X can count on me to be their ally	5.21	1.42	-0.79 (.06)	0.45 (.12)
X and I are "all in this together"	4.80	1.50	-0.47 (.06)	-0.16 (.12)
I stand in solidarity with X	4.91	1.42	-0.51 (.06)	0.08 (.12)
I feel a sense of solidarity with X	4.64	1.44	-0.38 (.06)	-0.08 (.12)
It's important for me to stick together with X	4.76	1.49	-0.41 (.06)	-0.17 (.12)
I stand united with X	5.03	1.46	-0.68 (.06)	0.25 (.12)
In some ways, I have a sense of responsibility toward X	4.26	1.54	-0.26 (.06)	-0.39 (.12)
I would say I am loyal to X	4.88	1.49	-0.46 (.06)	-0.14 (.12)
I feel committed to X	4.47	1.51	-0.32 (.06)	-0.24 (.12)
In some ways, I view X's cause as my cause, too	4.10	1.49	-0.14 (.06)	-0.34 (.12)
X's cause is important to me	4.87	1.42	-0.59 (.06)	0.21 (.12)
I identify with X's cause	4.21	1.46	-0.18 (.06)	-0.28 (.12)
I think X's cause is worthy	5.56	1.34	-1.14 (.06)	1.40 (.12)
I share X's goal	4.56	1.51	-0.40 (.06)	-0.21 (.12)
I feel partly responsible to ensure that X's interests are met	4.23	1.48	-0.23 (.06)	-0.25 (.12)
Working together to achieve X's goal is important to me	4.71	1.45	-0.52 (.06)	0.07 (.12)
I have a role to play in X's cause	4.39	1.46	-0.37 (.06)	-0.13 (.12)
I am committed to supporting X's cause	4.79	1.43	-0.51 (.06)	0.09 (.12)
I feel connected to X's cause	4.28	1.46	-0.25 (.06)	-0.26 (.12)
Policies negatively affecting X should be changed	5.61	1.32	-1.12 (.06)	1.25 (.12)
All citizens should be better informed about how X are disadvantaged by policies	5.52	1.32	-1.10 (.06)	1.38 (.12)
More people should know about how X are negatively affected by this issue	5.63	1.29	-1.24 (.06)	1.90 (.12)
It's important to challenge the power structures that disadvantage X	5.36	1.33	-0.89 (.06)	0.87 (.12)
Power structures that disadvantage X are unfair	5.52	1.34	-1.05 (.06)	1.13 (.12)
Policies and laws that are unfair to X must be changed	5.64	1.32	-1.14 (.06)	1.33 (.12)
The way that the authorities treat X is unjust	5.01	1.52	-0.62 (.06)	-0.04 (.12)
We need policies that will grant equal rights to X	5.73	1.29	-1.30 (.06)	1.94 (.12)
I believe social systems should change so they guarantee equality for X	5.50	1.37	-1.03 (.06)	1.01 (.12)
Fighting for social justice for X means fighting for the social good	5.43	1.34	-0.95 (.06)	1.07 (.12)

Note. All items used a 1-7 scale and had a range of 1-7.

Main Analyses

Except where noted otherwise, we conducted the following analyses using Revelle's (2018; version 1.8.4) psych package for R Software (version 3.4.4).

Factor extraction method — Given theorists' preference for maximum likelihood (Costello & Osborne, 2005; Fabrigar, Wegener, MacCallum, & Strahan, 1999) and that the data were not severely non-normal, we chose this factor extraction method.

Number of factors retained for rotation (m) — Based on the results of a parallel analysis (Horn, 1965), root mean square error of approximation lower bound (RMSEA-LB; Preacher, Zhang, Kim, & Mels, 2013), and an information criterion (AIC; Akaike, 1974), we retained 3, 4, and 5 factors for rotation.

Parallel analysis. We specified a 95th percentile and that eigen values be found after estimated communalities using squared multiple correlations. The parallel analysis suggested $m = 6$ (see Figure 1, prepared based on Sakaluk & Short, 2016). Given that parallel analysis may overestimate the number of factors and retain poorly defined ones (Glorfeld, 1995; O'Connor, 2000), we calculated 1 through 5 factor solutions for Akaike's information criterion (AIC; Akaike, 1974), root mean square error of approximation—lower bound (RMSEA-LB; Browne & Cudeck, 1992; Preacher et al., 2013) and chi-square goodness of fit tests.
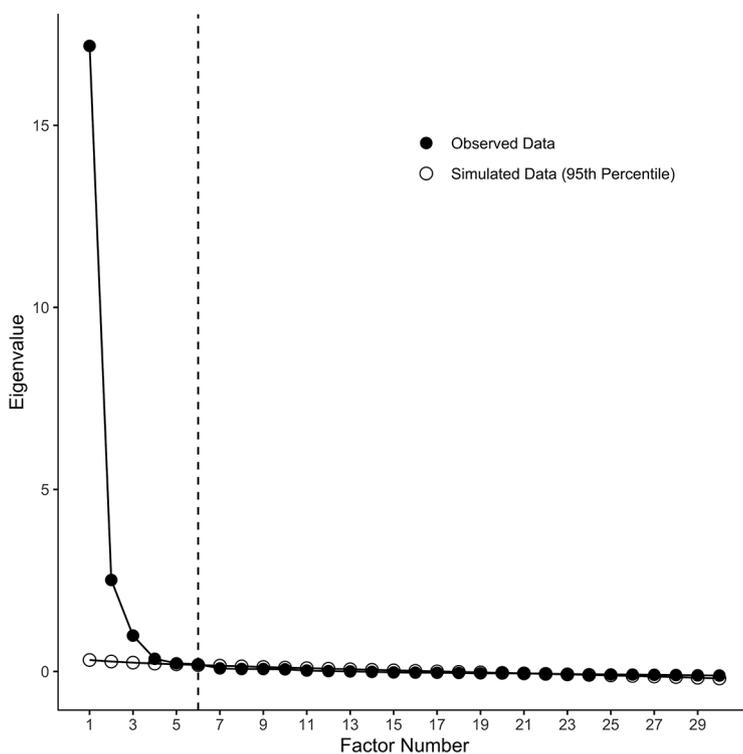

Figure 1. Study 1: Results of parallel analysis.

AIC. AIC identifies simple models that accurately describe the data and are therefore likely to generalize in another sample (Preacher et al., 2013). Table 2 provides AIC point estimates and their 90% confidence intervals for each

m, calculated using Comprehensive Exploratory Factor Analysis software (version 3.02; Browne, Cudeck, Tateneni, & Mels, 2008).

In general, the lowest point estimate is the most likely to generalize (in this case, the five-factor model); however, it is not the only model that might generalize. To determine whether other models might generalize, we calculated the difference between each point estimate and the smallest point estimate (Δ_i). These differences indicate the empirical support for retaining the model in terms of its potential for generalizability (Burnham & Anderson, 2002). As a rule of thumb, Δ_i values below 2 signify substantial empirical support, values between 4 and 7 signify substantially less support, and values above 10 indicate there is virtually no empirical support for selecting the model. The results therefore suggest retaining models of three to five factors if wanting a model that is likely to generalize.

RMSEA-LB. The root mean square error of approximation (RMSEA; Browne & Cudeck, 1992) estimates model (mis)fit based on each degree of freedom in a population and suggests the number of true factors (Preacher et al., 2013). Table 2 displays the RMSEA point estimates and their 90% confidence intervals. Recent simulation studies suggest examining the lower bounds of the 90% confidence intervals around each RMSEA point estimate, and retaining *m* when the lower bound is near or below .06 (Hu & Bentler, 1999; Preacher et al., 2013). According to these criteria, there are approximately three to five true factors.

Goodness of fit. The χ^2 statistic is the most commonly reported model fit statistic (Jackson, Gillaspy, & Purc-Stephenson, 2009) but is problematic (Jackson et al., 2009; Jöreskog, 1969; Kenny, 2015). For one, a non-significant probability value signifies good fit, but the probability value is very likely to be significant when sample size is greater than 200 (Kenny, 2015). Given that $N = 1,594$, it was unreasonable to expect a nonsignificant χ^2; regardless, Table 2 contains χ^2 values for convention's sake.

Rotation method — To simplify and clarify the data structure, we used an oblique rotation method, oblimin with delta = 0, which allows factors to correlate (Fabrigar & Wegener, 2012).

Model selection — Informed by the above, we rotated three, four, and five factor solutions. To select the final PSM model, we visually inspected the magnitude of the factor loadings (Table 3) and item language for each solution, comparing their conceptual clarity (Fabrigar & Wegener, 2012).

The three-factor model is conceptually clear and maps the hypothesized structure. These three factors are also present in the four and five factor models; however, the additional factors in the latter two models are not interpretable. For instance, in both models, a single item represents Factor 4 and does so poorly: its factor loading is at or near the conventional cut-off of .35 (Clark & Watson, 1995) and it cross-loads on other factors (which is generally undesirable; Fabrigar & Wegener, 2012). Also, factors should be represented by at least three items (Eisinga, Grotenhuis, & Pelzer, 2013; Furr, 2011). Based on these considerations, the hypothesized three factor solution was most appropriate.

Item selection — We retained nine items to form the PSM, listed in Table 4. Wanting the scale to be relatively brief while still being statistically reliable, we kept three items per factor, for several reasons. One- or two-item subscales would certainly be briefer, but measures of this length typically have poor or unknown reliability and are discouraged (Eisinga et al., 2013; Furr, 2011).

Table 2

Study 1: RMSEA, AIC, and Goodness of Fit Indices for 1-5 Factor Models

	RMSEA-Lower Bound		AIC			Goodness of Fit		
m	Point Estimate	90% CI	Point Estimate	90% CI	Δ_i	χ^2	*df*	*p*
1	.131	[0.129; 0.134]	7.331	[7.113; 7.553]	6.50	11,474.57	405	< .001
2	.084	[0.081; 0.086]	2.977	[2.842; 3.116]	2.11	4,528.98	376	< .001
3	.057	[0.054; 0.059]	1.482	[1.393; 1.576]	0.61	2,110.19	348	< .001
4	.048	[0.046; 0.050]	1.123	[1.049; 1.201]	0.25	1,487.62	321	< .001
5	.040	[0.037; 0.043]	0.872	[0.812; 0.936]	0.00	1,039.36	295	< .001

Note. m = number of factors to retain. RMSEA = Root Mean Square Error of Approximation. AIC = An Information Criterion.

Table 3

Study 1: Factor Loadings for Exploratory Factory Analysis With Oblimin Rotation

Item	Three Factors			Four Factors				Five Factors				
	F1	F2	F3	F1	F2	F3	F4	F1	F2	F3	F4	F5
I feel a sense of "brotherhood" or "sisterhood" with X	**.74**	.18	-.17	**.68**	.21	-.06	-.21	**.72**	.14	-.02	-.20	-.04
X can count on me to be their ally	**.71**	-.01	.16	**.77**	-.02	.06	.17	**.71**	.03	.10	.18	-.02
X and I are "all in this together"	**.76**	.05	.04	**.75**	.06	.05	-.03	**.74**	.05	.09	-.02	-.03
I stand in solidarity with X	**.79**	-.05	.14	**.80**	-.04	.11	.05	**.82**	-.07	.01	.05	.13
I feel a sense of solidarity with X	**.81**	.03	.01	**.78**	.05	.05	-.08	**.81**	-.01	.00	-.07	.06
It's important for me to stick together with X	**.77**	.06	.05	**.77**	.07	.05	.00	**.78**	.05	.00	.00	.07
I stand united with X	**.83**	-.07	.13	**.87**	-.07	.05	.11	**.85**	-.06	.03	.12	.05
In some ways, I have a sense of responsibility towards X	**.53**	**.35**	-.13	**.47**	**.37**	-.03	-.20	**.53**	.29	-.08	-.21	.05
I would say I am loyal to X	**.83**	-.02	.01	**.83**	-.01	-.01	.02	**.80**	.01	.09	.04	-.10
I feel committed to X	**.78**	.15	-.08	**.75**	.17	-.03	-.09	**.76**	.13	-.01	-.09	-.02
In some ways, I view X's cause as my cause, too	.01	**.82**	-.03	-.03	**.83**	.03	-.11	-.04	**.84**	.07	-.13	-.05
X's cause is important to me	.04	**.64**	.26	.11	**.64**	.09	.29	.04	**.72**	.03	.26	.10
I identify with X's cause	.01	**.77**	-.01	.01	**.77**	.02	-.04	.00	**.77**	.00	-.07	.01
I think X's cause is worthy	.00	**.33**	**.55**	.09	**.31**	.35	**.38**	.02	**.41**	.19	**.35**	.21
I share X's goal	.11	**.68**	.09	.14	**.67**	.03	.12	.07	**.74**	.09	.10	-.06
I feel partly responsible to ensure that X's interests are met	.06	**.76**	.00	.03	**.77**	.05	-.08	.05	**.74**	-.03	-.12	.08
Working together to achieve X's goal is important to me	.11	**.67**	.17	.16	**.66**	.08	.17	.11	**.72**	.04	.14	.06
I have a role to play in X's cause	.01	**.78**	.05	.00	**.78**	.08	-.04	-.01	**.79**	.05	-.07	.03
I am committed to supporting X's cause	.17	**.56**	.18	.23	**.56**	.07	.19	.18	**.61**	.02	.17	.08
I feel connected to X's cause	.10	**.78**	-.01	.09	**.78**	.01	-.03	.08	**.78**	-.02	-.06	.03
Policies negatively affecting X should be changed	.10	-.07	**.83**	.08	-.07	**.86**	-.03	.04	-.01	**.83**	-.01	.02
All citizens should be better informed on how X are disadvantaged by policies	-.06	.17	**.78**	-.06	.15	**.77**	.05	.06	.05	.12	-.02	**.72**
More people should know about how X are negatively affected by this issue	-.12	.15	**.83**	-.11	.14	**.80**	.07	.03	.02	.04	.00	**.86**
It's important to challenge the power structures that disadvantage X	.04	.08	**.78**	.01	.08	**.80**	-.01	.02	.11	**.63**	-.01	.16
Power structures that disadvantage X are unfair	.02	.01	**.84**	.00	.00	**.86**	-.01	-.01	.06	**.74**	.00	.11
Policies and laws that are unfair to X must be changed	.11	-.11	**.84**	.07	-.11	**.90**	-.06	.02	-.03	**.95**	-.03	-.08
The way that the authorities treat X is unjust	-.06	.09	**.66**	-.09	.08	**.70**	-.04	-.02	.04	**.35**	-.06	**.36**
We need policies that will grant equal rights to X	.10	-.08	**.85**	.08	-.08	**.87**	.00	.03	.00	**.85**	.03	.00
I believe social systems should change so they guarantee equality for X	.06	.01	**.80**	.03	.01	**.83**	-.02	.01	.06	**.74**	.00	.08
Fighting for social justice for X means fighting for the common good	.05	.11	**.75**	.06	.09	**.71**	.09	.09	.10	**.41**	.07	**.33**

Note. Factor loadings > .30 are in boldface. F = Factor.

Table 4

Study 1: Items Retained for the Political Solidarity Measure, Factor Internal Consistencies, and Factor Correlations

Factor / Item	Cronbach's α	Factor Correlations	
		2	3
1. Allyship	.86	.79	.64
I feel a sense of "brotherhood" or "sisterhood" with X			
I feel a sense of solidarity with X[a]			
I stand united with X			
2. Cause Connection	.88		.61
In some ways, I view X's cause as my cause, too			
I have a role to play in X's cause			
I feel connected to X's cause			
3. Social Change Commitment	.88		
Policies negatively affecting X should be changed			
More people should know about how X are negatively affected by this issue			
It's important to challenge the power structures that disadvantage X			

[a]Item is from Leach et al. (2008). Table 12 contains the final PSM item wording.

Most experts advise retaining a minimum of three to five items per factor in order to identify the factor (Fabrigar et al., 1999; Singh, Junnarkar, & Kaur, 2016) or to form an item parcel or subscale (Little, Rhemtulla, Gibson, & Schoemann, 2013). Thus, retaining three items per factor balanced brevity with reliability and factor identification. The internal consistency was indeed good for each subscale (see Table 4) and excellent for the overall scale (Cronbach's α = .92). Within each factor, we chose items based on several considerations: A diversity of (a) phrasings, meanings, and correlations (to avoid an overly-narrow scale and increase construct validity; Clark & Watson, 1995), (b) mean scores (to decrease ceiling effects), and (c) factor loadings (to minimize factor intercorrelations). We also avoided cross-loading items (Fabrigar & Wegener, 2012) and items with a factor loading under .35 (Clark & Watson, 1995). Table 4 also displays the subscales' intercorrelations; Table 5 contains the means and internal consistencies for the subscales within each social issue.

Table 5

Study 1: Means and Internal Consistencies for Subscales and Composites Across Issues

Issue	M (SD)				Cronbach's α			
	1	2	3	Tot.	1	3	3	Tot.
Gendered Income Equality	5.18 (1.22)	4.53 (1.32)	5.57 (1.20)	5.09 (1.09)	.86	.87	.89	.92
Black Lives Matter	5.07 (1.07)	4.71 (1.09)	5.93 (0.93)	5.24 (0.85)	.79	.82	.83	.87
Transgender Rights	4.51 (1.49)	4.01 (1.48)	5.43 (1.50)	4.65 (1.36)	.89	.90	.93	.95
MMIWG Inquiry	4.30 (1.31)	4.23 (1.32)	5.50 (1.11)	4.68 (1.07)	.87	.88	.87	.91
Reconciliation	4.17 (1.20)	4.03 (1.27)	5.44 (1.15)	4.55 (1.02)	.83	.87	.89	.90
Syrian Refugees	4.46 (1.23)	4.03 (1.23)	5.33 (1.04)	4.61 (1.00)	.84	.86	.83	.90

Note. For both the means and Cronbach's alpha, the columns numbered 1-3 refer to the subscales of Allyship, Cause Connection, and Social Change Commitment, respectively.

Supplementary Analyses

Hierarchical latent variable modelling — The three factors represented a single, higher-order factor of political solidarity, which accounted for the majority of the variance, ω_h = .81, and fit the data very well, $\chi^2(12)$ = 15.14, p = .23, RMSEA = .01, 90% CI [0.00, 0.03]. Note that the package used for this analysis (Revelle, 2018) does not compute CFI for ω_h.

Configural equivalence — To test whether the hypothesized factor structure held across different subgroups, we conducted three configural equivalence tests: one across the six social causes, one across participant gender (man or woman), and another across participant ethnic status (minority or majority). The configural models fit the data fairly well across all three tests: for the causes test, CFI = .98, RMSEA = .074, 90% CI [0.065, 0.084]; for the gender test, CFI = .98, RMSEA = .063, 90% CI [0.054, 0.072]; for the ethnicity test, CFI = .98, RMSEA = .064, 90% CI [0.054, 0.073].

Discussion

The goals of this study were to determine the underlying factor structure of political solidarity and select a final set of items to measure this construct. A large undergraduate student sample completed the initial pool of 30 items. We hypothesized that political solidarity might consist of three factors: Allyship with the minority outgroup ("Allyship"), a connection to their cause ("Cause Connection"), and a commitment to work alongside them for social change ("Social Change Commitment"). Results of an exploratory factor analysis and factor retention indices, weighed with interpretability, suggested a three-factor solution did appropriately represent political solidarity. Configural equivalence tests indicated that this factor structure held across the six assessed social issues, across women's and men's responses, and across ethnic majority and minority groups. Further, a higher-order exploratory factor analysis indicated the three factors do indeed represent a single, higher-order factor: political solidarity. We thus retained nine items, three per factor, to form the brief Political Solidarity Measure (PSM).

Study 2: Confirmatory Factor Analysis of the PSM

Both the above-reviewed literature and Study 1 results suggest that three factors, Allyship, Cause Connection, and Social Change Commitment, represent political solidarity. The goal of Study 2 was to verify this factor structure.

Method

Participants

In April 2017, research assistants recruited for the study by setting up tables in public spaces at a mid-sized university on the Canadian prairies. Affixed signs invited people to participate in a 5-minute psychology study about social issues in exchange for a chocolate bar, energy bar, or pen. Three hundred and seventy-seven people participated. We excluded from the analyses 88 participants who had taken Introduction to Psychology at the University that year, because most students completed Study 1; it is inappropriate to sample the same people in an exploratory factor analysis as in the confirmatory factor analysis (Flora & Flake, 2017). We also decided a priori to exclude any non-student participants (n = 15) from the analyses, given our goal of validating the scale with student participants. Finally, we excluded one person who completed an ingroup version of the PSM. Thus, the final sample consisted of 275 university students (M_{age} = 21.86 years, SD = 5.36). Based on a series of simulations

conducted by Wolf, Harrington, Clark, and Miller (2013), this sample size is likely to yield minimal bias (i.e., < .05% bias in parameter estimates and their standard errors), 80% statistical power, and solution propriety (see also Muthén & Muthén, 2002). Most participants identified as women and White (66% and 52%, respectively).

Materials and Procedure

After providing informed consent, participants began the survey on a laptop computer by reporting their demographic information. Participants completed the PSM as described in Study 1, with one difference: in this and all following studies, we changed instances of "transgendered people" to "transgender people" as the latter is the preferred term (GLAAD, n.d.). Across all six versions, the political solidarity items appeared in two sets. On the first page were the nine items chosen to form the PSM in Study 1 (Table 4); the remaining 21 items appeared on the subsequent page. Finally, participants read a debriefing form and chose their remuneration. The University's Human Ethics Research Board and Office of Institutional Analysis approved this research.

Results

Preliminary Analyses

The descriptive statistics and correlation matrix for the PSM items are in Table 6 and their covariance matrix is in OSM Appendix E. The data were somewhat non-normal but adequately correlated for a factor analysis (r's = .41-.73).

Table 6

Study 2: Descriptive Statistics and Correlations for PSM Items

Factor / Item	*M*	*SD*	Skew (*SE*)	Kurtosis (*SE*)	2	3	4	5	6	7	8	9
Allyship												
1. I feel a sense of "brotherhood" or "sisterhood" with X	4.54	1.58	-0.12 (0.15)	-0.70 (0.29)	.66	.58	.64	.48	.66	.42	.41	.48
2. I feel a sense of solidarity with X	5.05	1.47	-0.39 (0.15)	-0.60 (0.29)		.67	.56	.51	.62	.52	.47	.60
3. I stand united with X	5.63	1.30	-0.87 (0.15)	0.25 (0.29)			.56	.53	.64	.61	.57	.68
Cause Connection												
4. In some ways, I view X's cause as my cause, too	4.60	1.69	-0.31 (0.15)	-0.75 (0.29)				.66	.70	.47	.45	.49
5. I have a role to play in X's cause	4.82	1.61	-0.53 (0.15)	-0.33 (0.29)					.71	.44	.42	.52
6. I feel connected to X's cause	4.63	1.52	-0.28 (0.15)	-0.38 (0.29)						.51	.49	.56
Social Change Commitment												
7. Policies negatively affecting X should be changed	6.06	1.24	-1.64 (0.15)	2.92 (0.29)							.68	.73
8. More people should know about how X are negatively affected by this issue	6.07	1.22	-1.58 (0.15)	2.67 (0.29)								.73
9. It's important to challenge the power structures that disadvantage X	5.92	1.34	-1.34 (0.15)	1.48 (0.29)								

Note. For all items, the possible and observed range was 1-7. For all correlations, $p < .001$.

Main Analyses: Confirmatory Factor Analysis

To test whether the factor structure established in Study 1 generalized, we conducted a confirmatory factor analysis using Rosseel's (2012) lavaan package (version 0.5-23.1097) for R software. For the factor estimation method, we chose a full information robust maximum likelihood variant (MLR; see Rosseel, 2017) because recent simulation studies suggest it is the most appropriate choice for non-normal data at our sample size (Li, 2016). Table 7 contains

the standardized and unstandardized factor loadings. As expected, all PSM items had significant and positive loadings onto their specified factors.

Table 7

Study 2: Unstandardized and Standardized PSM Factor Loadings

Factor / Item	*b* (SE)	*ß*
Allyship		
I feel a sense of "brotherhood" or "sisterhood" with X	1.18 (0.08)	.75
I feel a sense of solidarity with X	1.29 (0.07)	.81
I stand united with X	1.07 (0.07)	.83
Cause Connection		
Policies negatively affecting X should be changed	1.36 (0.07)	.81
I have a role to play in X's cause	1.26 (0.09)	.78
I feel connected to X's cause	1.35 (0.07)	.89
Social Change Commitment		
Policies negatively affecting X should be changed	1.01 (0.08)	.82
More people should know about how X are negatively affected by this issue	0.99 (0.09)	.81
It's important to challenge the power structures that disadvantage X	1.21 (0.08)	.91

Note. For each factor loading, $p < .001$.

The factors had large intercorrelations: $r_{\text{Allyship, Social Change Commitment}}$ = .80, $p < .001$; $r_{\text{Allyship, Cause Connection}}$ = .87, $p < .001$; $r_{\text{Social Change, Cause Connection}}$ = .69, $p < .001$. Each factor also had good internal consistency: for Allyship, Cause Connection, and Social Change Commitment, respectively, Cronbach's α = .84, .87, and .88. For the full scale, Cronbach's α = .92.

We calculated three robust model fit statistics (Brosseau-Liard & Savalei, 2014; Brosseau-Liard, Savalei, & Li, 2012): the Comparative Fit Index (CFI; Bentler, 1990), χ^2, and RMSEA. As per common benchmarks (Browne & Cudeck, 1992; Hu & Bentler, 1999; Schermelleh-Engel, Moosbrugger, & Muller, 2003) and Table 8, the three-factor model's robust CFI indicated good model fit whereas the robust RMSEA indicated fair model fit. Considering our *N*, the nonsignificant probability value for χ^2 is unsurprising; we report it regardless for convention.

Table 8

Study 2: Indices of Model Fit for Models With 1-3 Factors

	Goodness of Fit			Robust RMSEA			AIC	
Factors	χ^2	*df*	*p*	Point Estimate	90% CI	Robust CFI	Point Estimate	Δ_i
1	183.74	27	< .001	0.18	[0.16, 0.21]	0.84	7439.58	-206.00
2	89.27	26	< .001	0.11	[0.09, 0.14]	0.95	7278.37	-44.79
3	54.79	24	< .001	0.08	[0.05, 0.11]	0.97	7233.58	0.00

Exploratory Analyses: Comparison to Alternative Models

Given that the three-factor model had high factor correlations and an arguably questionable robust RMSEA point estimate, one might wonder whether a one- or two-factor model might better fit the data. To test these possibilities,

we also calculated model fit indices for a one-factor model (represented by all nine items) and a two-factor model. Given that the Allyship and Cause Connection factors correlated most highly, we combined these to form one factor of the two-factor model; Social Change Commitment was the second factor. In addition to the indices described above, we also calculated AIC and Δ_i (Burnham & Anderson, 2002). As per Table 8, across all meaningful indices (i.e., aside from χ^2) the hypothesized three-factor model largely fit the data better than did the one- or two-factor model.

Discussion

In Study 2 we sought to verify the PSM's factor structure as determined in Study 1. We specified a model with the three latent factors—Allyship, Cause Connection, and Social Change Commitment—each estimated by three items. A confirmatory factor analysis confirmed that this model fit the data well and did so better than one- or two-factor models.

A potential limitation of this study is the large interfactor correlations, particularly between allyship and cause connection (r = .82). Though high, this factor correlation does not greatly exceed conventional cutoffs for multi-collinearity (.85; Kline, 2005) and Table 8 data suggest these are distinct factors. Perhaps most importantly, though, one could imagine situations wherein these factors would be less correlated. For example, a person could in general feel strongly that they are allies of an outgroup, but not be committed to the particular cause assessed in the PSM (e.g., prior to the early 1900s, a Canadian man might generally support women but did not want them to have the vote).

A second potential limitation is the RMSEA for the three-factor model. This RMSEA point estimate (which indicates fair fit), along with its confidence interval (whose bounds span the conventions of good fit to poor fit), might cause concern about the three-factor model's appropriateness. Yet this statistic does not seem reason enough to disregard the three-factor model. For one, many experts warn against stringently adhering to fit benchmarks, both for the point estimate and its confidence interval, as they are arbitrary (Chen, Curran, Bollen, Kirby, & Paxton, 2008; Hu & Bentler, 1999; Jackson et al., 2009). In fact, a large simulation study found little empirical support for using *any* universal RMSEA cutoffs (Chen et al., 2008) and some experts advocate abandoning fit indices altogether (Jackson et al., 2009). Further, seeing as the CFI suggested good fit, the three-factor model fit the data far better than did the one- or two-factor models, and the three-factor model is theoretically justifiable, it is reasonable to conclude that the three-factor model is the best of the three and is justifiable. Thus, on the whole, the model proposed in Study 1 adequately fit the data in Study 2.

Study 3: Test-Retest Stability, Convergent Validity, and Discriminant Validity of the PSM

The goals of Study 3 were to assess the PSM's medium-term test-retest stability and aspects of its construct validity. Towards the first goal, we assessed participants' PSM scores at two time points separated by 3-6 months. Given that there are no suggested benchmarks for acceptable retest stability in the 3-6-month range, and that history and maturation effects might occur, we did not have a hypothesized retest correlation for this study. Although we acknowledged that some participants' political solidarity might shift slightly, we nonetheless expected participants' feelings of political solidarity would stay relatively stable overall because we did not expose the sample to an in-

tervention or event that should impact their political solidarity. Towards the second goal, we used the *sets of correlations* approach (Furr & Bacharach, 2014) to establish the PSM's convergent and discriminant validity. Table 9 summarizes the predicted associations between the below-discussed measures and the PSM.

Table 9

Study 3: Predicted and Actual Correlations Between PSM and Other Variables

Time / Variables	Predicted *r*	Actual *r*			
		PSM	Allyship	Cause Connection	Social Change Commitment
Time 1					
Impression Management	None	.04	.07	.02	.02
Political Orientation	-	-.20**	-.14*	-.13*	-.25**
Modern Racism	-	-.41**	-.31**	-.29**	-.46**
Time 2					
Compassion for Strangers	+	.22**	.31**	.27**	.18*
Intergroup Interdependence	+	.19*	.15	.15	.23*
Social Justice: Attitudes	+	.47**	.42**	.35**	.51**
Social Justice: Control	+	.29**	.32**	.28**	.18*
Social Justice: Intentions	+	.52**	.53**	.49**	.36**
Outgroup Warmth	+	.72**	.70**	.62**	.63**
System Justification	-	-.07	-.02	-.06	-.12
Social Dominance	-	-.36**	-.29*	-.26*	-.44**
Personal Acquaintance	None	.07	.05	.03	.11
Impression Management	None	<.01	-.01	.03	-.04
Zero-Sum Competition	?	-.27*	-.17*	-.20*	-.37**

*p < .05. **p < .001.

A scale is said to have convergent validity when its scores correlate with theoretically-relevant constructs (Furr, 2011). We expected that several measures would relate to, but not be conceptually redundant with, the PSM (i.e., correlations below .85; Kline, 2005). First, we expected several positive correlations. As political solidarity is highly relational and involves a member of one group wanting to help another group, we predicted that the PSM would correlate positively with intergroup interdependence. Prior research suggests that people who feel solidarity with an outgroup tend to feel positive emotions toward that group, including liking and compassion (Craig & Richeson, 2014; Dragojevic & Giles, 2014; Leach et al., 2008; Starzyk, Cook, & Neufeld, 2015); thus, we expected that the PSM would positively relate to outgroup warmth and compassion for strangers. Following the same logic, we expected that the PSM would negatively relate to modern racism. We also expected other negative associations. Given that solidarity with a minority outgroup requires acknowledging injustice—injustice often perpetrated or perpetuated by the authorities—and (implicitly or explicitly) the desire to deconstruct social hierarchies, we predicted a negative association between the PSM and belief in a just world (Hafer & Bègue, 2005; Lerner, 1980), social dominance orientation (Pratto, Sidanius, Stallworth, & Malle, 1994), and system justification (Jost & Banaji, 1994). Finally, because we planned to assess participants' political solidarity with relatively liberal social justice causes, we expected PSM scores to correlate negatively with conservative political orientation and positively with social justice attitudes and behavior (Torres-Harding, Siers, & Olson, 2012).

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In order to establish discriminant validity, we assessed the PSM's relationship with two other measures. The first was Paulhus's (1998) measure of impression management, which measures tendencies to present oneself in a socially-desirable way and can assess whether the PSM is prone to pull for artificially positive responses. The second, the personal acquaintance measure (Starzyk, Holden, Fabrigar, & MacDonald, 2006), measures how well a person knows another person. In general, there is no theoretical reason to believe that participants' degree of acquaintance with some person should predict their political solidarity with a specified outgroup. For both measures, we expected small or no associations (i.e., $r < |.20|$) with the PSM.

Finally, we also explored the relationship between PSM scores and zero-sum perceptions (von Neumann & Morgenstern, 1944), or the belief that as one group gains resources another group correspondingly loses resources. Perhaps people who are high in political solidarity acknowledge and accept that they may lose social and economic privileges as another group gains these privileges (i.e., PSM and zero-sum perceptions positively correlate). Yet it also seemed possible that the PSM and zero-sum perceptions might negatively correlate. For instance, people who are low in zero-sum perceptions are also typically lower in intergroup prejudice (Bobo & Hutchings, 1996). Given this and that we expected political solidarity to negatively correlate with modern racism, we thought the PSM might also negatively correlate with zero-sum perceptions. A final possibility was that perhaps no relationship existed. Therefore, we had no a priori hypothesis regarding the relation between the PSM and zero-sum perceptions.

Method

Participants and Procedure

This study had two time points. The participants, procedure, and data described in Study 1 comprise Time 1. Research assistants recruited for Time 2 by sending email invitations to the subset of Time 1 participants who consented to receive future recruitment emails; the research assistants aimed for a sample that was approximately 50% women and wherein a relatively equal number of participants completed each of the five issues. Participants who had completed the PSM for the issue of Syrian refugees were not recruited because confounding history effects seemed likely: This issue had received substantial political and media attention since Time 1. Recruitment continued until we reached our target of 170 participants, which was sufficient to yield 80% power to detect a correlation midway between a small and medium size (two-tailed; Faul, Erdfelder, Buchner, & Lang, 2009).

In the 2017 winter semester, 285 participants completed Time 2, which occurred three to six months after Time 1 (M = 4.44 months, SD = 0.45). We excluded from the analyses 17 participants who completed the survey in fewer than 5 minutes (to account for speeding/unconscientious responding). The final sample consisted of 268 participants (M_{age} = 19.88 years, SD = 4.36), wherein 58% identified as men and 47% identified as White. The University's Human Ethics Research Board approved this research.

Participants accessed the surveys online. After providing informed consent, they completed the same version of the PSM as they did at Time 1 (see OSM Appendix B for issue descriptions). Next, participants completed other measures, but not all participants completed all measures. Upon beginning Time 2 data collection, our goal was to assess the PSM's test-retest stability; midway through data collection, though, we added measures to assess convergent and discriminant validity. Thus, all participants provided PSM data at Times 1 and 2, and Time 1 data for political orientation, modern racism, and social desirability; however, only 145 participants completed the additional measures. The sample sizes were sufficient to yield 80% power to detect a correlation midway between a small and medium size (two-tailed; Faul et al., 2009).

Measures

Except where otherwise noted, we averaged responses of multi-item measures to obtain a composite score, measures used a 7-point scale, and response options ranged from 1 = *strongly disagree* to 7 = *strongly agree*.

Time 1 measures — All participants completed the following measures.

- **PSM.** Participants completed the nine political solidarity items as per Study 1.

- **Impression management.** Participants completed the 20-item impression management subscale (Paulhus, 1998), which assesses tendencies to provide socially desirable answers. For example, one item reads, "I never cover up my mistakes." Response options ranged from 1 = *not true* to 7 = *very true*. As per Paulhus's (1998) instructions, we scored responses from 1-5 as 0 and responses of 6 or 7 as 1, and then totaled the responses to form impression management scores. Possible scores therefore ranged from 0-20, with higher scores indicating higher tendencies to provide socially desirable answers.

- **Political orientation.** Participants indicated their stance on three types of political issues (e.g., "social issues"; adapted from Pratto et al., 1994). The responses ranged from 1 = *very left-wing* to 7 = *very right-wing*. Higher scores thus indicated higher political conservativism.

- **Modern racism.** Participants responded to 10 items designed to assess their levels of modern racism, including, "There are too many foreign students being allowed to attend university in Canada." This measure was adapted from McConahay (1986).

Time 2 measures — All participants completed the PSM and the impression management measure; 145 participants additionally completed the remaining measures.

- **PSM.** Participants completed the same version that they completed at Time 1.

- **Social justice.** Participants completed several items developed by Torres-Harding et al. (2012), including 11 items assessing attitudes towards social justice (e.g., "I believe it is important to allow others to have meaningful input into decisions affecting their lives"), 4 items assessing behavioral intentions (e.g., "In the future, I intend to engage in activities that will promote social justice"), and 5 items assessing perceived behavioral control (e.g., "I am certain that if I try, I can have a positive impact on my community"). Consistent with scale instructions, we created separate composite scores for each factor.

- **Compassion for strangers.** We used a 5-item version of Sprecher and Fehr's (2005) Compassion for Strangers scale (Hwang, Plante, & Lackey, 2008). A sample item reads, "When I hear about someone (a stranger) going through a difficult time, I feel a great deal of compassion for him or her." Possible responses ranged from 1 = *not at all true of me* to 7 = *very true of me*.

- **Outgroup warmth.** Using a 101-point feeling thermometer scale anchored at 0 = *most negative* and 100 = *most positive*, participants indicated how warmly they felt towards the minority outgroup they thought about while answering the PSM. This item is adapted from prior research (Haddock et al., 1993).

- **Intergroup interdependence.** This measure consisted of a single item: "Different groups are needed for society to work" (van der Toorn, Napier, & Dovidio, 2014).

- **Belief in a just world.** We assessed the extent to which participants endorse just world beliefs with a 20-item scale by Rubin and Peplau (1975; e.g., "Basically, the world is a just place").

- **Social dominance orientation.** Participants answered 14 items assessing this construct (Pratto et al., 1994), such as, "Some groups of people are simply inferior to other groups."

- **System justification.** To assess the tendency to justify important social systems, such as the government, participants completed the Canadian version of Kay and Jost's (2003) 8-item system justification scale. One of the items is, "In general, the Canadian political system operates as it should."

- **Impression management.** Participants completed the same measure described in Time 1.

- **Personal acquaintance measure.** As per Starzyk and colleagues (2006), participants named a person that they personally know then answered 18 questions that tapped their degree of acquaintance, such as "I know what X's goals are"; the survey auto-populated the acquaintance's name in place of each "X". Participants responded using a 5-point scale anchored at 1 = *definitely false or strongly disagree* and 5 = *definitely true or strongly agree*.

- **Zero-sum competition.** We used four items to measure the extent to which participants perceive competition for social resources as a zero-sum process (Bobo & Hutchings, 1996), including, "More good jobs for [outgroup] means fewer good jobs for members of other groups." The survey software auto-populated "[outgroup]" with the name of the group that the participant considered when completing the PSM.

Results

Preliminary Analyses

We conducted all analyses in this study using SPSS Statistics (version 24). Table 10 contains descriptive statistics. Given that the internal consistency for belief in a just world was .28—far below recommended cutoffs (e.g., Nunnally, 1978), we dropped this measure from further analyses. The internal consistency for system justification was also a bit below suggested cutoffs.

Table 10

Study 3: Descriptive Statistics

Time Point / Measure	*n*	α	*M* (*SD*)	Range	Skew (*SE*)	Kurt. (*SE*)
Time 1						
PSM Composite	268	.91	4.83 (1.10)	1.00-7.00	-0.80 (0.15)	1.73 (0.30)
PSM: Allyship	268	.86	4.69 (1.31)	1.00-7.00	-0.48 (0.15)	0.34 (0.30)
PSM: Cause Connection	268	.86	4.20 (1.30)	1.00-7.00	-0.38 (0.15)	0.21 (0.30)
PSM: Social Change Commitment	268	.91	5.60 (1.23)	1.00-7.00	-1.59 (0.15)	3.34 (0.30)
Impression Management	239	.76	7.48 (3.86)	0-16	0.15 (0.16)	-0.47 (0.31)
Political Orientation	262	.80	3.90 (1.14)	1.00-6.67	-0.31 (0.15)	0.37 (0.30)
Modern Racism	262	.79	3.00 (0.79)	1.00-5.10	0.04 (0.15)	-0.53 (0.30)
Time 2						
PSM Composite	265	.93	5.04 (1.15)	1.00-7.00	-0.72 (0.15)	0.95 (0.30)
PSM: Allyship	268	.90	4.92 (1.31)	1.00-7.00	-0.62 (0.15)	0.40 (0.30)
PSM: Cause Connection	265	.88	4.41 (1.44)	1.00-7.00	-0.34 (0.15)	-0.29 (0.30)
PSM: Social Change Commitment	268	.90	5.79 (1.13)	1.00-7.00	-1.42 (0.15)	2.82 (0.30)
Compassion for Strangers	145	.91	5.57 (1.10)	2.00-7.00	-1.03 (0.20)	1.11 (0.40)
Intergroup Interdependence	145	–	5.89 (1.18)	1-7	-1.41 (0.20)	2.35 (0.40)
Social Justice: Attitudes	143	.93	6.21 (0.75)	3.55-7.00	-1.11 (0.20)	1.35 (0.40)
Social Justice: Control	144	.90	5.63 (0.98)	2.40-7.00	-0.74 (0.20)	0.62 (0.40)

Time Point / Measure	n	α	M (SD)	Range	Skew (SE)	Kurt. (SE)
Social Justice: Intentions	145	.92	5.44 (1.15)	2.00-7.00	-0.79 (0.20)	0.40 (0.40)
Outgroup Warmth	142	–	70.52 (20.53)	0-100	-0.91 (0.20)	1.54 (0.40)
Belief in a Just World	136	.28	3.87 (0.36)	2.95-4.85	0.20 (0.21)	0.29 (0.41)
System Justification	144	.70	4.03 (0.78)	1.71-6.29	0.50 (0.20)	0.70 (0.40)
Social Dominance	143	.89	2.58 (0.99)	1.00-5.13	0.26 (0.20)	-0.81 (0.40)
Personal Acquaintance	140	.81	3.68 (0.62)	1.67-5.00	-0.6 (0.21)	0.57 (0.41)
Impression Management	255	.75	3.94 (0.80)	0-18	-0.05 (0.15)	0.45 (0.30)
Zero-Sum Competition	144	.90	2.86 (1.29)	1.00-6.25	0.45 (0.20)	-0.31 (0.40)

Main Analyses

Convergent validity — Table 9 contains the correlations between the PSM and the other variables. As expected, the PSM positively correlated with compassion for strangers, intergroup interdependence, the three social justice subscales, and outgroup warmth; it negatively correlated with conservative political orientation, modern racism, and social dominance orientation. The PSM did not correlate with system justification.

Discriminant validity — The PSM was unrelated to measures of impression management and personal acquaintance.

Medium-term test-retest stability — Table 11 presents correlations among the PSM composite and subscales at Times 1 and 2, as well as the impression management retest correlations. There emerged a large association between the PSM composites at Times 1 and 2; the effect sizes of the test-retest scores for each subscale were large. Comparatively, the Time 1 and 2 impression management scores also had a large correlation.

Table 11

Studies 3 and 4: Test-Retest Correlations Among Time 1 and Time 2 Scores

	Study 3		Study 4		Comparison of Study 3 and 4 Correlations	
Measure	r	n	r	n	z	p
PSM: Composite	.63	265	.60	123	0.44	.66
PSM: Allyship	.62	268	.61	125	0.15	.88
PSM: Cause Connection	.58	265	.59	124	-0.14	.89
PSM: Social Change Commitment	.51	268	.58	126	-0.91	.36
Impression Management	.68	239	.80	123	-2.40	.01

Note. For each within-study correlation (i.e., columns 2 and 4), all $p < .001$.

Exploratory Analyses

The PSM negatively correlated with zero-sum competition.

Discussion

In this study, we sought to establish aspects of the PSM's convergent and discriminant validity using the sets of correlations approach to construct validation (Furr & Bacharach, 2014). Providing discriminant evidence, the PSM

was unrelated to impression management and personal acquaintance. Evidencing convergent validity, the PSM correlated with constructs that assess positive attitudes towards strangers, outgroups, social justice, and distribution of resources and power. Importantly, though, none of these correlations exceeded .85, a common cut-off for multicollinearity and conceptual redundancy (Kline, 2005). These results indicate that the PSM is distinct from existing measures of theoretically-similar constructs. To further establish the PSM's convergent and discriminant validity, future research could use other methods, such as *focused associations* (Furr & Bacharach, 2014). In that approach, researchers might compare the PSM to other existing measures said to assess solidarity with outgroups.

Another goal of this study was to establish the PSM's medium-term test-retest stability. Here, we operationalized "medium-term" as 3-6 months. Over this period of time, scores were relatively stable in that each pair of initial and subsequent measurements had correlations that were large in magnitude.

Not all relationships unfolded as hypothesized. Recall that we expected political solidarity to correlate negatively with belief in a just world and system justification. The internal consistency was so poor for the Belief in a Just World Scale that we did not include it in the analyses. This finding is consistent with some past research that has found this scale to have low internal consistency, which is one reason researchers have long debated this scale's psychometric properties (Couch, 1998). Future research should consider testing the hypothesized negative correlation using either a different measure of this construct or a more specific instantiation, such as a measure of the outgroup's perceived deservingness of their disadvantage (Drolet, Hafer, & Heuer, 2016; Hafer, 2011).

Though not as severe, internal consistency for the system justification measure was also inadequate (Nunnally, 1978). Contrary to hypotheses, it did not correlate with the PSM, perhaps due to the measure's internal consistency. Future research should replicate this work to further investigate the associations between system justification and political solidarity, for various social issues. Although we had hypothesized a negative association, there are likely instances wherein a positive association would exist. Whereas system justification was long thought of as a motivation to resist changes to psychologically-important social systems, recent work finds that even high system justifiers may support social change if it seems consistent with the system's values and ideals (e.g., Calogero & Tylka, 2014; Feygina, Jost, & Goldsmith, 2010; Gaucher, Friesen, Neufeld, & Esses, 2018; Jost, 2015). Future research could also use context-specific system justification scales. For example, when studying men's political solidarity for gendered pay equality, researchers could consider using measures of gender-specific system justification (Jost & Kay, 2005) or economic system justification (Jost & Thompson, 2000). Doing so may result in higher correlations with system justification and political solidarity.

Study 4: Short-Term Test-Retest Reliability of the PSM

Study 4 assessed the PSM's short-term test-retest reliability by comparing scores over a 3-week span. Given the results of Study 3, we expected large correlations between the Time 1 and 2 measurements of each subscale and the composite. To have a comparison point, we also assessed the test-retest reliability of another measure, impression management, known to have good short-term retest stability (e.g., Starzyk et al., 2006).

Method

Data collection occurred at two time points in fall 2017. At Time 1, 190 undergraduate students completed the survey; all were Introduction to Psychology students at a mid-sized university on the Canadian prairies. The rationale

for this sample size was to recruit enough participants in hopes that, even with some attrition, we would have 134 participants at Time 2; that sample size would provide 95% power to detect a medium effect (Faul et al., 2009). Participants accessed the survey online through the psychology research participation pool website and received 0.5 research participation credits. After providing demographic information, participants were randomly assigned to one of five outgroup versions of the PSM and then completed Paulhus's (1998) measure of impression management. These measures were as described in Study 3, with one exception. To increase the clarity and specificity of three Cause Connection items, we replaced the word "cause" with the actual name of the group's cause (e.g., "Black Lives Matter"; see OSM Appendix F). Table 12 contains the final PSM items.

Time 1 participants received email invitations to complete the Time 2 survey; 132 did so. We excluded six participants who did not complete the same version of the PSM as they did at Time 1, yielding a final sample of 126 people. This sample size was sufficient to yield our power target. A series of chi-square tests found no differences in the proportion of participants who completed Time 1 compared to those who completed both Times 1 and 2, in terms of gender or ethnicity (all $p > .21$). Participants also did not differ in terms of average age, $p = .53$. Most participants reported "female" as their gender identity and "White" as their ethnicity (83% and 65%, respectively); on average, participants were 19.86 years old ($SD = 3.93$). Participants received an additional 0.5 credits for completing the second survey, which contained the same measures assessed at Time 1. The University's Research Ethics Board approved this research.

Table 12

The Political Solidarity Measure (PSM)

Factor / Item
Allyship
I feel a sense of "brotherhood" or "sisterhood" with X
I feel a sense of solidarity with X
I stand united with X
Cause Connection
In some ways, I view the issue of Y for X as my cause, too
I have a role to play in the issue of Y for X
I feel connected to the issue of Y for X
Social Change Commitment
Policies negatively affecting X should be changed
More people should know about how X are negatively affected by this issue
It's important to challenge the power structures that disadvantage X

Note. "X" denotes the outgroup name; "Y" denotes the outgroup's cause.

Results

Preliminary Analyses

Table 13 contains descriptive statistics and internal consistency estimates. We used SPSS (version 24) for the analyses.

Table 13

Study 4: Descriptive Statistics

Time Point / Measure	*n*	α	*M* (*SD*)	Range	Skew (SE)	Kurt. (SE)
Time 1						
PSM Composite	126	.89	5.06 (1.02)	1.00-7.00	-0.56 (0.22)	1.01 (0.43)
PSM: Allyship	126	.82	4.96 (1.24)	1.00-7.00	-0.63 (0.22)	0.57 (0.43)
PSM: Cause Connection	126	.79	4.28 (1.27)	1.00-7.00	-0.19 (0.22)	-0.03 (0.43)
PSM: Social Change Commitment	126	.85	5.94 (1.07)	1.00-7.00	-1.17 (0.22)	2.26 (0.43)
Impression Management	125	.80	6.60 (3.69)	0.00-16.00	0.39 (0.22)	-0.44 (0.43)
Time 2						
PSM Composite	126	.92	5.06 (1.18)	1.33-7.00	-0.48 (0.22)	-0.02 (0.43)
PSM: Allyship	126	.89	4.78 (1.43)	1.00-7.00	-0.45 (0.22)	-0.23 (0.43)
PSM: Cause Connection	126	.85	4.57 (1.39)	1.00-7.00	-0.32 (0.22)	-0.29 (0.43)
PSM: Social Change Commitment	126	.92	5.85 (1.18)	1.00-7.00	-1.18 (0.22)	1.48 (0.43)
Impression Management	126	.83	6.17 (3.82)	0.00-17.00	0.61 (0.22)	0.22 (0.02)

Main Analyses: Three-Week Test-Retest Reliability

Table 11 presents the test-retest correlations between Time 1 and 2 PSM composites and subscales and impression management. All effects were large in magnitude.

Exploratory Analyses: Comparison of Correlations

How did the PSM's three-week test-retest reliability compare to that of an established individual difference measure? Using Lowry's (2017) online calculator, we computed Fisher *r*-to-*z* transformations, which compare correlation coefficients. Results indicated that the PSM's test-retest reliability was weaker than that of the impression management measure, *z* = -3.14, *p* = .002.

It is also possible to compare the strength of the PSM's short- and medium-term test-retest correlations. Further Fisher *r*-to-*z* transformations, shown in the final two columns of Table 11, indicate the PSM's test-retest stability in the short-term was the same as in the medium-term (i.e., in Study 3). In comparison, the impression management measure's medium-term test-retest stability was weaker than its short-term test-retest stability, *z* = -2.40, *p* = .02.

Discussion

Across a range of issues, participants' self-reported political solidarity correlated at .60 with follow-up measurements three weeks later. A potential criticism of the finding is that the PSM's test-retest stability is not as strong as that of the impression management measure. Yet this discrepancy is perhaps unsurprising as the PSM measures attitudes towards social issues, which tend to be relatively less stable over time than other individual differences and traits (Conley, 1984), such as desirable responding. Nonetheless, the PSM's three-week test-retest correlation is encouraging in many ways. This effect size is large and statistically equivalent to the PSM's three-to-six-month test-retest correlation found in another sample (Study 3). These results suggest that the PSM is equally predictive of subsequent PSM measurements three weeks later and three to six months later. Of course, that is assuming the little or no significant history effects. People's attitudes toward social groups and issues can shift based on various factors, such as increased familiarity with or knowledge about the issue (Neufeld, Boese, Starzyk, & Efimoff, 2019). The views of a prominent leader can also produce corresponding shifts in public attitudes, resulting

from normative shifts (Crandall, Miller, & White II, 2018) or the motivation to justify the system the leader represents (Gaucher et al., 2018). Future research should explore whether the PSM is sensitive to such changes.

Study 5: Predictive Utility of the PSM

Study 5 investigated the predictive utility of the PSM. If the PSM is tapping feelings of solidarity, then it should be associated with intended and actual behaviors that evince solidarity. Study 5 thus tests the strength of the association between PSM scores and collective action benefitting a minority outgroup. We tested this prediction in the context of non-Indigenous students' feelings of political solidarity towards reconciliation with Indigenous Peoples in Canada.

A secondary goal of this study was to demonstrate that political solidarity—and any subsequent effects on collective action—is not simply a lack of prejudiced attitudes. Considering this study centers on issues of reconciliation with Indigenous Peoples in Canada, it seemed prudent to assess participants' racism. Relative to other groups in Canada, Indigenous Peoples face high levels of discrimination and prejudice from citizens and systems (e.g., Allan & Smylie, 2015; Amnesty International, n.d.; Leber, 2017; Neegan Burnside, 2011). Attitudes are particularly negative among non-Indigenous Canadians living in the prairie provinces (Environics Institute, 2016) where we conducted the current research. Given this, and that racism is an important predictor of peoples' attitudes towards social issues, policy, and action (McConahay, 1982, 1986; Saunders, Kelly, Cohen, & Guarino, 2016; Shen & LaBouff, 2016), we tested whether political solidarity would predict collective action benefitting Indigenous Peoples, even when controlling for modern racism.

Method

Participants

Participants were 225 undergraduate Introduction to Psychology students at a mid-sized Canadian university on the prairies. They completed this study for 1 research participation credit and $5. Because the study focused on political solidarity for Indigenous issues, we excluded the four Indigenous participants from analyses. The final sample size was 221, which reached the target of 95% power to detect an effect that was between small and medium in size (i.e., f^2 = .085) in a two-predictor multiple regression model (Faul et al., 2009). Half of the sample identified "White" as their ethnicity and 60% identified as female.

Procedure

This study occurred in November and December 2017. Participants signed up for the study on SONA and attended individual in-person experimental sessions. Each study room had two computer workstations separated by a divider. One workstation also had the participant payment in an envelope and a donation box, angled such that participants could not see it when they entered the room or completed the survey; in doing so, we hoped to minimize the chance of participants realizing we would later ask them to donate (and any associated demands). A research assistant instructed participants to sit at the workstation without the envelope and donation box, recited the opening script, and then left the room.

Participants began the survey, first providing informed consent and demographic information and then the materials in the order outlined below. After making their donation (or not), participants notified the experimenter. The

experimenter fully debriefed participants and gave them an opportunity to withdraw their donation, if they had made one.

Materials

Except where otherwise noted, measures use a seven-point scale with options ranging from 1 = *strongly disagree* to 7 = *strongly agree*.

- **Modern racism.** We used the same scale described in Study 3.

- **Passage.** Participants read a factual passage about residential schools that we created for this project (OSM Appendix G).

- **PSM.** Participants completed the final PSM items listed in Table 12, which were adapted for the context of reconciliation with Indigenous Peoples in Canada.

- **Collective action intentions: Messages of support.** Participants read about an ostensible Indigenous student group on campus and their multimedia reconciliation campaign. Participants learned they could use the study time to create messages in support of reconciliation with Indigenous Peoples in Canada that would be publicly posted at the university; the full description is in OSM Appendix G. After reading the description, participants read the question, "Would you like to create a short video or written message now?" There were four response options: "No thank you," "Yes, I would like to create a brief video now," "Yes, I would like to create a brief written message now," and "Yes, I would like to create both a brief video and written message now." Participants who chose any of the "yes" options received an additional message indicating that the experimenter had received a notification to begin preparing the materials for creating the message(s). Participants only *indicated* whether they would create a message; they did not actually create messages during this study. Thirty-five participants agreed to create the written message, seven agreed to create the video message, and two agreed to create both the written and video message. We coded responses of "no thank you" as 0 (n = 171) and agreement to create at least one of the messages as 1 (n = 44).

- **Collective action behavior: Donations.** Participants received five $1 CD coins for participating in the study and had the opportunity to privately donate any amount of it to a reconciliation charity. Participants made the donation by inserting coins into a locked, opaque donation box that contained $3.80 CD. Even though participants could not see this additional money, we included it to reinforce the illusion that some prior participants had already donated: Participants would hear the other money if they were to shake the box or insert coins. In theory, possible scores were $0, $1, $2, $3, $4, and $5; however, participants sometimes additionally or alternatively donated other money. For these reasons, donations ranged from $0 to $6.80. At the end of this experiment, we forwarded all donations ($540.30) to the charity.

Results

Preliminary Analyses

The descriptive statistics for all variables (except message of support) and correlations among variables are in Table 14. Because gender and political orientation correlated with most measures, we included them in our subsequent models. We conducted all analyses with SPSS Statistics (version 24). The assumptions for linear and logistic regression were satisfied (Berry, 1993; Field, 2009).

Table 14

Study 5: Descriptive Statistics

Measures	*n*	α	*M (SD)*	Range	Skew (*SE*)	Kurt. (*SE*)	2	3	4	5	6	7	8	9

Measures	*n*	α	*M (SD)*	Range	Skew (*SE*)	Kurt. (*SE*)	2	3	4	5	6	7	8	9
1. PSM: Composite	219	.89	4.80 (1.00)	1.22-7.00	-0.46 (0.16)	0.58 (0.33)	.83**	.88**	.82**	-.52**	.23**	.34**	-.25**	.25**
2. PSM: Allyship	219	.79	4.49 (1.11)	1.00-7.00	-0.27 (0.16)	0.55 (0.33)		.59**	.54**	-.34**	.14*	.24**	-.14*	.15*
3. PSM: Cause Connection	219	.83	4.09 (1.36)	1.00-7.00	-0.01 (0.16)	-0.38 (0.33)			.58**	-.38**	.25**	.35**	-.23**	.22**
4. PSM: Social Change Commitment	220	.87	5.83 (1.07)	1.00-7.00	-1.21 (0.16)	2.02 (0.33)				-.63**	.19*	.26**	-.27**	.26**
5. Modern Racism	216	.83	2.70 (0.89)	1.00-5.50	0.39 (0.17)	-0.27 (0.33)					-.12	-.21**	.40**	-.20**
6. Donation	219	--	2.41 (2.06)	0.00-6.80	0.26 (0.16)	-1.55 (0.33)						.11	-.16*	.06
7. Message of Support		--	--	--	--	--							-.10	-.01
8. Political Orientation	214	.75	3.93 (1.07)	1.00-7.00	0.98 (0.17)	0.79 (0.33)								-.09
9. Gender	220	--	--	--	--	--								

Note. Higher scores on political orientation indicate higher political conservativism and gender is coded as 0 = man, 1 = woman.
*p < .05. ** *p* < .001.

Main Analyses

Collective action behavior: Donations — Using multiple linear regression, we specified political solidarity, modern racism, political orientation, and gender as the independent variables and donations as the dependent variable. As per Table 15, political solidarity was significantly associated with participant donations whereas modern racism was not, nor were political orientation or gender.

Table 15

Study 5: Linear Multiple Regression Results for Impact of Predictors on Donations

Predictor	*b* (SE)	β	95% CI	*t*
Constant	0.44 (1.21)	–	[-1.94, 2.82]	0.37
PSM	0.51 (0.16)	.25	[0.19, 0.84]	3.12**
Modern Racism	0.12 (0.19)	.05	[-0.26, 0.49]	0.60
Political Orientation	-0.19 (0.14)	-.10	[-0.48, 0.09]	-1.35
Gender	0.01 (0.29)	< .001	[-0.57, 0.58]	0.02

Note. N = 209. $F_{(4, 205)}$ = 3.96, p < .01, R^2 = .07. Higher scores on political orientation indicate higher political conservativism and gender is coded as 0 = man, 1 = woman.
**p < .001.

Collective action behavioral intentions: Message of support — To determine whether political solidarity predicted participants' agreement to complete at least one message of support, we conducted a binary logistic regression where messages of support was the dependent variable and political solidarity, modern racism, political orientation, and gender were the independent variables (Table 16). Political solidarity (which was an averaged composite that ranged from 1 = *strongly disagree* to 7 = *strongly agree*) significantly predicted whether participants agreed to create a message of support for the on-campus campaign: For every unit increase in political solidarity, the change in odds of agreeing to create a message (rather than not agreeing to create a message) is 3.13. Put differently, participants were more likely to agree, than not agree, to create a message of support if they had high

political solidarity. Modern racism, however, did not significantly predict agreement to create messages of support, nor did political orientation or gender.

Table 16

Study 5: Binary Logistic Regression Results for Impact of Predictors on Likelihood of Agreeing to Create a Message of Support

Predictor	*b* (SE)	Odds Ratio	95% CI
Constant	-6.10** (1.80)	0.00	
Political Solidarity	1.14 (0.28)	3.13	[1.82, 5.38]
Modern Racism	-0.15 (0.28)	0.86	[0.50, 1.50]
Political Orientation	-0.09 (0.13)	0.91	[0.70, 1.18]
Gender	-0.76 (0.41)	0.47	[0.21, 1.05]

Note. N = 211. Nagelkerke's R^2 = .23. Hosmer-Lemeshow Goodness of Fit $\chi^2(8)$ = 14.15, p = .08. Higher scores on political orientation indicate higher political conservativism and gender is coded as 0 = man, 1 = woman.
**p < .001.

Discussion

The results of this study provide evidence of the PSM's predictive utility. Non-Indigenous participants who reported higher political solidarity for reconciliation with Indigenous Peoples were more likely to agree (than not) to create at least one message of support; they also donated more money to a reconciliation charity. Importantly, these effects emerged despite controlling for modern racism (which independently correlated with both outcomes, though only marginally for donations), political orientation (which independently correlated with donations), and gender. Thus, the PSM predicted theoretically-relevant behavioral intentions and actual behavior. Future research should test this association in other contexts to assess its generalizability; it should also compare the PSM's effects to those of other solidarity measures.

A potential limitation of this study is demand characteristics. In addition to the lack of anonymity, to cut down on the duration of each experimental session and thus maximize sample size, we did not include filler measures. The lack of filler measures may have made participants wise to the study purpose and heightened socially-desirable responding, but even if so, the effects do not seem to be very strong: for one, political solidarity and the collective action measures did not have ceiling effects. Also, if participants were motivated to respond in a highly consistent fashion, then the correlations amongst these variables likely would have been at least moderately sized, but they were small. Regardless, future research would do well to test whether the observed relationships between political solidarity and behavior hold when the study's purpose is further obscured.

General Discussion

Across five studies, we developed and validated a brief measure of political solidarity, the Political Solidarity Measure (PSM), with student samples. Drawing from social movements and empirical and theoretical research, we defined political solidarity as the degree to which a person "stands with" a minority outgroup and their cause and is committed to working alongside them to achieve the desired social change. We then generated an initial pool of 30 items intended to reflect aspects of the above definition and facilitate assessment of political solidarity

towards various minority outgroups and issues. In Study 1, participants completed the initial item pool. Exploratory factor analyses suggested a three-factor solution best fit the data; as hypothesized, the factors were Allyship, Cause Connection, and Social Change Commitment. We then chose three items per factor, which together formed the final nine-item PSM. Confirmatory factor analyses in Study 2 provided further support for the hypothesized factor structure. Studies 3 and 4 demonstrated that the PSM has adequate retest stability, both in the short- and medium-terms. Study 3 additionally evidenced aspects of the PSM's convergent and discriminant validity. For instance, political solidarity significantly correlated with (but was not redundant with) several theoretically-relevant constructs (e.g., positively with compassion, negatively with social dominance orientation and right-leaning political orientation) but was not correlated with the theoretically unrelated measure of personal acquaintance. Importantly, PSM scores and impression management scores were uncorrelated, suggesting that PSM scores were not an artifact of social desirability bias. Finally, Study 5 evidenced the PSM's predictive utility: Controlling for modern racism, political orientation, and gender, PSM scores predicted participants' collective action intentions and behavior benefitting a minority outgroup. Across studies, the full scale and subscales had good psychometric properties, meaning future researchers could use the full scale or any number of the subscales (including as manifest item parcels or as latent variables in SEM contexts; Little et al., 2013). Taken together, these findings have several implications for theory and measurement.

Implications

One contribution of this research is that it proposes a novel sociopolitical-psychological, empirically-supported, three-factor theory of political solidarity. Political solidarity is still a nascent concept within social and political psychology: At present, a search of "political solidarity" in the PsycInfo database returns a mere nine peer-reviewed social and political psychological publications, all of which were published since 2008. These, along with other publications that seem to study political solidarity (or one of its factors) but do not use the term, conceptualize political solidarity in many different ways. The time is arguably ripe for a unified theory of political solidarity. Further, conceptualizing political solidarity as consisting of Allyship, Cause Connection, and Social Change Commitment advances the theory of political solidarity by providing a more nuanced understanding of this construct. And on a practical level, if the study of political solidarity moves forward with a specific theoretical definition, synthesizing findings on the topic will become more straightforward.

The scale itself has several implications for the study of not only political solidarity, but also intergroup relations and social change. An obvious implication is that this validated measure is the first to directly map the proposed three-factor theory of political solidarity. Also, the items can be easily adapted to assess various minority outgroup issues and the factor structure holds across the six tested social issues (i.e., income equality for women, further admittance of Syrian refugees, recognition of transgender rights, Black Lives Matter, an inquiry into missing and murdered Indigenous women and girls, and reconciliation with Indigenous Peoples in Canada). Thus, researchers may use the PSM to draw cross-study and cross-group comparisons of political solidarity. Researchers may also use the scale in longitudinal research to track changes in political solidarity over time or in response to world events, as well as advocacy campaigns or other intervention efforts.

It is our hope that in putting forth a three-factor conceptualization of political solidarity, creating and validating a corresponding measure, and demonstrating the measure's attitudinal, dispositional, and behavioral correlates, this research will promote a more unified, cohesive, and comprehensive understanding of political solidarity, and consequently, facilitate a rich growth of this important literature.

Limitations and Future Directions

The current research is not without limitations, many of which point to directions for future research. Below we speak to these matters in the contexts of the studied participants and outgroup "causes," further psychometric validation, and the perspective of the recipients of political solidarity.

Sampled Participants and Focal Social Issues

In Canada, the six social issues focused on in this paper fall under the umbrella of social justice or liberal concerns. Further, all participants were university students attending universities that strive to address many of these social justice or liberal concerns. For instance, both universities' strategic plans outline their commitments to reconciliation with Indigenous Peoples in Canada. A potential criticism of the research, then, is that although we validated the measure across a variety of issues and samples, all issues and samples were relatively liberal; thus, it is unknown whether the results would generalize to more conservative issues and/or among conservative samples. We hypothesize, however, that while there may be mean differences between liberal and conservative issues or samples, the factor structure would remain the same. Future research should test these possibilities.

Relatedly, one might also question the generalizability of the results when reflecting on the relatively young, educated, liberal, university student samples—and rightly so: A measure is only valid for the context in which it was validated (Furr, 2011). Recall, though, that we purposefully chose to sample students as we expect students to continue to be popular research subjects and because of their centrality in many social movements (Hunt, 2018; Juris & Pleyers, 2009; Reger, 2018). That said, we recognize that there are other groups researchers may wish to study, such as community members or leaders. Recently, we found evidence for the PSM's predictive validity in a sample of diverse Canadian adults (Starzyk et al., 2019, Study 3). We hope that future researchers will continue to explore the PSM's reliability and validity in other samples.

Finally, the PSM is designed to assess political solidarity towards minority outgroups and issues they face; however, there are at least two other intergroup relations that solidarity researchers may wish to study. First, Calcagno (2017) recently advanced an understanding of political solidarity wherein a minority group member feels solidarity with a majority group. Future research should test whether the PSM can be successfully adapted for such situations or else create one that does so. The same should be done for explorations of solidarity with nature for environmental issues. This type of solidarity exists around the globe, including in Indigenous spiritualties (Kairos, 2017; Soole, 2018; United Nations, 2016), Christian and Catholic notions of stewardship (Catholic Social Teaching, n.d.), teachings of the Dalai Lama (DalaiLama, 2018), and other sustainability movements (e.g., voluntary simplicity; Elgin, 2006). Solidarity with nature is at times apolitical, a feeling that existing unidimensional measures (e.g., Amiot & Bastian, 2017) could assess. Yet solidarity with nature can also be quite political, as is often the case with pipeline development, water protection, and fossil fuel divestment. The PSM, or adaptations of it, may be a useful measurement tool in these situations.

Further Psychometric Validation

The end of this paper marks the beginning of the PSM's validation. Further validation attempts should address the limitations of the current work while further validating this scale, such as further investigating the PSM's retest stabilities. The PSM's three-week and three-to-six-month retest correlations were r = .62 and .60, respectively. Although these are large effect sizes (Cohen, 1988), by some standards they may represent low retest values. One possible explanation for their magnitude is that some participants' attitudes were not fully formed at Time 1:

Maybe completing the PSM prompted these participants to later think through their attitudes and respond differently at Time 2. If so, the retest reliability among people who know a lot about the issue—regardless of their stance—should be higher than the retest reliability of people who do not know about the issue. To test this theory, one could sample people who are knowledgeable about one cause but not about another cause. Then, participants would complete the PSM for each issue at two time points. Presumably the retest correlations would be higher for the highly knowledgeable. If one strategically sampled highly knowledgeable participants who were supporters of that cause, one could also establish the PSM's known-groups validity.

Although the PSM's retest coefficients may be on one hand a limitation, they are also encouraging in that they lend further support to our argument that political solidarity is somewhat stable yet also malleable; future research should therefore test strategies and interventions to shift political solidarity to engender positive social change.

Another way to further the PSM's psychometric validation is to conduct additional tests of construct validity and predictive utility. Earlier we described various existing measures of solidarity. We have demonstrated that the PSM is related to yet distinct from some of these, such as collective action intentions to address the outgroup's cause (Study 5) and positive emotions towards the outgroup (Study 3). Future research could continue this work by testing if the PSM is associated with closely-related measures, such as those assessing beliefs that the ingroup and outgroup should "stick together" (Glasford & Calcagno, 2012), and if the PSM better predicts relevant outcomes.

Perspectives of the Recipients of Political Solidarity

Future research should explore the perspective of the intended *recipients* of political solidarity—the disadvantaged minority outgroup members. Absent from the current research are the experiences of the groups it concerns. This disconnect, which is arguably more common than not in psychology and social sciences generally, can be problematic (Calcagno, 2017; Esses, Hamilton, & Gaucher, 2017). There are many ways to incorporate the minority experience into future PSM research. For instance, research could determine whether minority group members identify and are accepting of allies who score high on the PSM for their group's cause. Doing so would further validate the measure, ensuring that the scale (and particularly the allyship subscale) does not simply identify people who believe they have solidarity with an outgroup's cause, but also identifies people who the relevant outgroup agrees have solidarity. Such questions are also important from a non-psychometric, social justice standpoint. In many circumstances, it is unacceptable for an individual to self-identify as an outgroup's ally; rather, the outgroup bestows that title upon the individual (e.g., Dennis, McRae, & Simpson, 2018; McKenzie, 2014).

Conclusion

When people walk alongside minority outgroups in their efforts to gain equitable treatment, they can together create substantial social change. A comprehensive, empirically validated measure of political solidarity may help elucidate this construct. By better understanding and identifying political solidarity, we may also become better equipped to increase political solidarity for matters of social justice and in turn, engender a more just society.

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Competing Interests

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Author Note

Danielle Gaucher is now at Department of Psychology, University of Manitoba.

Supplementary Materials

The following Supplementary Materials are available via the PsychArchives repository (for access see Index of Supplementary Materials below):

Appendix A: Participant Demographics for All Studies

Appendix B: Study 1—Initial Political Solidarity Measure Instructions, Item Pool, and Issue Descriptions

Appendix C: Distribution of Participants Across PSM Issues

Appendix D: Study 1—Covariance Matrixes (Legend of Items Follows)

Appendix E: Study 2—Covariance Matrix for PSM Items

Appendix F: Study 4—Comparison of Original and Modified PSM Cause Connection Items

Appendix G: Study 5—Passage and Message of Support Instructions

Index of Supplementary Materials

Neufeld, K. H. S., Starzyk, K. B., & Gaucher, D. (2019). *Supplementary materials to "Political solidarity: A theory and a measure".* PsychOpen. https://doi.org/10.23668/psycharchives.2593

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