

From Goal Approval to Social Engagement: How Norms Motivate Collective Action

Agnieszka Kuhny

Jagiellonian University

Katarzyna Jasko

Jagiellonian University

Correspondence concerning this article should be addressed to Agnieszka Kuhny, Institute of Psychology, Jagiellonian University, Ingardena 6, Krakow 30-060, Poland. E-mail:

[agnieszka.kuhny@doctoral.uj.edu.pl](mailto:agnieszka.kuhny@doctoral.uj.edu.pl)

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### Abstract

Social norms influence a wide spectrum of behaviors, yet their role in motivating political action remains underexplored. We propose a theoretical framework that distinguishes three norm types: (1) social approval of activists' goals, (2) social approval of their actions, and (3) social engagement in those actions. We test how these norms and their consistent or inconsistent combinations shape willingness to participate in political action and perceptions of the cause's importance and feasibility. Six preregistered experiments examined these effects in both hypothetical and real-world contexts, in Poland and the U.S., using between-person and within-person designs. Study 1 showed that information about one norm type spilled over to inferences about the others, underscoring the need to examine norms in combination. Across Studies 2–6, consistently high levels across all three norm types in most cases produced the strongest action intentions, while consistently low levels produced the weakest. Inconsistent combinations yielded more nuanced effects, with reduced approval of goals especially likely to undermine action intentions, and withdrawal of action approval playing a comparatively weaker role. Manipulations of social norms also influenced perceived importance and expectancy of the cause, which mediated their effects on collective action intentions. Taken together, these findings integrate normative and motivational theories and offer practical suggestions for implementing norm-based interventions in social campaigns.

**Keywords:** *social norms, activism, motivation, collective action*

### *Statement of Limitations*

The present research examines the effect of social norms on cause perception and collective action intentions. To ensure comparability across studies, we employed similar vignettes to manipulate norms. While this reduced potential confounds, it also limited generalizability to other sources of norms. To balance internal and external validity, we conducted the experiments in both hypothetical and real contexts. However, the limited scope of social issues examined and some differences in results suggest caution when generalizing the findings to other social settings. Conducting the studies in Poland and the United States provided an initial test of cross-cultural generalizability, yet it remains uncertain whether the effects extend to other cultural contexts. Moreover, most studies assessed collective action intentions rather than behavior. To address this, one study included a behavioral measure. The rarity of observed engagement highlights the need for caution when extrapolating from studies investigating intentions to actual behavior and underscores the value of incorporating behavioral measures in future research. Finally, all study designs and analysis plans were preregistered. Analytic techniques were chosen for reproducibility, and all code was made available on OSF ([https://osf.io/zpd4n/?view\\_only=82c5d8905fe74ce587e16ce46bbbe28c](https://osf.io/zpd4n/?view_only=82c5d8905fe74ce587e16ce46bbbe28c)) .

### From Goal Approval to Social Engagement: How Norms Motivate Collective Action

#### **Introduction**

Public reactions to political activism differ sharply, ranging from approval of activists' goals and actions to outright condemnation. At one extreme, both the goal and the action can resonate with the public, receiving strong public support and attracting large-scale participation, as seen during COP26 climate protests, where thousands marched for stronger climate policies (BBC News, 2021). At the other extreme, both the goal and the action can be widely condemned and pursued by only a few, as in the 2018 white supremacist rally in Washington (Lopez, 2018). Between these two poles, public opinion can also be inconsistent. Sometimes both the goals and actions are supported in principle, but few people participate in them, as was the case with Greta Thunberg's early climate strikes (Elks, 2019). In other cases, the goals are widely approved but few people participate and approve of actions, as seen with the Just Stop Oil movement in the UK: although many share its environmental concern, their tactics elicit backlash (e.g., Bell et al., 2021; Davis, 2022).

These examples illustrate how social contexts can vary across three types of social norm central to present research: social approval of the activists' goals, social approval of their actions, and social engagement in those actions. While motivation to engage in collective actions has been extensively studied (e.g., Van Zomeren et al., 2008), not much attention has been given to how the normative context of these actions influences willingness to act (Louis, 2009). To address this gap, this article examines the effects of different types of social norms on willingness to engage in collective action and the mechanisms underlying their potential influence.

#### **Types of Social Norms and Their Combinations**

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Social norms are perceptions about what behaviors are typical and desirable within a reference group (Miller & Prentice, 1996). They help individuals interpret both their own and others' behavior within a broader social context by signaling potential social costs and benefits (Bell & Cox, 2015; Bicchieri, 2017; Cialdini et al., 1991; Louis et al., 2005; Tankard & Paluck, 2016). Numerous studies have demonstrated individuals' tendency to conform to social norms, spanning from classic experiments (e.g., Asch, 1955) to comprehensive meta-analyses (e.g., Matthes et al., 2018). Importantly, social norms have also been found to be associated with collective action intentions (e.g., Ballew et al., 2019). Nevertheless, the heterogeneity in operationalizations of social norms across studies poses challenges to drawing clear conclusions about their influence on attitudes and behaviors. Therefore, theoretical frameworks that categorize norms (e.g., Bicchieri, 2017; Cialdini et al., 1991; Gelfand, 2018) could help clarify these effects.

A common distinction in the literature is between prescriptive norms, which indicate what behaviors are socially approved, and descriptive norms, which reflect what people typically do (Cialdini et al., 1991). However, assuming that an action serves as a means to a goal, at least one other type of social norm can be identified—the social approval of the goal the behavior aims to achieve. Prior research has noted the value of separating goal and action norms in a collective action context (Van Zomeren et al., 2004). Our first aim is to incorporate social goal approval into the theoretical framework and test its role alongside the other two norm types. This extended categorization of norms corresponds to the motivational process underlying individual action: what goals people commit to, what behaviors they approve as means to those goals, and what behaviors they ultimately engage in (Bandura, 1977; Kruglanski et al., 2002).

The second goal of this study is to examine how different combinations of three norm types—goal approval, action approval, and social engagement—influence action intentions.

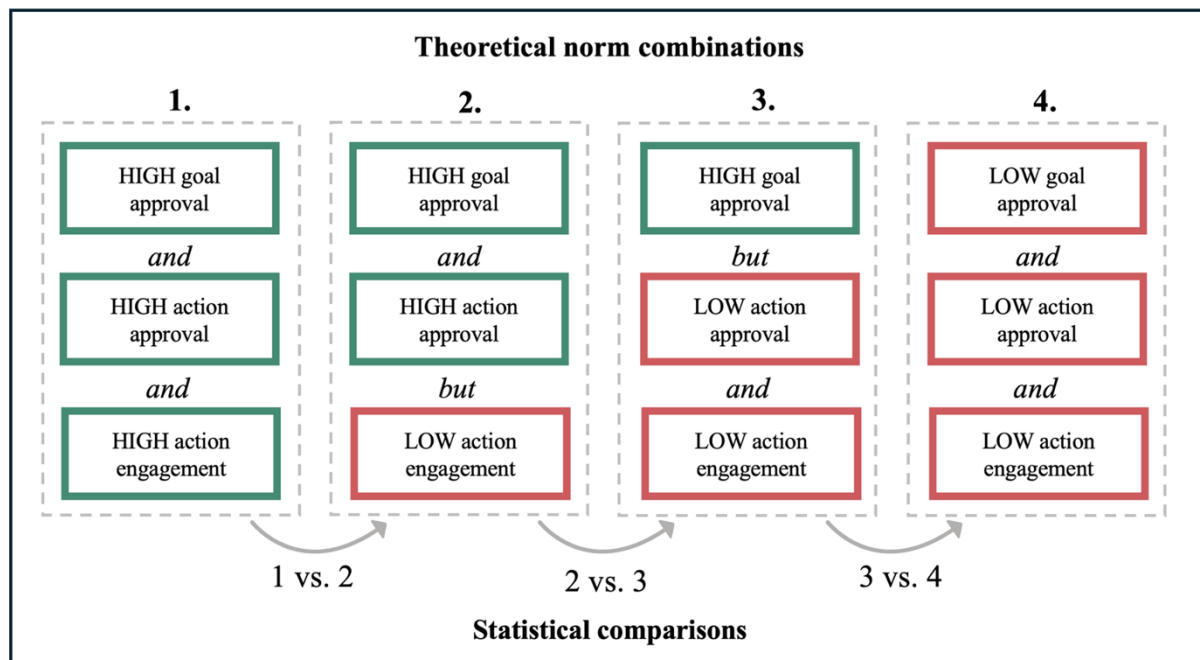
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In real-world settings, different types of norms tend to coexist. As the opening examples showed, they can be either consistent or inconsistent. Understanding their joint impact is currently missing. While these norms do not need to align, we also assume they are not entirely independent. Some combinations are unlikely or even illogical. For instance, people rarely participate in actions that serve goals they do not endorse. That is, one cannot reasonably expect high engagement in actions that are not socially approved, especially when the underlying goal is not approved either. Therefore, we adopt a hierarchical assumption: starting with goal approval, each subsequent norm type (i.e., action approval and action engagement) cannot exceed the level of the preceding one.

This framework excludes less plausible combinations and allows us to focus on four logical configurations of social norms (see Figure 1), each differing by only one level of norm alignment. They include consistently high norms (Combination 1), inconsistent norms with low social engagement (Combination 2), inconsistent norms with low action approval and low social engagement (Combination 3), and consistently low norms (Combination 4). This framework guides the present research. The following section reviews prior research on social norms and collective action in light of the proposed framework.

### **Figure 1**

#### *Social Norms Combinations*



*Note.* Four social norm combinations were distinguished, reflecting a motivational process leading to action engagement. Each combination differs from the next by the level of one type of norm, and our analyses contrasted subsequent conditions.

## Social Norms and Collective Action Engagement

Research on the effects of social norms on collective actions typically examines one norm type at a time. When analyzed through the lens of our theoretical framework, some studies focus on social support for the goal (e.g., Andre et al., 2021; Ballew et al., 2019; Eisner et al., 2022; Van Zomeren et al., 2004; Study 2), while others investigate social engagement (e.g., Andre et al., 2021; Van Zomeren et al., 2004; Study 3). Their findings suggest that higher levels of these norms are associated with greater willingness to engage in activism (Ballew et al., 2019; Van Zomeren et al., 2004), though mixed effects or nonsignificant results also occur (Andre et al., 2021; Eisner et al., 2022). To our knowledge, although previous research contrasted normative and non-normative collective actions (e.g., Shuman et al., 2021; Teixeira et al., 2023), the impact of social norms—operationalized as social approval of the actions—on willingness to act collectively remains unexplored.

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Although studying each type of norm separately provides insights about the normative influence on action intentions, it also has some limitations. When information is limited to a single type of norm (e.g., social support for the action), individuals may infer the other norms, assuming consistency across norms (e.g., Andre et al., 2021; Bicchieri & Xiao, 2009; Deutchman et al., 2024). For example, across six studies, Deutchman and colleagues (2024) found that people update their beliefs about action approval in line with the information about the others' engagement presented to them. These interdependencies make it challenging to isolate the unique effects of each norm type—or to predict how they interact—when studied separately.

Few studies and theories have addressed how combinations of norms influence behavior. In the context of conflicting norms, one expectation is that people would follow the most salient norm at that time (Cialdini et al., 1991). What remains unclear is how individuals behave when multiple norms are emphasized simultaneously. Past research outside of the collective actions domain (e.g., Bicchieri & Xiao, 2009; Reno et al., 1993) led to incongruent results. Some studies suggest that when social action approval and social engagement are inconsistent, people tend to follow others' engagement (Bicchieri & Xiao, 2009; Heinicke et al., 2022), while others point to a role of social action approval (Cialdini et al., 2006; Reno et al., 1993). Finally, some studies argue that consistently high levels of social action approval and engagement are necessary to increase action intentions, whereas inconsistencies decrease behavioral intentions even to the same level as consistently low social norms (Smith et al., 2012).

In the collective action domain, only a few studies have examined social norm combinations. González and colleagues (2021) conducted a longitudinal study that found reciprocal relationships between descriptive and injunctive norms within close social networks, both of which were further linked to action engagement. Smith and Louis (2008)



manipulated injunctive and descriptive norms and found a significant interaction effect on collective action intentions. These findings suggest that norm combinations may influence behavior in ways that differ from the effects of each norm in isolation.

In summary, research on the interplay of social norms remains limited, particularly in the context of collective action. If people infer other types of norms based on information about a single type, it becomes challenging to isolate the unique influence of each norm type on action intentions. This also complicates predictions about how norms jointly affect behavioral tendencies, a critical issue given their frequent co-occurrence in real-world contexts. Including approval of the goal—typically absent from normative frameworks—alongside action engagement and approval of the action, may therefore offer important insights into how norms influence action intentions. To our knowledge, no prior studies have examined how combinations of these three social norm types affect action intentions. To address this gap, the present studies test whether and how these combinations affect willingness to engage in collective actions.

### **The Role of Goal Importance and Expectancy**

The final goal of this research is to examine the mechanisms behind social norm influence. While norms can affect action intentions through various pathways (e.g., Bell & Cox, 2015; Morris et al., 2015), our approach is grounded in a motivational perspective. This framework highlights expectancy (goal attainability) and value (goal importance) as the determinants of goal commitment and action engagement (e.g., Atkinson, 1958; Kruglanski et al., 2002; Vroom, 1964). Building on prior work (Bolsen, 2013; Jones & Gerard, 1967; Louis et al., 2005), we propose that norms influence action intentions by increasing the perception that the cause is important and that it can be successfully achieved.

High levels of engagement, along with approval of activists' goals and means, can make the success of collective action appear more likely, as broad social participation is

essential for such action to emerge. Public approval (e.g., Burstein, 2003) or engagement (e.g., Chenoweth & Stephan, 2011) may also indicate the probability of affecting public policy. People are more willing to engage in collective action when they perceive its goal as achievable (e.g., Van Zomeren et al., 2008). Cialdini and colleagues (1991) similarly argued that social engagement motivates behavior by indicating which actions are likely to be effective. Prior research indeed shows that the relationship between social engagement and action intentions was mediated by the expectations that the actions can generate social change (Smith et al., 2021; Van Zomeren et al., 2004).

In addition to increasing feasibility, social norms may also shape the perception of cause importance, as high levels of social approval for goals, actions, and high social engagement can increase the salience of socio-political goals. In everyday contexts, norms can affect even basic cognitive processes by narrowing the range of actions people consider (Kalkstein et al., 2022). Moreover, when individuals believe their attitudes toward specific causes align with the majority, they tend to rate them as more certain and important (e.g., Petrocelli et al., 2007; Visser & Mirabile, 2004) and people are more willing to act for the cause they find valuable (Jaško et al., 2019; Liss et al., 2004; Unsworth & McNeil, 2017; Van Zomeren et al., 2011). However, compared to expectancy, the mediating role of cause importance, though theoretically supported (e.g., Kruglanski et al., 2002; Louis et al., 2005), remains less empirically examined.

To address these gaps, across all studies, we tested the effects of social norms on both importance and expectancy, as well as their roles in mediating the link between norms and action intentions.

### **Overview of the Studies**

The present research investigated how three types of social norms—approval of activists' goals, approval of their actions, and actual engagement in those actions—and their

combinations affect people's intentions to join collective action, their sense of the cause's importance, and their expectations about resolving the issue.

Given the lack of prior research on these norms and their combinations, we made a general prediction that each type of norm would contribute to the overall effect of norms on action intentions. Specifically, we expected the highest action intentions when all three norms were consistently high, with intentions decreasing in each subsequent condition. Action intentions should be lower when high goal and action approval are paired with low engagement, lower still when only the goals (but not the actions) receive support, and lowest when all norms are consistently low.

Second, we hypothesized that importance and expectancy would be the highest when all the norms are high and decrease in each subsequent condition, and that they would be the parallel mediators of the social norm effect on willingness to engage.

These hypotheses were tested across six preregistered studies<sup>1</sup>. Study 1 served as an initial test, examining the effects of each norm type separately. All the remaining studies tested the effects of social norm combinations. Studies 2 and 3, conducted in Poland and the U.S., used hypothetical scenarios. Studies 4 and 5 applied this framework to real-world contexts involving women's rights and LGBT+ rights. Finally, Study 6 employed a within-subject design using hypothetical scenarios. We report how we determined our sample size, all data exclusions, all manipulations, and all measures in the studies. In all studies, we recruited people to match the adult population in a country in terms of age, gender, and education. The sample size in each study was determined by the financial resources available for data collection. Sensitivity analyses, conducted in G\*Power (Faul et al., 2009) and

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<sup>1</sup> All preregistered studies examined the influence of social norms on action intentions, perceived importance, expectancy, and the perception of activists. Given the space limitations, the present article focuses on the first three outcomes. All deviations from the preregistrations are reported in the Deviations from Preregistrations file.

reported in the Supplementary Online Materials (SOM), indicate that our designs were well powered to detect even small effects according to Cohen's (1988) convention.

### Transparency and Openness

The designs and analysis plans of all studies were preregistered. Preregistrations, datasets, codes, and materials are publicly available on the Open Science Framework ([https://osf.io/zpd4n/?view\\_only=82c5d8905fe74ce587e16ce46bbbe28c](https://osf.io/zpd4n/?view_only=82c5d8905fe74ce587e16ce46bbbe28c))<sup>2</sup>. All analyses were conducted in R (R Core Team, 2023) using the following packages: *dplyr* (Wickham et al., 2023), *tidyverse* (Wickham et al., 2019), *psych* (Revelle, 2023), *reghelper* (Hughes & Beiner, 2023), *lme4* (Bates et al., 2015), *lmerTest* (Kuznetsova et al., 2017), *lmtest* (Zeileis & Hothorn, 2002), *nlme* (Pinheiro et al., 2023), *emmeans* (Lenth, 2024), *lavaan* (Rosseel, 2012), *performance* (Lüdtke et al., 2021), *r2mlm* (Shaw et al., 2023), *sensemakr* (Cinelli et al., 2024), *ggplot2* (Wickham, 2016) and *cowplot* (Wilke, 2020). The project was approved by the Ethics Committee of [blind for review purpose].

### Study 1

In Study 1, we examined the effect of each type of social norm separately. Participants were presented with one type of norm (i.e., social approval of the activists' goals, social approval of the actions, or social engagement in the actions) at either a high or low level. In addition to testing how the presented norm influenced collective action intentions, we also measured perceptions of all three types of norms, regardless of whether they were shown. This design allowed us to test whether people infer two unrepresented norms based on information about a single one.

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<sup>2</sup> The studies were conducted in the order: 2, 5, 1, 4, 3, 6, but are presented in different order to maintain a logical flow. Mediation analyses were not preregistered for the two studies conducted first (Study 2 and 5) but were preregistered from Study 1 onward. All other minor deviations from the preregistrations are reported in the SOM. We also conducted an additional preregistered study – chronologically first (Study 0). Study 0 differed methodologically from the others in the measures and the manipulation, which was weaker. Observed effects were weaker but directionally consistent with other studies. Full analyses for Study 0 are reported in the SOM.

With regard to our main research questions, we hypothesized that when the levels of social norms are high, participants would be more willing to engage in actions for a cause, perceive the cause as more important, and expect higher chances of resolving the social issue than when social norms are low. We also predicted that the social norm influence on willingness to engage in collective actions would be mediated by perceived importance and expectancy.

### **Method**

#### ***Participants***

We recruited participants through an online research panel in Poland. Eligible participants were at least 18 years old and provided consent. After excluding 363 participants who failed the attention checks, the final sample included 868 participants (401 women, 466 men, 1 other;  $M_{age} = 47.72$ ,  $SD_{age} = 15.54$ )<sup>3</sup>.

#### ***Procedure***

To manipulate social norms, we presented participants with an article and accompanying media comments about the current events in an unnamed society. The materials described a minority group facing discrimination, particularly in access to healthcare, education, and employment, relative to the majority population. They also described a protest organized by members of that society to pressure the government and raise awareness about the importance of the issue.

These materials were followed by experimental manipulations of the type (goal approval vs. action approval vs. action engagement) and level (high vs. low) of social norms. This study presented each type of norms separately, resulting in six experimental conditions. Specifically, participants saw poll results and media commentary indicating either high (85%)

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<sup>3</sup> As the only exclusion criterion across all studies was failing attention checks, we included incomplete responses. Although dropout was minimal, this may have led to minor variations in sample sizes and thus marginal differences between regression and mediation estimates. Exact sample sizes for each analysis are presented in the SOM.

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or low (15%) social approval of the activists' goals, high (75%) or low (10%) social approval of the protest, or high (over 200,000) or low (less than 200) social engagement in the protest. After reading the materials, participants were asked to imagine themselves as members of the society and respond to a series of questions.

### *Measures*

***Perceived social norms.*** After the manipulation, participants responded to one question about each type of social norm: social approval of the goal (i.e., "How many people believe that unequal treatment of one group is a problem occurring in that society?"), social approval of the action (i.e., "How many people support the actions taken as part of the protest?"), and social engagement in actions (i.e., "How many people were involved in the protest actions?"). First, participants answered about the norm they were explicitly shown and that served as a manipulation check. Next, they were asked to try to estimate the other two types of social norms. They responded on a scale from 1 (very few) to 9 (a lot)<sup>4</sup>.

***Willingness to engage in the protest.*** Three items measured participants' willingness to engage in the specific protest described in the article ( $\alpha = .92$ ; e.g., "How much of your free time would you be willing to devote to join that protest?" using a scale from 1 (I would not devote any free time) to 9 (I would devote all my free time). In Studies 1–5, we also included the measure of willingness to engage in other actions for the same cause. As we expected and observed similar pattern of results for both scales, we present the results for the other actions in the SOM for brevity.

***Importance.*** Importance of the cause was measured with four items (e.g., "What is the importance of this problem in this society?") using a scale from 1 (It is not a problem at all) to 9 (It is a very important problem),  $\alpha = .90$ .

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<sup>4</sup> In Study 1, each social norm type was measured using two items: one on a 1-9 scale and one on a 0-100% scale, analyzed separately. To maintain conciseness, we report only the 1-9 scale results in the main text; the 0-100% scale results are reported in the SOM. The specific endpoints for all the scales are included in the Codebooks and Materials.

**Expectancy.** Expectancy of success was measured with one item on the slider ranging from 0 to 100 (i.e., “What is the probability, in your opinion, of resolving this social problem?”).<sup>5</sup>

### Results

To test whether information about one type of social norm affects perceptions of other norm types, we fitted a fixed-effect multilevel model predicting norm estimates from the type and level of the norm presented. For the remaining hypotheses, we conducted a series of regression analyses with norm level and type as the independent variables and willingness to engage in action, importance, and expectancy as separate dependent variables. Additionally, we tested for interaction effects between norm level and type, using the goal approval condition as the reference point. We used Structural Equation Modeling to run mediation analyses.

**Perceived social norms.** The manipulation was effective as participants in the High Norm conditions rated presented social norms higher than participants in the Low Norm conditions. In line with our assumption, we observed a spillover effect whereby information about one type of social norm influenced how participants evaluated the other norm types (Figure 2). Specifically, people in the High Goal Approval condition not only rated the social approval of goals higher than those in the Low Goal Approval ( $b = 3.30$ ,  $SE = 0.24$ ,  $p < .001$ ) but they also rated other norm types higher (social approval of the action:  $b = 2.07$ ,  $SE = 0.24$ ,  $p < .001$ ; social engagement:  $b = 1.71$ ,  $SE = 0.24$ ,  $p < .001$ ). Similarly, people in the High Action Approval condition rated both the social approval of the action ( $b = 4.72$ ,  $SE = 0.25$ ,  $p < .001$ ) and other norm types (social approval of the goal:  $b = 2.93$ ,  $SE = 0.25$ ,  $p < .001$ ; social engagement:  $b = 3.29$ ,  $SE = 0.25$ ,  $p < .001$ ) higher than those in the Low Action Approval. Finally, participants in the High Action Engagement condition rated social engagement ( $b =$

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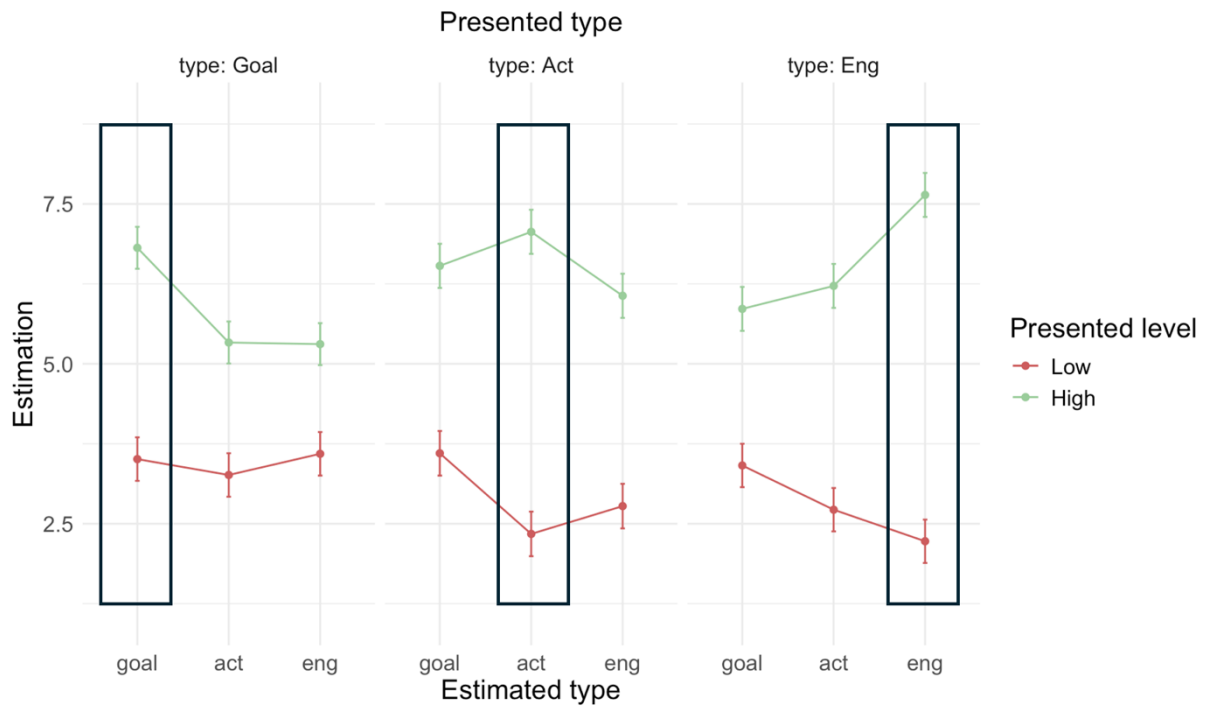
<sup>5</sup> In Studies 1 to 5, expectancy was measured with four items analyzed separately. For brevity, only one item's analyses are presented in the main text; the others are available in the SOM.

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5.41,  $SE = 0.25$ ,  $p < .001$ ) as well as social approval of the goal ( $b = 2.45$ ,  $SE = 0.25$ ,  $p < .001$ ) and social approval of the action ( $b = 3.50$ ,  $SE = 0.25$ ,  $p < .001$ ) higher than those in Low Action Engagement condition. In short, while the effects were weaker for the inferred norms than for the presented norms, they were nonetheless strong and significant. The detailed analyses are provided in the SOM.

**Figure 2**

*Estimation of Prevailing Social Norms*



*Note.* Each graph represents participants' evaluations of three types of social norms, based on whether they were presented with information about a given norm at a high or low level. The estimates of the norms, which the participants explicitly saw (i.e., manipulation checks), are placed in the boxes.

***Willingness to engage in the protest.*** In line with our hypotheses, action intentions were higher when the level of social norms was high than low ( $b = 0.57$ ,  $SE = 0.14$ ,  $p < .001$ ;



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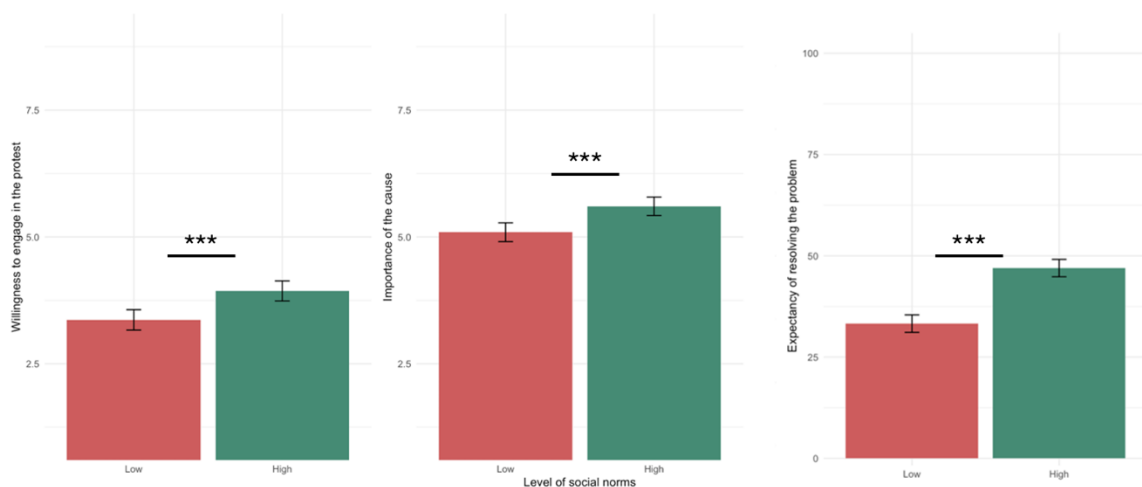
Figure 3). This effect was not qualified by the social norm type (Level  $\times$  Action Approval:  $p = .816$ ; Level  $\times$  Social Engagement:  $p = .224$ ). We did not observe the main effect of the norm type either (action approval:  $p = .724$ , action engagement:  $p = .175$ ).

**Importance.** Participants perceived the cause as more important when the level of social norms was high than low ( $b = 0.51$ ,  $SE = 0.13$ ,  $p < .001$ ). This effect was not qualified by the social norm type (Level  $\times$  Action Approval:  $p = .880$ ; Level  $\times$  Social Engagement:  $p = .438$ ). There was no significant main effect of the norm type either (action approval:  $p = .113$ , action engagement:  $p = .322$ ).

**Expectancy.** Participants perceived resolving the social problem as more probable when the level of social norms was high than low ( $b = 13.66$ ,  $SE = 1.54$ ,  $p < .001$ ). This effect was not qualified by the social norm type (Level  $\times$  Action Approval:  $p = .365$ ; Level  $\times$  Social Engagement:  $p = .239$ ). We did not observe the main effect of the norm type either (action approval:  $p = .082$ ; action engagement:  $p = .068$ ).

### Figure 3

*Main Effects of Social Norms on Willingness to Act, Importance, and Expectancy (Study 1)*



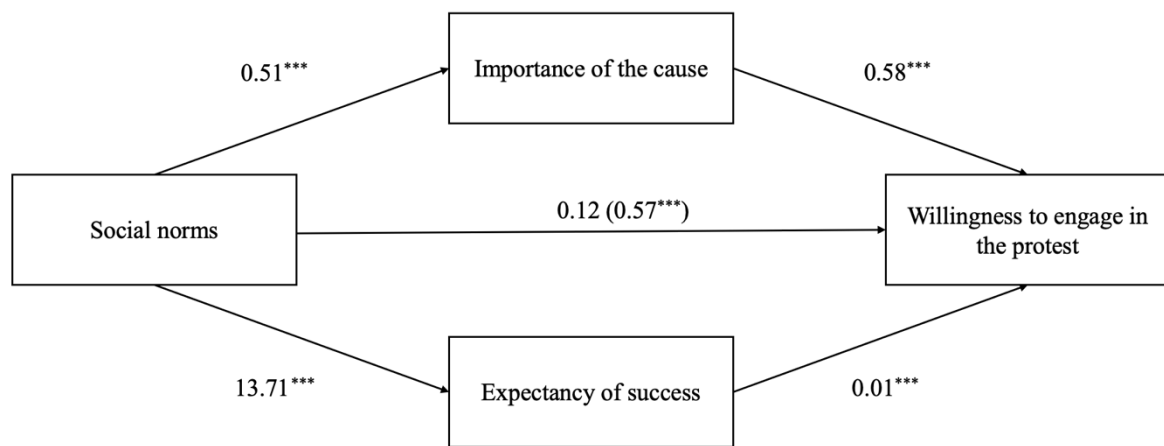
Note.

\*\*\*  $p < .001$ .

**Mediation analyses.** Mediation analyses (Figure 4) revealed significant indirect effects of the level of social norms on action intentions through the importance of the cause ( $b = 0.30$ ,  $SE = 0.08$ ,  $p < .001$ ) and the expectancy of resolving the social problem ( $b = 0.16$ ,  $SE = 0.04$ ,  $p < .001$ ).

**Figure 4**

*Mediation Model (Study 1)*



*Note.*

\*\*\*  $p < .001$ .

## Discussion

The results of Study 1 supported our hypotheses. Willingness to engage in collective action, perceived importance of the cause, and expectancy of success were higher when social norms were high rather than low, with importance and expectancy being the mediators of social norm effect on action intentions. These results suggest that, when analyzed separately, all three norm types—including social approval of the goal, which has not been emphasized in

prior theoretical frameworks—play a role in shaping action intentions and perceptions of a cause.

However, in line with our assumption and previous research (e.g., Deutchman et al., 2024), we also found that participants inferred other types of social norms based on the information available about one of them. Specifically, in the absence of explicit information about certain norm types, participants appeared to expect consistency across norms. This raises an important limitation for inferences about the social norm effect from the results obtained using a single norm manipulation. Such design may not allow us to determine whether each type of social norm has a unique influence or affects action intentions by shaping the perception of other norm types. To verify how social norms affect people when they are present simultaneously and are not always consistent, in Studies 2 and 3, we maintained the hypothetical context but explicitly informed participants about levels of all the social norm types at once.

### **Study 2**

#### **Method**

##### ***Participants***

Participants were recruited through an online research panel in Poland. After excluding those who failed attention checks ( $N = 42$ ), the final sample included 912 participants (462 women, 449 men, 1 other;  $M_{age} = 47.09$ ,  $SD_{age} = 16.11$ ).

##### ***Procedure***

After providing informed consent, participants were randomly assigned to one of four experimental conditions. In each condition, they were presented with the same materials as in Study 1, starting with an article about the minority group discrimination and protests in an unnamed society, followed by the poll results and media commentary. However, this time, participants were presented with the information about all types of social norms. Each

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participant was randomly assigned to one of four experimental conditions: 1) Consistently high norms (85% goal approval and 75% action approval and over 200 000 people engaged) 2) Inconsistent combination with high approval of goal and action but low engagement (85% goal approval and 75% action approval but less than 200 people engaged), 3) Inconsistent combination with high approval of goal but low approval of action and low engagement (85% goal approval but 10% action approval and less than 200 people engaged), 4) Consistently low norms (15% goal approval and 10% action approval and less than 200 people engaged).

### *Measures*

***Manipulation checks.*** After reading the article, participants responded to one question about each type of social norms: social approval of the goal, social approval of the actions and social engagement in the actions (e.g., “What part of society supports the actions taken as part of the protest?”; on the scale from 1 – Nobody to 7 – Everyone).

***Willingness to engage in the protest.*** Participants rated their willingness to engage in the protest mentioned in the article in three questions ( $\alpha = .95$ , e.g., “How much effort would you be willing to put into action for this protest?” using a scale from 1 (No effort) to 7 (A lot of effort)).

***Importance.*** Importance of the cause was measured with the same items as in Study 1, but on a scale from 1 to 7 ( $\alpha = .92$ ).

***Expectancy.*** Expectancy of success was measured with the same item as in Study 1.

### **Results**

To test our hypotheses, we conducted regression analyses using backward difference coding that compared subsequent conditions (UCLA Statistical Consulting Group, n.d.). The first contrast compared the condition with consistently high norms (1<sup>st</sup>) with the condition with high approval of the goal and action but low engagement (2<sup>nd</sup>). The second contrast compared two inconsistent conditions: with high approval of the goal and action but low

engagement (2<sup>nd</sup>) and with high approval of the goal but low approval of the action and low engagement (3<sup>rd</sup>). The third contrast compared an inconsistent condition with high approval of the goal but low approval of the action and low engagement (3<sup>rd</sup>) with a condition with consistently low norms (4<sup>th</sup>). Thus, conditions in the first contrast (1<sup>st</sup> vs. 2<sup>nd</sup>) differ in the level of social engagement, conditions in the second contrast (2<sup>nd</sup> vs. 3<sup>rd</sup>) differ in the level of social approval of the action, and conditions in the third contrast (3<sup>rd</sup> vs. 4<sup>th</sup>) differ in the level of social approval of the goal (see Figure 1). We also run mediation analyses with the importance and expectancy as the parallel mediators of the effect of norms on willingness to engage in the protest.

**Manipulation checks.** As expected, we observed statistically significant differences in perceived social engagement in action between 1<sup>st</sup> and 2<sup>nd</sup> condition ( $b = -3.30$ ,  $SE = 0.14$ ,  $p < .001$ ), approval of the action between 2<sup>nd</sup> and 3<sup>rd</sup> condition ( $b = -1.79$ ,  $SE = 0.11$ ,  $p < .001$ ), and approval of the goal between 3<sup>rd</sup> and 4<sup>th</sup> condition ( $b = -1.98$ ,  $SE = 0.12$ ,  $p < .001$ ).

**Willingness to engage in the protest.** Participants were the most willing to engage in the protest in the condition when all norms were consistently high, and their willingness decreased with the decline in social engagement in the protest (1<sup>st</sup> vs. 2<sup>nd</sup> condition;  $b = -0.58$ ,  $SE = 0.15$ ,  $p < .001$ ). A further decrease in the social support for the protest did not decrease action intentions (2<sup>nd</sup> vs. 3<sup>rd</sup> condition;  $b = -0.22$ ,  $SE = 0.15$ ,  $p = .146$ ). However, the decline in social support for the cause significantly reduced engagement intentions (3<sup>rd</sup> vs. 4<sup>th</sup> condition;  $b = -0.33$ ,  $SE = 0.15$ ,  $p = .030$ ). The results are presented in Figure 6.

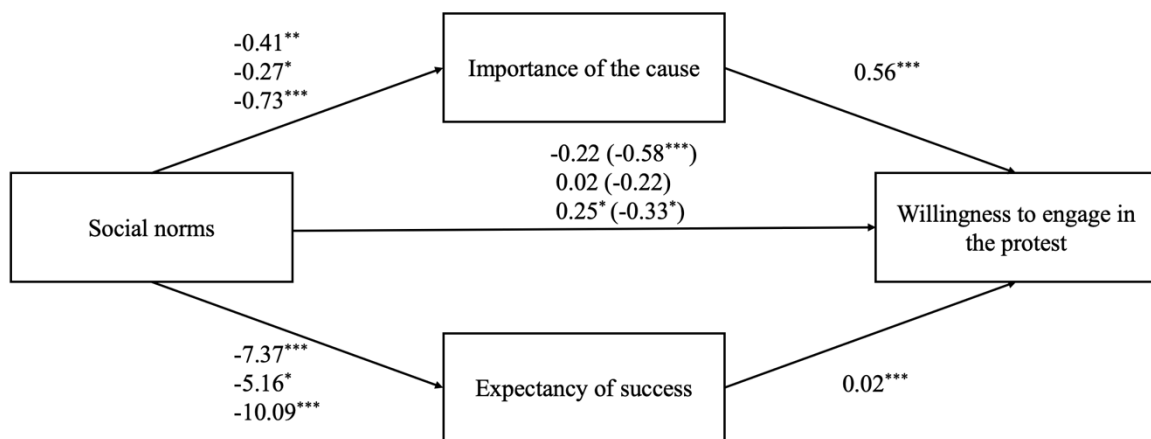
**Importance.** The cause was perceived as the most important in consistently high condition and it decreased with each subsequent condition (1<sup>st</sup> vs. 2<sup>nd</sup> condition:  $b = -0.41$ ,  $SE = 0.13$ ,  $p = .002$ ; 2<sup>nd</sup> vs. 3<sup>rd</sup> condition:  $b = -0.27$ ,  $SE = 0.13$ ,  $p = .038$ ; 3<sup>rd</sup> vs. 4<sup>th</sup> condition:  $b = -0.73$ ,  $SE = 0.13$ ,  $p < .001$ ).

**Expectancy.** The highest expectancy of resolving social problem was observed in consistently high condition and it decreased with each subsequent condition (1<sup>st</sup> vs. 2<sup>nd</sup> condition:  $b = -7.37$ ,  $SE = 2.00$ ,  $p < .001$ ; 2<sup>nd</sup> vs. 3<sup>rd</sup> condition:  $b = -5.16$ ,  $SE = 2.00$ ,  $p = .010$ ; 3<sup>rd</sup> vs. 4<sup>th</sup> condition:  $b = -10.09$ ,  $SE = 2.03$ ,  $p < .001$ ). The results for importance and expectancy are presented in Figure 7.

**Mediation analyses.** For all the contrasts, we observed negative indirect effects of social norms on action intentions through importance (1<sup>st</sup> vs. 2<sup>nd</sup> condition:  $b = -0.23$ ,  $SE = 0.07$ ,  $p = .002$ ; 2<sup>nd</sup> vs. 3<sup>rd</sup> condition:  $b = -0.15$ ,  $SE = 0.07$ ,  $p = .038$ ; 3<sup>rd</sup> vs. 4<sup>th</sup> condition:  $b = -0.41$ ,  $SE = 0.08$ ,  $p < .001$ ) and expectancy (1<sup>st</sup> vs. 2<sup>nd</sup> condition:  $b = -0.13$ ,  $SE = 0.04$ ,  $p = .001$ ; 2<sup>nd</sup> vs. 3<sup>rd</sup> condition:  $b = -0.09$ ,  $SE = 0.04$ ,  $p = .014$ ; 3<sup>rd</sup> vs. 4<sup>th</sup> condition:  $b = -0.17$ ,  $SE = 0.04$ ,  $p < .001$ ). A decrease in each type of social norm indirectly lowered the willingness to engage in protest by decreasing perceived importance and expectancy (Figure 5).

**Figure 5**

*Mediation Model (Study 2)*



*Note.* The results are presented in the following order from the upper: 1<sup>st</sup> vs. 2<sup>nd</sup> condition, 2<sup>nd</sup> vs. 3<sup>rd</sup> condition, 3<sup>rd</sup> vs. 4<sup>th</sup> condition.

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

### **Discussion**

The results of Study 2 mostly supported our hypotheses. The highest willingness to engage in action was observed when all social norms were consistently high, and was lower when high goal and action approval were paired with low action engagement. Contrary to our hypothesis, we did not observe a further decrease in action intentions when social norms supported the goal but not the activists' actions. When a few people were involved in action for a socially approved goal, participants were similarly willing to engage in it, regardless of the action approval. However, willingness to engage in action declined again when goal approval was no longer present and all social norms were consistently low, highlighting the importance of including goal approval alongside the other norm types. As predicted, perceived importance and expectancy were the highest under consistently high norms and decreased across subsequent conditions. Both variables also mediated the relationship between social norms and action intentions.

This study further reinforced the potential importance of social approval of the goal in shaping action intentions and cause perceptions. To examine the generalizability of these findings, Study 3 replicated Study 2 in the United States while maintaining the hypothetical context.

### **Study 3**

#### **Method**

##### ***Participants***

Participants were recruited through an online research panel in the United States. The final sample consisted of 854 individuals (437 women, 413 men, 4 other;  $M_{age} = 48.38$ ,  $SD_{age} = 18.03$ ), after the exclusion of those who did not pass the attention checks ( $N = 200$ ).

##### ***Procedure***

## SOCIAL NORMS AND POLITICAL ACTIVISM

The procedure was the same as in Study 2, and all materials were translated into English.

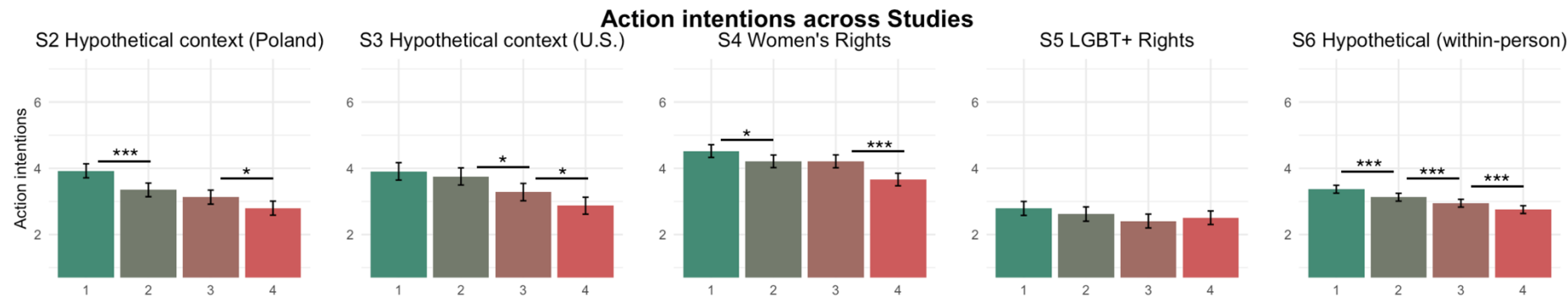
### *Measures*

Participants answered the same series of questions and scales regarding manipulation checks, willingness to engage in the protest ( $\alpha = .96$ ), importance ( $\alpha = .93$ ), and expectancy as in Study 2.



Figure 6

*Willingness to Engage in the Described Collective Action for All the Conditions Across Studies 2-6*

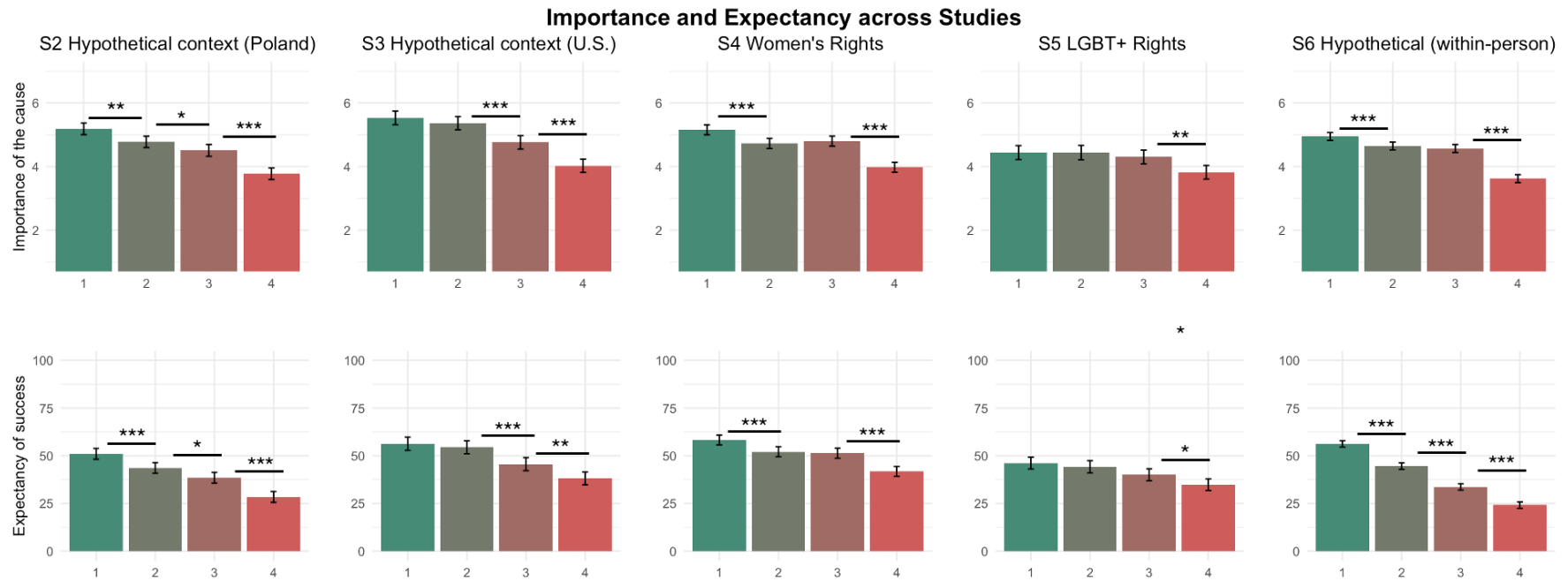


*Note.*

\*  $p < .05$ . \*\*\*  $p < .001$ .

**Figure 7**

*Importance of the Cause and Expectancy of Success for All the Conditions Across Studies 2-6*



*Note.*

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

## Results

To test our hypotheses, we conducted the same analyses as in Study 2.

**Manipulation checks.** We found statistically significant differences in perceived social engagement in action (1<sup>st</sup> vs. 2<sup>nd</sup> condition;  $b = -3.08$ ,  $SE = 0.18$ ,  $p < .001$ ), social approval of the action (2<sup>nd</sup> vs. 3<sup>rd</sup> condition;  $b = -1.89$ ,  $SE = 0.13$ ,  $p < .001$ ) and social approval of the goal (3<sup>rd</sup> vs. 4<sup>th</sup> condition;  $b = -1.63$ ,  $SE = 0.13$ ,  $p < .001$ ).

**Willingness to engage in the protest.** This time we did not observe a statistically significant decrease in action intentions with the decrease in social engagement (1<sup>st</sup> vs. 2<sup>nd</sup> condition;  $b = -0.15$ ,  $SE = 0.19$ ,  $p = .413$ ). However, we found a decrease in willingness to engage in the protest between conditions which differed in social approval of the action (2<sup>nd</sup> vs. 3<sup>rd</sup> condition;  $b = -0.47$ ,  $SE = 0.19$ ,  $p = .012$ ) and social approval of the goal (3<sup>rd</sup> vs. 4<sup>th</sup> condition;  $b = -0.41$ ,  $SE = 0.19$ ,  $p = .028$ ).

**Importance.** Contrary to our hypothesis, we did not observe a statistically significant decrease in perceived importance with the decrease in social engagement (1<sup>st</sup> vs. 2<sup>nd</sup> condition;  $b = -0.16$ ,  $SE = 0.15$ ,  $p = .277$ ). However, we observed a decline in importance with the decrease in social approval of the action (2<sup>nd</sup> vs. 3<sup>rd</sup> condition;  $b = -0.60$ ,  $SE = 0.15$ ,  $p < .001$ ) and goal (3<sup>rd</sup> vs. 4<sup>th</sup> condition;  $b = -0.74$ ,  $SE = 0.15$ ,  $p < .001$ ).

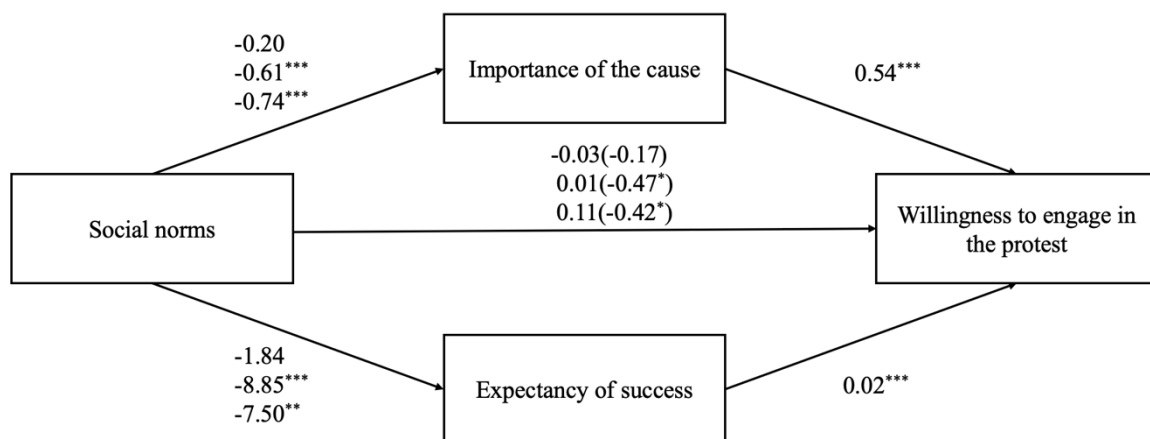
**Expectancy.** We did not find a statistically significant effect of social norms on expectancy between conditions that differed in social engagement (1<sup>st</sup> vs. 2<sup>nd</sup> condition;  $b = -1.84$ ,  $SE = 2.47$ ,  $p = .457$ ). A decrease in expectancy was found between conditions that differed in social approval of the action (2<sup>nd</sup> vs. 3<sup>rd</sup> condition;  $b = -8.85$ ,  $SE = 2.46$ ,  $p < .001$ ) and goal (3<sup>rd</sup> vs. 4<sup>th</sup> condition;  $b = -7.50$ ,  $SE = 2.45$ ,  $p = .002$ ).

**Mediation analyses.** For the first contrast (1<sup>st</sup> vs. 2<sup>nd</sup> condition), we did not find a statistically significant indirect effect of social norms on willingness to engage in protest through importance ( $b = -0.11$ ,  $SE = 0.08$ ,  $p = .201$ ) and expectancy ( $b = -0.03$ ,  $SE = 0.04$ ,  $p =$

.458). For the remaining contrasts (2<sup>nd</sup> vs. 3<sup>rd</sup> condition and 3<sup>rd</sup> vs. 4<sup>th</sup> condition) we observed negative indirect effect through both importance ( $b = -0.33$ ,  $SE = 0.09$ ,  $p < .001$ ;  $b = -0.40$ ,  $SE = 0.09$ ,  $p < .001$ ) and expectancy ( $b = -0.16$ ,  $SE = 0.05$ ,  $p = .001$ ;  $b = -0.13$ ,  $SE = 0.05$ ,  $p = .004$ ). Thus, a decrease in social approval of action and social approval of goal lowered intentions to engage in protest through decreasing perceived importance of the cause and expectancy of success (Figure 8). After accounting for mediators, the direct effect of social norms was not significant.

**Figure 8**

*Mediation Model (Study 3)*



*Note.* The results are presented in the following order from the upper: 1<sup>st</sup> vs. 2<sup>nd</sup> condition, 2<sup>nd</sup> vs. 3<sup>rd</sup> condition, 3<sup>rd</sup> vs. 4<sup>th</sup> condition.

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

## Discussion

The results of Study 3 mostly supported our hypotheses. Action intentions declined as social approval of both the action and the goal decreased across subsequent conditions. Similarly, the importance of the cause and expectancy of success decreased across subsequent

conditions where action and goal approval decreased, and both variables mediated the relationship between social norms and action intentions. However, when only a few people had taken part in the socially approved protest for the approved goal, participants' willingness to act—and their perception of cause importance and expectancy of resolving the social issue—did not change compared to a condition where the protest had a high turnout.

In both studies using a hypothetical context, participants were the least willing to engage in action when all social norms were consistently low. However, cross-national differences emerged. In Poland, action intentions declined with the decrease in social engagement, whereas this was not the case in the U.S. Conversely, U.S. participants were less willing to engage when the social approval of the protest decreased—an effect not observed in Poland. It may suggest that sensitivity to different norm types varies across cultures.

Studies 1–3 tested the effect of social norms in an abstract, hypothetical context. To examine whether the effects of social norms would hold for real-life issues, Studies 4 and 5 adjusted the procedure to the contexts of women's and LGBT+ rights.

## **Study 4**

### **Method**

#### ***Participants***

Participants were recruited through an online research panel in Poland. After excluding participants who failed the attention checks ( $N = 662$ ), the final sample included 1224 participants (649 women, 575 men;  $M_{age} = 48.13$ ,  $SD_{age} = 15.75$ ).

#### ***Procedure***

The experiment design was similar to previous studies, but all materials were adapted to the realistic context of women's rights in Poland. Participants were informed that women in Poland may face greater challenges than men in the workplace, healthcare, and are at a higher risk of physical and sexual violence. The materials described a fictitious resolution initiative

addressing these issues, noting that Polish citizens were currently gathering signatures in support. Social norms manipulations referred to reactions to this initiative and the cause.

As in Studies 2 and 3, participants were randomly assigned to one of four experimental conditions: 1) Consistently high norms (85% goal approval, 75% action approval, tens of thousands engaged in gathering signatures) 2) Inconsistent combination with high approval of goal and action but low engagement (85% goal approval, 75% action approval, several dozen engaged), 3) Inconsistent combination with high approval of goal but low approval of action and low engagement (85% goal approval, 10% action approval, several dozen engaged), 4) Consistently low norms (15% goal approval, 10% action approval, several dozen engaged).

### ***Measures***

Participants responded to the same set of questions regarding manipulation checks, importance ( $\alpha = .94$ ), and expectancy as in Studies 2 and 3. These questions were adapted to the women's rights context (e.g., "How important is the problem of unequal treatment of women in Poland?"). We also added a behavioral measure of engagement for a cause described below. Slight changes occurred in the action intentions' scale:

***Willingness to engage in the resolution initiative.*** Using eight items, participants rated their willingness or likelihood of engaging in online and offline actions related to the resolution ( $\alpha = .96$ ), e.g., "How much effort would you be willing to put into collecting signatures under the resolution proposal?".

***Providing an email address<sup>6</sup>.*** At the end of the questionnaire, participants were invited to sign up for three different actions in support of women's rights. For each action, they were asked whether they would like to participate, and, if so, had the option to provide their email

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<sup>6</sup> The preregistered behavioral measure was the actual task engagement of participants who provided their email addresses. Due to the rarity of engagement and few participants per condition, we report email provision results in the main text, with the behavioral data detailed in the SOM.

address. Participants who provided their email address for at least one action were coded as 1, while those who did not provide an email address for any action were coded as 0.

## Results

As in Studies 2 and 3, to test our hypotheses, we conducted regression analyses using the same contrast coding. Given that cause in the study pertained to women's rights, gender was included as a control variable when testing the hypotheses.

**Manipulation checks.** There was a statistically significant decrease in perceived social engagement in resolution initiative between the 1<sup>st</sup> and 2<sup>nd</sup> conditions ( $b = -2.11$ ,  $SE = 0.13$ ,  $p < .001$ ), social approval of that initiative between the 2<sup>nd</sup> and 3<sup>rd</sup> conditions ( $b = -1.64$ ,  $SE = 0.10$ ,  $p < .001$ ), and social approval of its goal between the 3<sup>rd</sup> and 4<sup>th</sup> conditions ( $b = -2.11$ ,  $SE = 0.09$ ,  $p < .001$ ).

**Willingness to engage in the resolution initiative.** Willingness to engage in action was the highest when all social norms were high and decreased with the decrease in social engagement (1<sup>st</sup> vs. 2<sup>nd</sup> condition;  $b = -0.31$ ,  $SE = 0.14$ ,  $p = .025$ ). There was no statistically significant change with the decrease in social approval of the initiative (2<sup>nd</sup> vs. 3<sup>rd</sup> condition;  $b = -0.0002$ ,  $SE = 0.14$ ,  $p = .999$ ). Actions' intentions decreased again with the decrease in social approval of the goal (3<sup>rd</sup> vs. 4<sup>th</sup> condition;  $b = -0.55$ ,  $SE = 0.14$ ,  $p < .001$ ).

**Providing an email address.** The number and percentage of participants who provided their email addresses to join the action are presented in Table 1. Overall, providing the email was very rare across all conditions. Although the lowest number of provided emails was present in consistently low condition, we did not observe any statistically significant differences across subsequent conditions (1<sup>st</sup> vs. 2<sup>nd</sup> condition:  $b = 0.11$ ,  $SE = 0.26$ ,  $p = .658$ ; 2<sup>nd</sup> vs. 3<sup>rd</sup> condition:  $b = -0.44$ ,  $SE = 0.28$ ,  $p = .116$ ; 3<sup>rd</sup> vs. 4<sup>th</sup> condition:  $b = -0.22$ ,  $SE = 0.32$ ,  $p = .493$ ).

**Table 1**

*The Number and Percentage of Participants Who Provided Their Email Address per Condition*

1 <sup>st</sup> condition	2 <sup>nd</sup> condition	3 <sup>rd</sup> condition	4 <sup>th</sup> condition
32 (11%)	36 (12%)	23 (8%)	20 (6%)

**Importance.** The cause of women's rights in Poland was perceived as the most important in the condition with consistently high norms and decreased with the decline in social engagement (1<sup>st</sup> vs. 2<sup>nd</sup> condition;  $b = -0.43$ ,  $SE = 0.11$ ,  $p < .001$ ). There was no statistically significant difference between the conditions which differed in the social approval of the initiative (2<sup>nd</sup> vs. 3<sup>rd</sup> condition;  $b = 0.07$ ,  $SE = 0.12$ ,  $p = .533$ ). However, importance decreased again with the decrease in social approval of the goal (3<sup>rd</sup> vs. 4<sup>th</sup> condition;  $b = -0.82$ ,  $SE = 0.11$ ,  $p < .001$ ).

**Expectancy.** Participants perceived resolving gender inequality in Poland as the most probable when all social norms were consistently high and decreased with the decrease in social engagement (1<sup>st</sup> vs. 2<sup>nd</sup> condition;  $b = -6.19$ ,  $SE = 1.87$ ,  $p < .001$ ), did not change with the decline in social approval of the initiative (2<sup>nd</sup> vs. 3<sup>rd</sup> condition;  $b = -0.77$ ,  $SE = 1.89$ ,  $p = .683$ ) and decreased again with the decrease in social approval of the goal (3<sup>rd</sup> vs. 4<sup>th</sup> condition;  $b = -9.50$ ,  $SE = 1.88$ ,  $p < .001$ ).

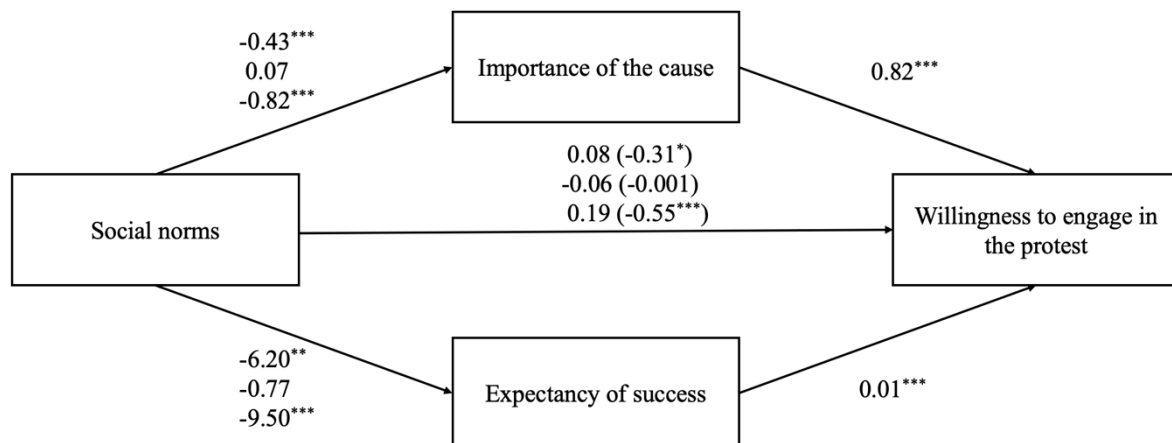
**Mediation analyses.** We found negative indirect effect of social norms on action intentions for the first (1<sup>st</sup> vs. 2<sup>nd</sup> condition) and third (3<sup>rd</sup> vs. 4<sup>th</sup> condition) contrasts through both importance ( $b = -0.35$ ,  $SE = 0.09$ ,  $p < .001$ ;  $b = -0.67$ ,  $SE = 0.10$ ,  $p < .001$ ) and expectancy ( $b = -0.04$ ,  $SE = 0.02$ ,  $p = .008$ ;  $b = -0.07$ ,  $SE = 0.02$ ,  $p = .001$ ). No such effect was found for the second contrast in which social approval of the initiative differed (2<sup>nd</sup> vs. 3<sup>rd</sup>



condition; importance,  $b = 0.06$ ,  $SE = 0.09$ ,  $p = .528$ ; expectancy,  $b = -0.01$ ,  $SE = 0.01$ ,  $p = .684$ ). The mediation model is depicted in Figure 9.

**Figure 9**

*Mediation Model (Study 4)*



*Note.* The results are presented in the following order from the upper: 1<sup>st</sup> vs. 2<sup>nd</sup> condition, 2<sup>nd</sup> vs. 3<sup>rd</sup> condition, 3<sup>rd</sup> vs. 4<sup>th</sup> condition.

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

## Discussion

In examining the effect of social norm combinations in the context of women's rights, we observed the same pattern of results as the one found in the hypothetical context in Poland (Study 2). Participants were the most willing to engage in action when all social norms were consistently high, with intentions declining as social engagement and goal approval decreased. Again, no difference in action intentions was observed between conditions differing in action approval, suggesting that participants were not discouraged by societal disapproval of low-turnout actions as long as the goal itself was supported.

Similarly, importance and expectancy were the highest under consistently high norms and decreased as social engagement and social approval of the goal declined. However, unlike in Study 2, these variables did not decrease when social approval of the action declined. Where social norms did affect these variables, importance and expectancy continued to mediate the relationship between social norms and action intentions.

By replicating social norm effects on action intentions and cause perception in the real-life cause context, we provided initial evidence for their contextual generalizability. To examine whether these effects are present in yet a different socio-political context, we conducted another study focused on LGBT+ rights in Poland.

## **Study 5**

### **Method**

#### ***Participants***

Participants were recruited through an online panel company in Poland. Individuals who failed the attention checks ( $N = 317$ ) were excluded from the analysis, resulting in a final sample size of 934 participants (490 women, 442 men, 2 other;  $M_{age} = 47.35$ ,  $SD_{age} = 15.91$ ).

#### ***Procedure***

As in Study 4, the experimental procedure in Study 5 followed the same structure as the studies with hypothetical context but was adjusted to the cause of LGBT+ rights in Poland. More specifically, the article described that LGBT+ individuals may encounter difficulties in the areas of healthcare, education, and the workplace and provided information about the typical course of Pride Marches that are organized to protest the discrimination. We additionally strengthened the manipulation of the social engagement manipulation by including the information about the number of Pride Marches in Poland (8 for low engagement and 43 for high engagement). All other aspects of the manipulations remained the same.

## **Measures**

Participants answered the same set of questions as in previous studies regarding manipulation checks, importance ( $\alpha = .94$ ), and expectancy. This time they were adapted to the LGBT+ rights context (e.g., “How important is the problem of unequal treatment of LGBT+ people in Poland?”). Slight changes occurred in the action intentions scale:

***Willingness to engage in Pride Marches.*** Participants responded to 11 items assessing their general intentions and likelihood of engaging in Pride Marches in the upcoming year, as well as willingness to engage in specific actions typically present during Pride Marches (e.g., wearing symbols indicating support for the cause;  $\alpha = .97$ ).

## **Results**

***Manipulation checks.*** We observed a significant decrease in perceived social engagement between the 1<sup>st</sup> and 2<sup>nd</sup> condition ( $b = -2.33$ ,  $SE = 0.14$ ,  $p < .001$ ), in social approval of action between the 2<sup>nd</sup> and 3<sup>rd</sup> condition ( $b = -1.73$ ,  $SE = 0.11$ ,  $p < .001$ ) and in social approval of the goal between the 3<sup>rd</sup> and 4<sup>th</sup> condition ( $b = -1.80$ ,  $SE = 0.11$ ,  $p < .001$ ).

***Willingness to engage in Pride Marches.*** We did not find a statistically significant decrease in willingness to engage in Pride Marches between any of the subsequent conditions (1<sup>st</sup> vs. 2<sup>nd</sup> condition;  $b = -0.17$ ,  $SE = 0.15$ ,  $p = .268$ ; 2<sup>nd</sup> vs. 3<sup>rd</sup> condition;  $b = -0.21$ ,  $SE = 0.15$ ,  $p = .172$ ; 3<sup>rd</sup> vs. 4<sup>th</sup> condition;  $b = 0.10$ ,  $SE = 0.15$ ,  $p = .506$ ). As depicted on Figure 6, the willingness to engage in Pride Marches was relatively low across all experimental conditions.

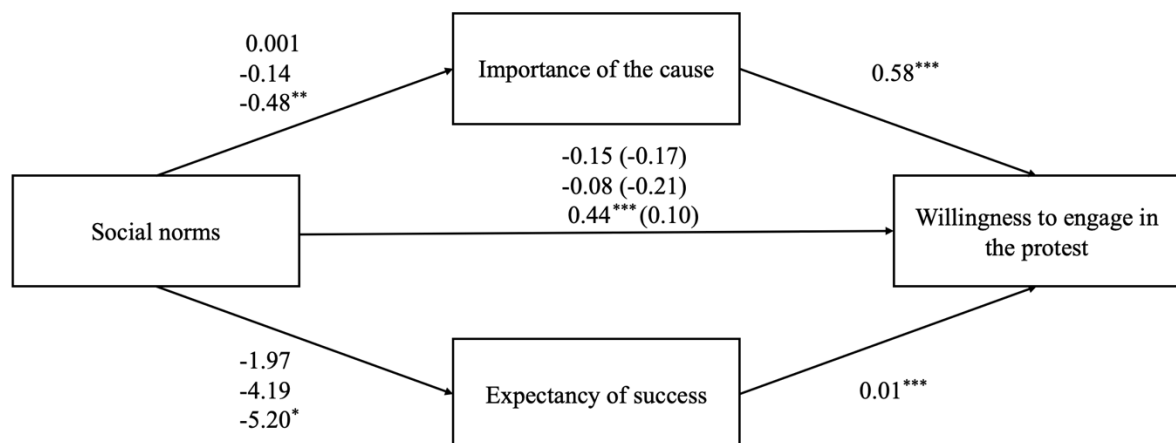
***Importance.*** There was no statistically significant decrease in perceived importance of the cause with the decrease in social engagement in Pride Marches (1<sup>st</sup> vs. 2<sup>nd</sup> condition;  $b = 0.001$ ,  $SE = 0.16$ ,  $p = .994$ ) and social approval of those actions (2<sup>nd</sup> vs. 3<sup>rd</sup> condition;  $b = -0.14$ ,  $SE = 0.16$ ,  $p = .385$ ). However, importance decreased with the decrease in social approval of the goal (3<sup>rd</sup> vs. 4<sup>th</sup> condition;  $b = -0.48$ ,  $SE = 0.16$ ,  $p = .002$ ).

**Expectancy.** We did not find a statistically significant decrease in expectancy of resolving the problem of unequal treatment of LGBT+ people in Poland with the decrease in social engagement in Pride Marches (1<sup>st</sup> vs. 2<sup>nd</sup> condition;  $b = -1.97$ ,  $SE = 2.29$ ,  $p = .390$ ) and social approval of those actions (2<sup>nd</sup> vs. 3<sup>rd</sup> condition;  $b = -4.19$ ,  $SE = 2.28$ ,  $p = .067$ ). Expectancy decreased with the decrease in social approval of the goal (3<sup>rd</sup> vs. 4<sup>th</sup> condition;  $b = -5.20$ ,  $SE = 2.22$ ,  $p = .020$ ).

**Mediation analyses.** For the first and second contrast (1<sup>st</sup> vs. 2<sup>nd</sup> condition; 2<sup>nd</sup> vs. 3<sup>rd</sup> condition), we did not find a statistically significant indirect effect of social norms on willingness to engage in Pride Marches through importance ( $b = 0.001$ ,  $SE = 0.09$ ,  $p = .994$ ;  $b = -0.08$ ,  $SE = 0.09$ ,  $p = .384$ ) or expectancy ( $b = -0.02$ ,  $SE = 0.03$ ,  $p = .392$ ;  $b = -0.05$ ,  $SE = 0.03$ ,  $p = .076$ ). The only negative indirect effects of social norms on intentions to engage in Pride Marches through importance ( $b = -0.28$ ,  $SE = 0.09$ ,  $p = .002$ ) and expectancy ( $b = -0.06$ ,  $SE = 0.03$ ,  $p = .027$ ) were observed between the conditions differing in social approval of the goal (Figure 10).

**Figure 10**

*Mediation Model (Study 5)*



*Note.* The results are presented in the following order from the upper: 1<sup>st</sup> vs 2<sup>nd</sup> condition, 2<sup>nd</sup> vs 3<sup>rd</sup> condition, 3<sup>rd</sup> vs 4<sup>th</sup> condition.

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

## **Discussion**

Unlike the previous studies, Study 5 provided limited support for our hypotheses. We did not observe differences in action intentions across subsequent social norms combinations. Notably, we observed generally low levels of willingness to participate in Pride Marches across all experimental conditions. Thus, the absence of most social norm effects on action intentions, as observed in previous research, may be attributable to a floor effect. These findings may also indicate a boundary condition of social norm influence—when willingness to act is very low to begin with, social norms may have little impact on individuals' intentions.

While perceived importance and expectancy did not decrease with the decline in social engagement or social action approval, they did decline across conditions differing in goal approval. They also mediated the relationship between social norm combinations and action intentions across these two conditions. These findings additionally highlight the importance of social goal approval as a norm type shaping perceptions of the social context even when the other two types of norms do not have an effect. From the theoretical perspective, this further supports its inclusion in research on predictors of action intentions and cause evaluations.

In Studies 1–5, we employed a between-participants design. In Study 6, we used a within-person design to test whether norm effects persist when the same individuals are exposed to all experimental conditions. This approach increases the salience of distinct norm types and reflects a novel set of contexts, in which the same issue is associated with different social norms across social contexts.

## Study 6

### Method

#### *Participants*

Participants were recruited through an online research panel in Poland. After the exclusion of participants who did not pass the attention checks ( $N = 390$ ), the final sample included 644 participants (356 women, 288 men;  $M_{age} = 48.57$ ,  $SD_{age} = 15.72$ ).

#### *Procedure*

In Study 6, participants were exposed to all four experimental conditions, each representing a different combination of social norms. The cover story was similar to Studies 1–3 but was adapted to be credible in a within-person design. Specifically, the materials described the same ethnic minority group living across multiple countries. Next, participants read the summary of the report from a human rights organization stating that the group experiences difficulties in accessing healthcare, education, and employment in many countries, and that ongoing protests aim to ensure their rights. Finally, participants were shown poll results from four different countries in random order. They informed about the social approval of the goal, the action, and social engagement.

This time, norm information was presented descriptively (e.g., many/few people engaged), without sharing exact poll figures. This approach was chosen because presenting identical values across conditions would lack credibility, and we additionally aimed to examine whether the effects observed in previous studies would persist without numerical precision. Before responding to a series of questions, participants were asked to imagine living in the respective country.

#### *Measures*

All questions described below were presented after each experimental condition (four times in total). The questions were the same as in previous hypothetical studies but adjusted to

refer to each of the four countries. Willingness to engage in the protest was measured with two items, which showed strong correlations across conditions ( $rs = .82-.85$ ). Importance and expectancy were each measured with a single item. In this study, the manipulation check had a 0–100% scale indicating the perceived percentage of society that approved the goal, approved the action, or were engaged in the action.

## **Results**

To test our main hypotheses, we fitted a fixed effects model with types of norms nested within participants. We employed a multilevel Structural Equation Modeling paradigm to run mediation analyses. We additionally calculated the intraclass correlation (ICC) and conducted a multilevel  $R^2$  analysis to examine how much variance in the dependent variables was attributable to interindividual differences and how much was explained by the predictors.

***Manipulation checks.*** We observed a statistically significant decrease in perceived social engagement in the protests (1<sup>st</sup> vs. 2<sup>nd</sup> condition;  $b = -25.39$ ,  $SE = 0.84$ ,  $p < .001$ ), social approval of those protests (2<sup>nd</sup> vs. 3<sup>rd</sup> condition;  $b = -32.41$ ,  $SE = 0.99$ ,  $p < .001$ ) and social approval of the activists' goal (3<sup>rd</sup> vs. 4<sup>th</sup> condition;  $b = -35.98$ ,  $SE = 0.94$ ,  $p < .001$ ) where expected.

***Willingness to engage in the protests.*** We observed the highest action intentions for the condition with consistently high norms that decreased in each subsequent conditions (1<sup>st</sup> vs. 2<sup>nd</sup> condition;  $b = -0.24$ ,  $SE = 0.04$ ,  $p < .001$ ; 2<sup>nd</sup> vs. 3<sup>rd</sup> condition;  $b = -0.18$ ,  $SE = 0.04$ ,  $p < .001$ ; 3<sup>rd</sup> vs. 4<sup>th</sup> condition;  $b = -0.19$ ,  $SE = 0.04$ ,  $p < .001$ ).

***Importance.*** Importance of the cause was the highest when the norms were consistently high and it decreased across subsequent conditions which differed in social engagement in the protests (1<sup>st</sup> vs. 2<sup>nd</sup> condition;  $b = -0.30$ ,  $SE = 0.06$ ,  $p < .001$ ) and social approval of the activists' goal (3<sup>rd</sup> vs. 4<sup>th</sup> condition;  $b = -0.94$ ,  $SE = 0.06$ ,  $p < .001$ ). However,

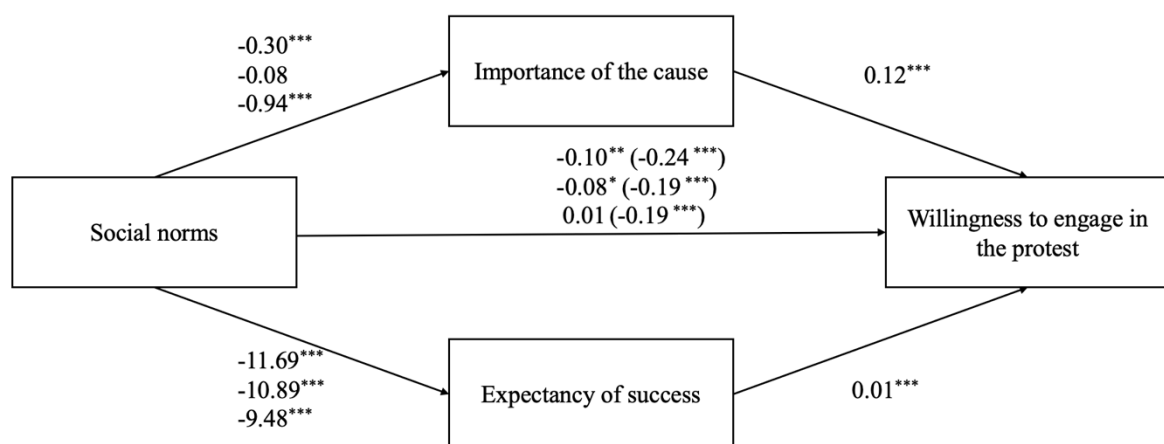
we did not observe statistically significant difference between the conditions differing in social approval of the protests (2<sup>nd</sup> vs. 3<sup>rd</sup> condition;  $b = -0.08$ ,  $SE = 0.06$ ,  $p = .189$ ).

**Expectancy.** Expectancy of resolving social problem was the highest when all social norms were consistently high and it decreased across each subsequent condition (1<sup>st</sup> vs. 2<sup>nd</sup> condition:  $b = -11.70$ ,  $SE = 0.88$ ,  $p < .001$ ; 2<sup>nd</sup> vs. 3<sup>rd</sup> condition:  $b = -10.88$ ,  $SE = 0.88$ ,  $p < .001$ , 3<sup>rd</sup> vs. 4<sup>th</sup> condition:  $b = -9.48$ ,  $SE = 0.88$ ,  $p < .001$ ).

**Mediation analyses.** We observed negative indirect effects of social norms on willingness to engage in protest through importance for the first (1<sup>st</sup> vs. 2<sup>nd</sup> condition:  $b = -0.04$ ,  $SE = 0.01$ ,  $p < .001$ ) and third contrast (3<sup>rd</sup> vs. 4<sup>th</sup> condition:  $b = -0.12$ ,  $SE = 0.02$ ,  $p < .001$ ), but not for the second contrast (2<sup>nd</sup> vs. 3<sup>rd</sup> condition:  $b = -0.01$ ,  $SE = 0.01$ ,  $p = .192$ ). Negative indirect effect of social norms on action intentions through expectancy was observed for all contrasts (1<sup>st</sup> vs. 2<sup>nd</sup> condition:  $b = -0.10$ ,  $SE = 0.01$ ,  $p < .001$ ; 2<sup>nd</sup> vs. 3<sup>rd</sup> condition:  $b = -0.10$ ,  $SE = 0.01$ ,  $p < .001$ ; 3<sup>rd</sup> vs. 4<sup>th</sup> condition:  $b = -0.08$ ,  $SE = 0.01$ ,  $p < .001$ ). The mediation is depicted in Figure 11.

**Figure 11**

*Mediation Model (Study 6)*





*Note.* The results are presented in the following order from the upper: 1<sup>st</sup> vs 2<sup>nd</sup> condition, 2<sup>nd</sup> vs 3<sup>rd</sup> condition, 3<sup>rd</sup> vs 4<sup>th</sup> condition.

\*\*\*  $p < .001$ .

**Between- and within-person variability.** We fitted an intercept-only model for each of these variables and calculated intraclass correlations (ICC). The results showed that 78% of the variability in action intentions, 41% of the variability in importance of the cause, and 28% of the variability in expectancy of resolving the problem could be attributed to between-person differences. Collectively, the contrasts with social norm combinations explained about 2% of variance in action intentions, 9% of variance in importance and 23% of variance in expectancy.

## **Discussion**

The results of Study 6 largely aligned with our hypotheses. Action intentions were the highest when all social norms were consistently high and decreased as the level of each norm type declined across subsequent conditions. A similar pattern was observed for expectancy. Perceived importance was also the highest under consistently high norms and declined with the decrease in social engagement and social approval of the goal, but not with the decrease in social approval of the action. Across conditions where social norms influenced expectancy and importance, these variables mediated the relationship between social norms and action intentions.

Obtained results confirmed that social norms effect on action intentions and cause perception holds when individuals are exposed to all social norm combinations. Omitting numerical values in the social norm manipulation demonstrated that the effects generalize beyond specific values used in previous studies.

This study also extended our research to novel contexts: situations where people encounter different social norm on the same issue across groups or societies. These contexts mirror real-life situations, such as experiences of minority groups facing discrimination in different societies.

Additionally, we observed substantial between-person differences in the effects of social norms, as 78% of the variability in action intentions was attributable to between-person differences. Exploring individual differences in sensitivity to social norm types can be a noteworthy future study direction, as it aligns with prior research suggesting that some people are more responsive to the prevailing opinion climate than others (Hayes et al., 2005a; 2005b; Noelle-Neumann, 1974).

### **General Discussion**

Research on social norm influence on action intentions typically emphasized the role of social approval of the action and social engagement in it. By contrast, social approval of the action's underlying goal—most commonly measured in public opinion polls on collective action—is often overlooked as a driver of action intentions. Moreover, the effects of different social norms were mostly studied in isolation ignoring the role of inferences people make when presented with one of them.

The present research took a comprehensive approach and examined how different types of social norms, and their combinations, shape intentions to engage in collective action. First, we extended existing frameworks by incorporating social approval of the goal, alongside the more typical distinctions that refer directly to behavior (i.e., social approval of the action and social engagement). Second, as social norms often co-occur in real-world contexts, we examined how combinations of all three types affect collective action intentions, perceived importance of the cause, and expectancy of success. Because one type of norm can shape perceptions of others (e.g., Deutchman et al., 2024)—an effect also observed in Study

1—such interdependence makes it difficult to isolate unique effects when norms are considered separately, particularly when they are inconsistent with one another. Third, we examined the mediating role of perceptions of goal importance and expectancy in this process. To our knowledge, these are the first studies to examine these combinations and their motivational consequences, offering a more detailed understanding of how social norms affect collective action intentions.

### **Social Norms and Action Intentions**

With one exception in the LGBT+ context (Study 5), consistently high levels of all norms produced the strongest mobilization, whereas consistently low levels produced the weakest motivation to act. This demonstrates that social norms do matter for collective action intentions. Beyond this general effect of consistent norm combinations, we also observed a more nuanced pattern of results when examining the different norms in less consistent combinations.

#### ***Social approval of the goal***

Interestingly, the social norm type that showed the most consistent effect across studies was social approval of the goal, which we introduced into the theoretical framework. In four of five studies that examined the combinations of norms, action intentions decreased when social approval of the goal declined. More specifically, participants were more willing to engage in action even when it was disapproved by others and lacked broad participation—if the underlying goal was still socially endorsed. When the goal lacked societal approval, the willingness to act was significantly reduced.

While the role of social approval of goals has been acknowledged previously (e.g., Van Zomeren et al., 2004), it is typically absent from social norm frameworks, which focus primarily on injunctive and descriptive norms. The proposed extended framework may be

especially relevant in the context of activism, where both the actions and their underlying goals are typically visible and subjected to social judgment.

These findings also offer practical implications. Emphasizing social approval for the goal itself may motivate participation, even when specific actions are disapproved or not widely attended. This norm may be thus particularly relevant and cost-effective to address, given that typically the minority in society engages in collective action (e.g., Centrum Badania Opinii Społecznej, 2025; Pew Research Center, 2023) and movements may lack data on action approval. Highlighting social support for the goal in campaigns could therefore enhance mobilization for socially desirable causes—or deter support for harmful and unpopular ones.

### ***Social engagement***

In three of five studies, willingness to engage in action also declined when social engagement decreased—even when the action and its goal were both socially approved. These findings highlight that, beyond social approval of the goal and the action, what may stop or encourage people to join the action is the level of collective engagement.

These results support past research demonstrating that participation levels are an important predictor of movement's success (Chenoweth & Stephan, 2011). High turnout may bring several advantages, such as the inclusion of participants with diverse abilities or a greater likelihood of gaining elite support. Our findings point to another, motivational function of social participation. High social engagement may itself encourage further participation, potentially creating a self-reinforcing cycle in which well-attended actions attract even more participants, while sparsely attended ones deter broader involvement.

Strategically, movements with strong turnout may benefit from emphasizing participation numbers. If participation in action is low, shifting focus to widespread approval of the movement's goal could be more effective in increasing action intentions. Conversely, in

countering movements supporting harmful causes, highlighting low participation could deter potential supporters.

### ***Social approval of the action***

The final norm type we examined was social approval of the action. Prior research has mainly examined action approval in the context of the distinction between violent vs. peaceful actions (e.g., Feinberg et al., 2020; Thomas & Louis, 2014). However, given that collective actions worldwide are predominantly peaceful (Institute for Economics & Peace, 2020), and that social approval is not synonymous with an action's level of violence, our studies investigated the effects of social approval of actions outside a violent context.

This type of norm was less consistently related to action intentions across our studies. A decline in intentions to act when social approval of the action decreased was observed in only two of the five studies (Studies 3 and 6). Notably, Study 3 was the only study conducted in the U.S., and Study 6 was the only study using a within-subjects design. This pattern may suggest that the effect is relatively small or limited to particular social contexts.

Another explanation could be that social action approval plays a less central role for action intentions than social approval of the goal and social engagement. This would reflect two common notions: *the end justifies the means* and *actions speak louder than words*. First, individuals can make moral judgements about the situation depending more on the action goals than action characteristics (e.g., Carlson et al., 2022; Newman & Cain, 2014). Second, as collective action emergence and success are related to social engagement (Chenoweth & Stephan, 2011), when deciding whether to join the action, people may focus more on social engagement than on its approval.

Alternatively, mere information about action approval might be less informative and more ambiguous. Individuals may attribute a given level of social approval to various factors, such as action disruptiveness or novelty. Future research could pair social approval of the

action with an explicit description of action characteristics. For instance, integrating studies on peaceful and violent actions could reveal whether the effect of social norms on action intentions depends on perceived violence. Prior research suggests that disruptive but non-violent actions might be more effective in shifting the political opinions of those resistant to social change than other forms of action (Shuman et al., 2021). In sum, emphasizing social approval of the action may sometimes affect action intentions, but its influence appears less consistent and more context-dependent than other norm types.

### ***Social norms, perceived importance, and expectancy***

The second aim of our research was to investigate social norm influence on cause perception. Our findings demonstrate that social norms shape perceptions of a cause's importance and the expectancy of it being resolved. When norms were presented in combinations, perceived importance declined with lower social engagement (three studies), lower social approval of the action (two studies), and lower social approval of the goal (all studies). A similar pattern emerged for expectancy, which declined in three studies when either social engagement or action approval dropped, and in all studies when goal approval declined. These effects were even more consistent than effects on action intentions and sometimes occurred even when there was no effect on action intentions (e.g., Study 5). Where norms influenced the perceptions of importance and feasibility of the cause, they also mediated the effect of social norms on action intentions.

Given that high social approval of the cause and high social engagement are associated with the success of social movements (Burstein, 2003; Chenoweth & Stephan, 2011), and that gaining majority support may be an important step in challenging authority through collective actions (Subašić et al., 2008), social norms could be perceived as rational cues for assessing success likelihood. It makes sense to expect that the more people are engaged and supportive of the cause, the greater the chances of the success.

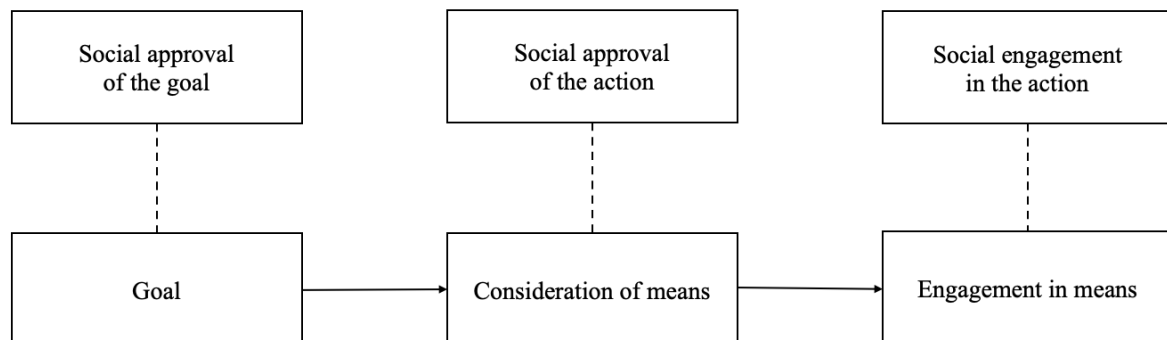
The positive link between social norms and the perceived importance is less intuitive. On one hand, people tend to adapt their opinions to prevailing views in their social networks (e.g., Moussaïd et al., 2013). Widespread approval or participation in collective actions can signal that the issue is widely acknowledged, leading people to assume it must be important if so many others care about it. On the other hand, low levels of social norms could indicate neglect or systemic entrenchment—features that may also signal the problem’s importance. For instance, if nobody cares for a particular minority's rights, it may indicate that the problem is in fact greater rather than smaller. Our findings suggest that people tend to follow prevailing norms when assessing issue importance. This tendency may create additional obstacles for those seeking to highlight pressing but underrecognized issues, as it once again illustrates how social norms may form a self-reinforcing cycle, impeding the recognition of the already underappreciated problem.

The findings that effects of social norms on importance and expectancy are further linked to action intentions, also contribute to the social norm and collective action literature in at least two ways. While previous studies linked norms to collective action intentions, they often do so without examining the potential underlying mechanisms (e.g., González et al., 2021; Smith & Louis, 2008). Although the mediation analyses should be interpreted with special caution when drawing causal inferences, as only social norms—and not the proposed mediators—were experimentally manipulated across all studies, the present findings nonetheless point to a promising avenue for future research. The observed associations between the expectancy of success, the importance of the cause, and action intentions align with motivational theories of goal commitment (Atkinson, 1958; Kruglanski et al., 2002), which posit that both value and expectancy are necessary prerequisites for goal-directed behavior.

Including motivational mediators allows us to link social dynamics, expressed through norms, with the individual motivational processes that underlie forming commitments and taking goal-directed action. More broadly, we propose a closer integration between individual decision-making—goal selection, consideration of means, and engagement in specific actions (Bandura, 1977; Kruglanski et al., 2002)—and social norms that reflect the collective approval of those goals, actions, and levels of engagement. This parallel between individual and social processes may provide a unified framework for analyzing individual behaviors such as participation in collective action within their broader social context. Figure 12 illustrates how the three types of social norms correspond to different stages of the motivational process underlying action engagement.

**Figure 12**

*Parallels Between Social Norms (Interpersonal Factors) and Motivational Processes (Intrapersonal Factors)*



### Limitations and Future Studies

To examine the generalizability of our findings, we conducted studies across two countries employing varied contexts and designs. Nonetheless, several methodological aspects—particularly regarding the operationalization of social norms, the scope of generalizability across cultures, and the distinction between action intentions and behavior—



warrant caution and suggest directions for future research. These limitations are summarized in Table 2.

## Implications and Conclusions

Despite these limitations, we believe that the present research can offer both practical and theoretical contributions. Practically, social campaigns could strategically use prevailing national-level norms to increase action intentions and improve cause perception, tailoring messages to highlight the most favorable norm type for their context. Theoretically, this research demonstrated the utility of a motivational framework (Atkinson, 1958; 1964; Bandura, 1977; Kruglanski et al., 2002) for understanding the influence of social norms on collective action intentions. First, this framework allowed us to differentiate between distinct types of norms, leading to the inclusion of a third type—social approval of the goal—which has often been overlooked in prior social norm frameworks. Second, we tested the effects of the combinations of social norms that provided us with more nuanced patterns of results across studies. Finally, the motivational framework also informed our search for potential mechanisms behind this effect by highlighting the role of cause importance and expectancy of success. Gaining knowledge in this area is particularly timely given the notable increase in protest activity and collective mobilization worldwide over the past decade (Institute for Economics & Peace, 2020).

**Table 2**

*Table of limitations*

Limitation	Description and future studies
Operationalization of social norms with fixed values	To ensure consistency across studies, we operationalized norms with predominantly

	<p>fixed numerical values accompanied by specific media comments. Although Study 6 used descriptive formulations of norms with similar results, future research can explore a broader range of norm expressions (e.g., Kuang &amp; Bicchieri, 2024).</p>
Restricted range of norm levels	<p>We limited our design to two levels per norm type. However, real-world norms vary widely not only in strength but also in the shape of the distribution. Future studies could address this complexity by investigating contexts in which participants are presented with various distributions of social norms.</p>
Single source of norm information	<p>Participants also accessed norm information through summary group information with associated media comments, whereas real-world norms can also be inferred from other sources, such as direct observation or institutional signals (e.g., Tankard &amp; Paluck, 2016; Yamin et al., 2019). Future research can investigate how norm information from</p>

different sources affects collective action intentions and cause perception.

Focus exclusively on static norms

We focused exclusively on static norms reflecting current social consensus, though dynamic norms—capturing anticipated changes (e.g., Mortensen et al., 2019)—may exert even stronger influences on political engagement (e.g., Noelle-Neumann, 1974). Exploring dynamic norms could be particularly relevant in the activism domain, where actions aim either to challenge or preserve the status quo that can be closely tied to prevailing norms.

Restricted number of norm combinations

Our focus on four norm combinations was guided by their plausibility and prevalence in collective action contexts. Nonetheless, we acknowledge that less common combinations may also occur. For example, since large-scale demonstrations typically involve only a small fraction of the population, it is theoretically possible to observe relatively high engagement despite widespread disapproval of both goals and

actions. In a country of 40 million, if only 500,000 individuals approve of both the goal and the action but all of them participate in a protest, the result would be large-scale engagement despite overall low approval. This illustrates that even causes with limited social approval could mobilize levels of participation comparable to widely supported causes—provided nearly all supporters are actively involved. While unlikely, it remains a theoretically meaningful possibility. Future research could examine how such norm combinations influence intentions to engage in collective action.

#### Cross-cultural generalizability

The experiments were conducted in Poland and the U.S. to provide an initial test of generalizability across different contexts. While the overall pattern of results was consistent, some differences emerged. It remains uncertain whether these effects would replicate in other cultural settings.

Intentions to engage in collective action  
versus engagement in collective action

Most of our studies measured how social norms influenced only action intentions. To address this, Study 4 included a behavioral measure involving providing an email address and participating in follow-up actions. The rarity of such engagement highlights the need for caution when extrapolating from studies of intentions to actual behavior and underscores the value of incorporating behavioral measures in future research.

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### **Declaration of generative AI use**

We used ChatGPT (OpenAI, 2025) to assist in language correction of the manuscript. After using this tool, the authors reviewed and edited the content as needed and takes full responsibility for the content of the published article.

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