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A Cross-National Study on Prosocial Behaviors in Emerging Adulthood During the COVID-19 Pandemic

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Abstract

Emerging adulthood is marked by changes and exploration of life directions and is significantly impacted by crises like the COVID-19 pandemic. This cross-national study examined the psychological, relational, and contextual factors associated with prosocial behaviors— adherence to COVID-19 measures and helping strangers—among emerging adults (ages 18–25) from 14 countries during the pandemic. We assessed empathy, social identification with those affected by COVID-19, family and friend support, and perceived pandemic-related burden while exploring the moderating effects of country-level restrictions and cultural values. Results showed that empathy and social identification were consistently linked to adherence and helping behaviors, with stronger associations observed in countries with moderate to high COVID-19 restrictions. The findings highlighted the complex role of empathy and social identity in fostering prosocial behavior under varying cultural contexts and suggested pathways for enhancing community resilience during global crises.

Keywords

prosocial behavior, COVID-19, emerging adulthood, empathy, social identification

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Introduction

Emerging adulthood is a period that is characterized by major changes and exploration of various life directions (Arnett, 2000). During a crisis like the COVID-19 pandemic, many youngsters felt like their lives were "on hold" because the restrictions, such as lockdowns and social distancing measures, made it more difficult for them to socialize with friends or romantic partners, attend college or university, or maintain employment. For many young adults, social media became the main way to maintain connections during physical isolation (Cinelli et al., 2020; Lisitsa et al., 2020; Ngien & Jiang, 2022). The effects of the COVID-19 pandemic should be understood in light of increasing economic instability exacerbated by the pandemic and global inflation (World Bank, 2022), social and political polarization, and the rise in mental health challenges, particularly among youth (Branje, 2023). These challenges have created an environment where youth face heightened stress and uncertainty (World Bank, 2022). Nonetheless, times of crisis provide opportunities to engage in prosocial behavior. Prosocial behavior is commonly defined as voluntary behavior meant to benefit another (Eisenberg et al., 2015). People could, for example, support citizens in dire circumstances or follow specific government measures to reduce a crisis's damaging social and health consequences. During emerging adulthood, prosocial behavior is still developing, but some forms, like sharing and helping, have become more sophisticated, and other forms, like volunteering, are becoming more common (Padilla-Walker & Van der Graaff, 2023).

Engaging in prosocial behavior is beneficial not only for society but also for individuals' mental health and well-being (Memmott-Elison et al., 2020). As the COVID-19 pandemic has created an unprecedented environment with largely unknown effects on prosocial behavior in youth, it is important to disentangle the factors that explain individual differences in prosocial behavior in emerging adulthood, particularly in these challenging times. Additionally, cultural contexts and social environments shape how emerging adults engage in prosocial activities and experience mental health outcomes during crises (Padilla-Walker et al., 2022). Thus, examining prosocial behavior from a cross-cultural perspective is crucial for understanding how different factors are connected to the ways emerging adults comply with national measures and help strangers during the COVID-19 pandemic.

In the present study, we examined, among young adults from 14 countries, whether support from family and friends, empathy, perceived pandemic-related burden, and social identification with others affected by the pandemic were related to (1) adherence to national measures to prevent the spread of COVID-19 and (2) helpful behaviors toward strangers. We also examined whether the strictness of the national COVID-19 approach and individualistic values moderated these associations across countries.

Prosocial Behavior in Emerging Adulthood

Young adulthood is when many young people enlarge their social horizons, extend their network of relationships, and increase their social skills (Arnett, 2000). Youths might transition from living with their parents to building their households and from secondary to tertiary education or work. The social life of this age group is typically active and in motion. This developmental stage provides unique possibilities for youths to develop more sophisticated prosocial behaviors. Previous studies found indeed that prosocial behaviors increased in adolescence and young adulthood (e.g., Van der Graaff et al., 2018).

Prosocial behavior is beneficial for society because emerging adults become more involved in the community (Kanacri et al., 2014), and it is also related to positive individual outcomes such as lower levels of loneliness, deviance, and substance use (Randall & Wenner, 2014). Adherence to COVID-19 pandemic regulations involved the extent to which youngsters maintained social distance, limited their social contacts, and stayed at home if they or someone in their household showed symptoms of COVID-19. It can be seen as an example of compliant prosocial behavior, as governments explicitly asked citizens to follow these regulations, and fines were issued in case of violating some of the rules. In that sense, adherence was not a spontaneous or voluntary act. At the same time, youngsters had to constantly determine which attitude and behavior to adopt regarding the regulations during the pandemic (e.g., whether to keep their distance even from their friends, whether to join a social activity, or whether to stay home when they only have mild COVID-19 symptoms). As such, they made many (more or less voluntary) decisions about the strictness of their adherence every day. Furthermore, adherence can be seen as a costly form of prosocial behavior, as following the regulations often had negative consequences for individuals (e.g., feeling isolated because of adhering to the rule to stay home). This was particularly challenging for emerging adults, as their broader social life was more affected by the COVID-19 pandemic compared to older adults who had already established stable relationships. Recent research underscores the important role of prosocial behavior in emerging adulthood during the pandemic. Namely, helping family members appeared to strengthen relationships and reduce depressive feelings, while helping friends was linked to higher anxiety and depression (Padilla-Walker et al., 2022).

Helping strangers can be seen as spontaneous prosocial behavior, that is, helping others without being asked (Eisenberg & Spinrad, 2014) or more structured, organized helping behaviors (Tekin et al., 2021) such as donating money. These behaviors often require little effort (Eisenberg et al., 2015) and have few negative consequences for those engaging in them. Helping strangers may have been shaped by pandemic-related constraints on physical social interactions, requiring more effort than usual. However, prosocial behaviors can take many forms beyond direct, face-to-face encounters. During the pandemic, individuals adjusted their prosocial actions to the situation, participating in remote or digital helping methods, such as online volunteering, mutual aid initiatives, and providing emotional support through social

media and virtual platforms, or assisting others from a distance (Haller et al., 2022; Rose et al., 2021).

Adherence to national measures and helping strangers arise from different motives. During COVID-19, young adults' adherence to national measures and aid to others can be understood through Daniel Batson's empathy-altruism hypothesis (Batson, 2011) and the impact of cultural values. Batson's theory suggests that empathetic concern motivates altruistic actions, leading individuals to follow health directives and assist those in need. Because the motivations for and correlates of various forms of prosocial behavior differ in emerging adulthood (Carlo & Padilla-Walker, 2020), we examined two distinct forms of prosocial behavior during the pandemic: adherence to national COVID-19 pandemic measures and helping strangers.

The Role of Psychological Factors in Prosocial Behavior

Empathy is seen as an important motivation to engage in prosocial behaviors (Batson et al., 1991; Eisenberg & Miller, 1987). Empathy is the ability to perceive and to be sensitive to the emotional states of others (Decety, 2015). It encompasses perspective taking, or trying to understand others' thoughts and emotions, and empathic concern, or feeling concerned for others (Davis, 2015).

Many empirical studies have provided evidence for a positive link between empathy and prosocial behavior among adolescents and emerging adults (e.g., Carlo et al., 2012; Van der Graaff et al., 2018), across different cultures (e.g., Berger et al., 2015), and across different forms (e.g., Davis et al., 2019). Empathy may play a more important role in spontaneous prosocial behavior, for which individuals need to relate to the emotional state of the person in need to offer support, than in compliant prosocial behavior, which can result from merely complying with the request without empathizing with the other. However, research found that empathy was related to both higher levels of adherence to COVID-19 measures (e.g., Galang et al., 2021; Pfattheicher et al., 2020) and higher levels of helping strangers or distant others (Morstead et al., 2021).

Social identification is another important factor in explaining prosocial behaviors. Individuals tend to show more prosocial behavior toward others with whom they feel connected or see as members of their in-group than to distant others (e.g., Stürmer & Snyder, 2009). In this study, *social identification with others affected by the COVID-19 pandemic* refers to a specific sense of identity formed through shared experiences during the COVID-19 pandemic. This measure highlights how individuals relate to others facing similar challenges, emphasizing the role of collective adversity in shaping social identity and fostering community cohesion during crises. This feeling of solidarity might be strengthened and extended during crises and disasters. The experience of an external threat creates a sense of 'we-ness' or shared identity among those similarly threatened, creating and strengthening social bonds (Drury et al., 2019). This increased social identification with strangers may explain the surge in prosocial behavior often found during and in the aftermath of disasters (Drury et al., 2019). Empirical research has indeed shown that social identification with others was positively related to helping behavior in previous disasters (e.g., Alnabulsi et al., 2018; Drury et al., 2016), and that there is initial evidence for a positive link between helping and adherence during the COVID-19 pandemic as well (Barragan et al., 2021; Stevenson et al., 2021).

The Role of Relational Factors in Prosocial Behavior

Relational factors, such as having supportive relationships, have been found necessary for adolescents' prosocial behavior (Boele et al., 2019; Vitaro et al., 2009). Having higher quality relationships with family members and friends has been found to be associated with higher levels of prosocial behavior (e.g., Harper et al., 2016). Young adults who feel more supported by their family and friends can be expected to show higher levels of adherence and help because they have more emotional resources. Especially in difficult times, individuals tend to look to others as a guide for their behavior. Therefore, young adults who feel supported by their family and friends are more likely to support others (Drury et al., 2016). Previous empirical studies indeed showed that having supportive relationships during the pandemic was related to a higher tendency to adhere to COVID-19 precautionary measures (e.g., Lamarche, 2020) and help others (e.g., Haller et al., 2022).

The Role of Contextual Factors in Prosocial Behavior

Contextual factors also affect prosocial behavior. Even though the COVID-19 pandemic has negatively impacted people's lives worldwide, some people experience more significant burdens due to the pandemic (e.g., fear of losing their jobs, being infected, and worries about relatives being infected) than others. Theoretically, experiencing pandemic-related burden could be negatively or positively linked to adherence to COVID-19 measures and helping strangers. On the one hand, experiencing adverse events and stress may deplete one's cognitive and emotional resources, which are necessary to attend to others' situations and to engage in prosocial behaviors (Lazarus & Folkman, 1984). For instance, young adults who experienced health or financial problems due to the COVID-19 pandemic may not have had the mental or physical resources to assist others. On the other hand, according to the notion of altruism born of suffering, the experience of adversity may motivate individuals to help others in order to prevent or reduce their suffering (Staub & Vollhardt, 2008). Therefore, young adults who have experienced the negative consequences of COVID-19 may feel motivated to adhere to COVID-19 measures or may feel inclined to support others to prevent or alleviate others' suffering. Previous research on the

link between stressful experiences and prosocial behavior suggests that individuals who experienced adversity often engage in helpful behaviors toward others who suffered similarly (Vollhardt & Staub, 2011). However, empirical evidence showed that during the COVID-19 pandemic higher stress levels and anxiety were related to higher levels of prosocial behavior (Alvis et al., 2023; Haller et al., 2022), while another study found a nonsignificant association between the psychological impact of COVID-19 and adherence to COVID-19 measures (Petrocchi et al., 2021). More recently, studies found that as individuals got more anxious or experienced more burden they were less likely to adhere to COVID-19 measures (Brailovskaia & Margraf, 2022; Corbera & Marín-Chollom, 2024).

Thus both theoretical and empirical literature are inconclusive about the relation between adversity or stress and prosocial behavior. As such, we explore the link between the experienced COVID-19 burden and helping and adherence, without making a firm hypothesis on its direction.

The Current Study

The current cross-national study aimed to investigate among young adults from fourteen countries worldwide at the individual-level and country-level differences in the extent to which young adults showed adherence and help during the COVID-19 pandemic can be explained. We examined the extent to which (a) psychological factors (i.e., empathy, social identification with others affected by the pandemic), (b) relational factors (i.e., support from family and friends), and (c) contextual factors (i.e., perceived pandemic-related burden) explained individual differences in adherence to national precautionary measures and in helping strangers during the COVID-19 pandemic. Furthermore, although previous research revealed that personal traits and social support are consistent predictors of prosocial behavior across countries and cultures (e.g., Carlo et al., 2018), the predictors of prosocial behavior during COVID-19 pandemic, and in particular of adherence to COVID-19 measures, may depend on country-level contextual factors. We therefore explored whether the associations differed across countries depending on the strictness of the government's approach to combating the pandemic and the society's level of individualism (Hofstede et al., 2010).

Based on previous research, we hypothesized that more empathic youths would be more inclined to help strangers during the COVID-19 pandemic. In the current study, we will explore whether this relationship also exists between empathy and adherence. For social identification with others affected by the pandemic, we expected that young adults who reported higher levels of social identification with others affected by the pandemic would report more adherence to national measures to COVID-19 measures and help strangers during the COVID-19 pandemic. Furthermore, we expected that young adults with supportive relationships with family and friends during the pandemic would be more likely to adhere to national measures and help strangers during the COVID-19 pandemic. We formulated no specific hypotheses regarding the associations between experiencing pandemic-related burden and adherence to national remediation policies and helping strangers during the COVID-19 pandemic. Lastly, given the lack of prior research, no specific hypotheses were formulated regarding country-level moderation (i.e., the strictness of the COVID-19 approach and individualism).

Method

Participants and Procedures

Participants were 5682 individuals aged 18–25 (68.4 % woman; M_{age} = 21.51 years, SD_{age} = 2.13) from 14 countries: Argentina, Chile, China, Finland, France, Germany, Ireland, Italy, Lithuania, Spain, Taiwan, the Netherlands, Turkiye, and the United States. These data come from #Young in Times of COVID-19, a study evaluating prosocial behavior in young adults during the COVID-19 pandemic. Participants were primarily recruited via universities in each country. However, participants from China, the Netherlands, and the United States were recruited using survey panel methods. All respondents provided active consent and received minimal (no more than 5 euros) or no compensation for their participation. Utrecht University's (the Netherlands) institutional review board approved the study prior to data collection (file number 20–298).

Participants from China, Germany, Ireland, Italy, the Netherlands, Turkiye, and the US completed the online survey between June 15 and August 1, 2020. The data collection was extended to October 14, 2020, in Argentina, Chile, Finland, France, Lithuania, Spain, and Taiwan due to low participant recruitment in the first round. The survey took approximately 20 minutes to complete. Only participants who completed the survey and passed the validation checks (e.g., "if you are reading this, select 'a lot'") were included in the final datasets.

Guidelines for Structural Equation Modeling (SEM) suggest a minimum ratio of 10 participants per estimated parameter for simple models (Kline, 2016). With the current sample of 5,690, the ratio of participants to free parameters is between 227.60:1 and 210.74:1 across models, exceeding the recommended 10:1 ratio and thus adequate for obtaining stable results (Kline, 2016).

Measures

The measures for assessing empathy, social identification, family and friend support, strictness, and national levels of individualism were available in most countries. However, the burden and adherence measures were developed specifically for this study, and the prosocial behavior measure was only available in English. Collaborators from those countries translated and back-translated these measures from English to the country's language.

Outcome Variables

Adherence to COVID-19 Regulations. Participants reported on the extent to which they followed COVID-19 regulations using 3 items that were composed for this study. Responses were rated on a 5-point Likert scale ranging from 1 (*not at all*) to 5 (*completely),* with higher scores reflecting greater adherence. Items were "How well do you follow the guidelines regarding keeping distance from others?", "How well do you follow the guidelines regarding limiting social contacts to what is necessary?" and "How well do you follow the guidelines regarding staying at home if you or someone in your household has symptoms that could be related to COVID-19?" The scale exhibited moderate internal consistency (Cronbach's α = .68).

Helping Strangers during COVID-19 Pandemic. The extent to which participants helped strangers during the COVID-19 pandemic was measured using 5 items adapted from Padilla-Walker et al. (2018). Responses were based on a 5-point Likert scale ranging from 1 (*never)* to 5 (*very often*). A sample item includes, "I did small favors for people I did not know." The original measure was adapted slightly by asking participants to respond about the frequency of their prosocial behavior since the start of the COVID-19 pandemic. The item "*I am kind to others, even if I don't know them*" loaded differently across countries. It could be that this item was interpreted differently across countries. Therefore, we dropped this item and averaged the remaining items. The scale exhibited good internal consistency (Cronbach's α = .78).

Predictors

Psychological Factors. The Interpersonal Reactivity Index (IRI; Davis, 1983) assessed empathy using 10 items. Youths reported on empathic concern and perspective taking, two empathy-related constructs. For the main analyses, perspective taking and empathic concern were combined to create a composite empathy score. Responses were given on a 5-point Likert scale ranging from 1 (does not describe me at all) to 5 (describes me greatly). Items were reverse coded when necessary, so higher scores reflected more empathy. The reverse-scored item "When I see someone being treated unfairly, I sometimes do not feel very much pity for them" loaded differently across countries. It could be that the item was assessed differently across countries by reverse coding or translating. Therefore, we dropped this item and averaged the remaining items. A sample item is "I often have tender, concerned feelings for people less fortunate than me". The scales exhibited acceptable to good internal consistency (Cronbach's α = .80). The IRI has provided ample evidence of psychometric validity and reliability (see Keaton, 2017, for an overview).

Participants reported on their social identification with others affected by the COVID-19 pandemic using 4 items adapted from Doosje et al. (1998). On a 5-point Likert scale of 1 (*strongly disagree)* to 5 (*strongly agree)*, participants responded to items such as "During the COVID-19 crisis… I identified with the other people affected". Higher scores reflect greater social identification, and the scale exhibited good internal consistency (Cronbach's α = .78).

Relational Factors. Participants reported on their family support and friend support amidst the pandemic using 10 items (5 items for each type of support) adapted from the Social Provisions Scale (SPS-10; Russell & Cutrona, 1984). Respondents rated how strongly they agreed with various statements about family/friend support using a 5-point Likert scale of 1 (*strongly disagree*) to 5 (*strongly agree*), with higher scores reflecting greater family/friend support. A sample item includes, "I can turn to my family for support in times of stress". The scale exhibited good internal consistency (Cronbach's α = .82 for family support and Cronbach's α = .78 for friend support). Prior research has demonstrated that the SPS-10 is a valid and reliable instrument for measuring the availability of social support (Caron, 2013).

Contextual Factors. Participants reported how worried or burdened they were due to the COVID-19 pandemic, using 9 items for this study (see supplemental materials). The measure, rated on a 5-point Likert scale of 1 (*not at all burdensome*) to 5 (*very burdensome*), covered several aspects of burden, including health (2 items; e.g., "being or become infected with or having symptoms of COVID-19"), social situations (4 items; e.g., "being restricted in visiting friends or family", and finances (3 items; e.g., "being at an increased risk for lower financial means"). The scale exhibited good internal consistency (Cronbach's α = .76).

National Factors

Strictness of COVID-19 Approach. This study used the Stringency Index of the Oxford COVID-19 Government Response Tracker to characterize the level of action each government undertook in response to the pandemic (Hale et al., 2020). This measure assigns strictness on a scale from zero to 100 based on aggregated indicators of government responses, such as school closures and travel restrictions, plotted against the coronavirus cases and deaths in each country. We computed the strictness of each government's response by averaging the daily strictness ratings for each country from the start to the end of data collection in each country, with a separate computation for participants who completed the survey during the extended data collection period.

National Level Individualistic Orientation. Individualistic values were assessed at the national level using the Hofstede's Index (Hofstede et al., 2010). The individualism scale reflects the extent to which each society prioritizes pursuing individual goals over collective goals. Higher ratings indicate a stronger emphasis on individualistic values.

Control Variables. Control variables included age, biological sex (0 = *female*, 1 = *male)*, highest completed level of

education ranging from 1 (*less than high school*) to 6 (*doctorate*), and income ranging from 1 (*very difficult on present income*) to 4 (*living comfortably on present income*).

Statistical Plan

All analyses were conducted in Mplus version 8.9 with Maximum Likelihood estimation (Muthén & Muthén, 1998-2017). An alpha of .05 (two-sided) was used to determine the significance of the effects. Betas were used to evaluate effect size, where values between .10–.30 indicate a small effect size, values between .30–.50 indicate an intermediate effect size, and values larger than .50 indicate a strong effect size (Bollen, 1989). First, as a preliminary step, we tested whether metric invariance could be established across the countries by conducting CFA's for each measure using a multiple-group approach. We tested whether factor loadings could be constrained across all countries without worsening the model fit for each measure. Metric invariance is sufficient for interpreting the coefficients, as we were mainly interested in whether respondents interpreted the items similarly across groups. If factorial invariance was achieved, all items within constructs were averaged, and mean variables were used in the final models.

Second, to test our research questions, we estimated a model that included the direct paths of empathy, support from family and friends, social identification with others affected by the pandemic, and perceived pandemic-related burden as predictors of adherence and helping. Control variables were added to this model. This model was estimated for the participants from all countries together. This was done by testing two subsequent models in which pathways were allowed to vary across groups: (1) all direct paths to adherence to national measures and (2) all direct paths to helping strangers. A Bonferroni-corrected significance equal to $\alpha = 0.05/2 = 0.025$ (two-sided) was applied because we had two comparisons. If one of the partially unconstrained models fitted significantly better than the constrained model, it was taken as evidence that there were differences in specific paths to adherence or helping strangers. In such a case, we examined the differences in the predictive paths by releasing the constraints on individual paths one at a time. An adjusted significance level equal to $\alpha = 0.05/8 = 0.006$ was used to correct for multiple testing because we had eight comparisons.

Third, we examined whether associations varied across countries by country-level moderators. The sample was divided into groups on each country-level factor for the strictness of the government's COVID-19 approach and individualism (see Table 1). We used percentile scores to categorize the countries in our study into three groups based on their COVID-19 approach. The countries were divided into three categories: "low" (1st to 33rd percentile), "medium" (34th to 66th percentile), and "high" (67th to 100th percentile). For national level individualistic orientation, we used the cutoffs described for this Hofstede dimension on the Hofstede Insights Web site (Hofstede, 2011; Hofstede et al., 2010). These cutoffs describe "low" (below 50), "high" (above 60), and "very high" values (above 80). For the present study, we adapted this scale to cover all possible values, such that "low" was 0–50, "medium" was 51–80, and "high" was 81–100.

We estimated a multigroup model for each country-level factor in which the predictive paths were constrained to be equal across groups. If the model fit was appropriate, we released groups of predictors per outcome variable to see whether allowing the predictive paths to vary between groups would significantly improve the model fit. This was done by testing two subsequent models per country-level moderator in which pathways were allowed to vary across groups in (1) all direct paths to adherence to national measures and (2) all direct paths to helping strangers. A Bonferroni-corrected significance equal to $\alpha = 0.05/2 = 0.025$ (two-sided) was applied because we had two comparisons. If one of the partially unconstrained models fitted significantly better than the constrained model, it was taken as evidence for country-level moderation. In such a case, we examined the differences in the predictive paths by releasing the constraints on individual paths one at a time. An adjusted significance level equal to $\alpha = 0.05/8 = 0.006$ was used to correct for multiple testing because we had eight comparisons. Next, the differences per path that could not be constrained were explored, and the differences in the strength of the association were explored by doing Wald tests. Again, we corrected for multiple testing with an adjusted significance level (stringency: $\alpha = 0.05/6 = .008$; national level of individual orientation**:** $\alpha = 0.05/3 = .016$).

Differences in model fit were assessed using chi-square difference tests. In addition, alternative fit indices were used to assess model fit in the multiple-group context (Cheung & Rensvold, 2002; Rutkowski & Svetina, 2014). Therefore, we also relied on changes in the goodness of fit indexes, such as Root Mean Square Error of Approximation (RMSEA) and Comparative Fit Index (CFI), to assess the model fit. We used the chi-square difference test, ΔRMSEA no larger than .030 and ΔCFI no less than −.020, to compare model fit (Rutkowski & Svetina, 2014). If the change in two of the three fit indices (ΔS–Bχ2, ΔRMSEA, ΔCFI) indicated that model fit deteriorated (Cheung & Rensvold, 2002), then that path was not constrained. RMSEA ≤.08, CFI ≥.90, were used as indications for adequate model fit for all models (Little, 2013).

Results

Factorial Measurement Invariance

As seen in Table 2, measurement invariance tests revealed evidence for configural invariance across 14 countries for adherence and helping strangers. For support from family and friends and empathy, metric invariance across 14 countries could also be established. The model fit indices for perceived pandemic-related burden (RMSEA = .21, CFI = .57, TLI = .42) and social identification with others affected by the

Table 1. Sample Divided into Groups by Country-Level Moderator.

Group	Countries
Groups by strictness of the national COVID-19 approach	
Low	Finland, Ireland, Lithuania, Taiwan, The Netherlands
Medium	France, Germany, Italy, Spain, Turkiye
High	Argentina, Chile, China, US
Groups by national level individualistic orientation	
Low	Argentina, Chile, China, Taiwan, Turkiye
Medium	Finland, France, Germany, Ireland, Italy, Lithuania, Spain, The Netherlands
High	US

Table 2. Model Fit for Factorial Invariance of all Measures.

Model tested	X^2	df	p	RMSEA	CFI	ΔX^2	ΔRMSEA	ΔCFI
Adherence								
Configural	.34	1	.561	.000	1.000	-	-	-
Metric	474.94	40	<.001	.163	.873	474.60	−.163	−.127
Helping strangers								
Configural	224.63	70	<.001	.020	.981	-	-	-
Metric	234.53	67	<.001	.021	.978	9.9	.001	−.003
Perspective taking								
Configural	237.10	70	<.001	.077	.971			
Metric	497.60	135	<.001	.081	.936		.004	−.035
Empathic concern								
Configural	230.76	70	<.001	.075	.971			
Metric	1055.21	135	<.001	.129	.836		.054	−.135
Support family								
Configural	309.78	70	<.001	.092	.980	-	-	-
Metric	741.86	135	<.001	.105	.950		−.013	−.030
Support friends								
Configural	333.18	70	<.001	.096	.976	-	-	-
Metric	525.49	135	<.001	.084	.964	695.42	−.012	−.012
Social identification								
Configural	356.78	28	<.001	.170	.951	-	-	-
Metric	689.83	80	<.001	.137	.908	303.32	−.033	−.043
Perceived pandemic-related burden								
Configural	7151.59	378	<.001	.210	.568	-	-	-
Metric	8933.08	508	<.001	.202	.465	1004.34	.008	−.103

Note. For the main analyses perspective taking and empathic concern were combined to create a composite empathy score.

pandemic (RMSEA = .17, CFI = .95, TLI = .86) were not acceptable. Hence, we could not assess measurement invariance for these constructs, which implies that scales might be interpreted differently because of cultural differences, making it harder to compare across countries.

Main Effects Model. Table 3 includes the main study variables' means, standard deviations, and correlations. First, we tested the main effects of empathy, social identification, support from family and friends, and social identification on adherence and helping strangers (see Table S1 for a breakdown per country). The model was fully saturated (Table 4). Being more empathic, experiencing higher levels of perceived pandemic-related burden, and being able to identify with others were positively but weakly related to adherence to national measures and higher levels of helping strangers (Table 5). Support from family and friends was not significantly related to adherence but negatively related to helping strangers. Given the weak but positive zero-order correlations between support from family and friends and helping strangers, the latter might reflect a suppressor effect.

Next, we estimated the same model while controlling for age, sex, educational level, and income. This model was fully saturated. None of the control variables were significantly related to adherence. Gender and educational level were positively related to helping strangers. This showed that girls

Table 3. Descriptive Statistics of and Correlations Between the Study Variables.

	N	Mean	*SD*	1	2	3	4	5
1. Empathy	5690	3.83	.57					
2. Social identification	5690	3.18	.92	.29*				
3. Support from family and friends	5690	3.99	.64	.21*	.28**			
4. Perceived pandemic-related burden	5690	3.16	.79	.20*	.20**	.01		
5. Adherence to national measures	5690	4.02	.79	.20*	.09**	.04**	.08**	
6. Helping strangers	5690	2.62	.83	.25*	.28**	.04**	.20**	.07**

Note.*$p < .05$, **$p < .001$.

Table 4. Overview Model Fit Indices of Path Models.

	χ^2 (df)	RMSEA	CFI	$\Delta\chi^2$S-B (df)
Main effects model	0 (0)	0.000	1.000	
Path models moderation by strictness of the COVID-19 approach				
Model with all paths constrained	64.89 (16)	.040	.950	
Model with varying paths across groups to adherence	37.49 (8)	.044	.899	49.05 (8) *
Model with varying paths across groups to helping strangers	29.42 (8)	.038	.978	35.47 (8)*
Final model	23.88 (12)	.023	.988	
Path models moderation by national level individualistic orientation				
Model with all paths constrained	66.22 (16)	.041	.932	
Model with varying paths across groups to adherence	49.97 (8)	.053	.953	26.99 (8)*
Model with varying paths across groups to helping strangers	27.91 (8)	.036	.978	49.05 (8)*
Final model	33.93 (14)	.027	.978	

Note.*$p < .05$.

Table 5. Main Effects Path Model With Adherence to National Measures and Helping Strangers on Empathy, Social Identification, Support From Family and Friends, and COVID-19.

	b	SE(β)	β	*p*
Predictors of adherence to national measures				
Empathy	0.25	0.01	0.18	<.001
Social identification	0.02	0.01	0.04	.009
Support from family and friends	−0.01	0.01	−0.01	.573
Perceived pandemic-related burden	0.04	0.01	0.04	.005
Age	0.00	0.01	−0.02	.124
Sex	−0.03	0.01	−0.01	.623
Educational level	0.00	0.01	0.00	.727
Income	−0.00	0.01	−0.00	.896
Predictors of helping strangers				
Empathy	0.22	0.01	0.14	<.001
Social identification	0.13	0.01	0.18	<.001
Support from family and friends	−0.08	0.01	−0.06	<.001
Perceived pandemic-related burden	0.16	0.01	0.14	<.001
Age	−0.01	0.01	−0.08	<.001
Sex	0.21	0.01	0.10	<.001
Educational level	0.03	0.01	0.04	.001
Income	0.01	0.01	0.01	.647

Note. Sex is coded 0 = female; 1 = male; direct path from support from family and friends to helping strangers is a suppression effect. For the main analyses perspective taking and empathic concern were combined to create a composite empathy score.

were more inclined to help strangers than boys. Moreover, individuals with a higher educational level were also more inclined to help strangers than individuals with other educational backgrounds. Age was negatively related to helping strangers, which implies that younger emerging adults were less inclined to help strangers. There were no substantial differences in effect sizes or *p*-values when control variables were added to the main model. We therefore dropped the control variables in the subsequent models.

Country-Level Moderation Models. We first examined the *strictness of the COVID-19 approach* as a country-level moderator and constrained all predictive paths to be equal across groups. This model fitted the data well (Table 4). Next, we examined in two steps whether a partially unconstrained model would fit the data significantly better. First, all direct paths to adherence to national measures were allowed to vary across groups, and second, all direct paths to helping strangers were allowed to vary across groups. Both models fitted the data well, and compared to the constrained model, the model fit improved significantly, indicating that the links to adherence and helping differed significantly between countries (Table 4). Next, we examined in more detail which specific paths differed by releasing the constraints of the individual paths one at a time. Only for the paths between social identification to adherence and from social identification to helping strangers (RMSEA = .023, CFI = .988) releasing the constraints improved model fit, indicating that these paths differed depending on the country's level of strictness.

Social identification was positively but weakly related to adherence to COVID-19 regulations for the countries with a medium strict approach to combat COVID-19 and nonsignificantly related for countries scoring low and high on strictness (Table 6). Social identification was positively related to helping strangers in all countries but with a significantly higher effect size for countries with higher levels of strictness.

Then, we examined the *national level individualistic orientation* as a moderator by fitting a multigroup model in which all predictive paths were constrained to be equal across groups. This model fitted the data acceptably (Table 4). Again, in two steps, we examined whether a (partially) unconstrained model would fit the data better. First, all direct paths to adherence to national measures were freed across groups, and second, all direct paths to helping strangers were freed across groups. Both models fitted the data well, and the model with unconstrained paths fit significantly better (Table 4).

We analyzed whether differences existed in the predictive paths by releasing constraints of each path one at a time. We found that only releasing the paths from social identification to helping strangers across groups improved model fit significantly (see Table 4), indicating that these paths differed across countries with different levels of individualism. The final model fitted the data well. Social identification was positively related to helping strangers with larger effect sizes for

Table 6. Path Model With Adherence to National Measures and Helping Strangers on Empathy, Social Identification, Support From Family and Friends, and COVID-19 Moderated by Strictness of the National COVID-19 Approach.

	Strictness of the national COVID-19 approach											
	Low			Medium			High					
	b	*β* (SE)	*p*	*b*	*β* (SE)	*p*	*b*	*β* (SE)	*p*	*Δ S–Bχ2*	*ΔRMSEA*	*ΔCFI*
Predictors of adherence to national measures												
Empathy	0.23	0.17 (.01)	<.001	0.23	0.18 (.01)	<.001	0.23	0.19 (.02)	<.001	4.95	−.014	−.003
Social identification	0.03	0.04 (.02)	.129	0.07	0.09 (.02)[a]	<.001	−0.03	−0.04 (.02)[a]	.149	**13.25**	.007	**−.030**
Support from family and friends	0.01	0.01 (.01)	.447	0.01	0.01 (.01)	.447	0.01	0.01 (.01)	.447	.33	−.004	.015
Perceived pandemic-related burden	0.03	0.03 (.01)	.018	0.03	0.03 (.01)	.018	0.03	0.03 (.01)	.018	1.43	−.003	0
Predictors of helping strangers												
Empathy	0.23	0.16 (.01)	<.001	0.23	0.15 (.01)	<.001	0.23	0.14 (.01)	<.001	2.25	.002	−.019
Social identification	0.16	0.16 (.02)[a]	<.001	0.17	0.19 (.02)[b]	<.001	.31	0.29 (.02)[a,b]	<.001	**25.74**	.014	**−.042**
Support from family and friends	−0.09	−0.06 (.01)	<.001	−0.09	−0.06 (.01)	<.001	−0.09	−0.06 (.01)	<.001	1.12	−.002	−.002
Perceived pandemic-related burden	0.16	0.14 (.01)	<.001	0.16	0.15 (.01)	<.001	0.16	0.12 (.02)	<.001	4.54	−.001	.002

The significant difference values are represented in bold.
[a] = Wald test indicates that these paths differ significantly from each other.
[b] = Wald test indicates that these paths differ significantly from each other.

Table 7. Path Model With Adherence to National Measures and Helping Strangers on Empathy, Social Identification, Support From Family and Friends, and COVID-19 Moderated by National Level Individualistic Orientation.

	National level individualistic orientation											
	Low			Medium			High					
	b	*β* (SE)	*p*	*b*	*β* (SE)	*p*	*b*	*β* (SE)	*p*	*Δ S–Bχ2*	*ΔRMSEA*	*ΔCFI*
Predictors of adherence to national measures												
Empathy	0.23	0.16 (.01)	<.001	0.23	0.17 (.01)	<.001	0.23	0.20 (.02)	<.001	8.41	0	−.007
Social identification	0.02	0.03 (.01)	.044	0.02	0.03 (.01)	.044	0.02	0.03 (.01)	.044	3.89	−.002	−.002
Support from family and friends	0.02	0.02 (.01)	.199	0.02	0.02 (.01)	.198	0.02	0.02 (.02)	.198	7.18	0	−.006
Perceived pandemic-related burden	0.03	0.03 (.01)	.018	0.03	0.03 (.01)	.018	0.03	0.03 (.01)	.018	2.34	−.003	−.001
Predictors of helping strangers												
Empathy	0.22	0.13 (.01)	<.001	0.22	0.15 (.01)	<.001	0.22	0.15 (.01)	<.001	8.41	−.001	−.007
Social identification	0.27	0.26 (.03)[a]	<.001	0.14	0.16 (.02)[a,b]	<.001	0.34	0.32 (.03)[b]	<.001	**43.57**	.018	−.046
Support from family and friends	−0.06	−0.04 (.01)	.002	−0.06	−0.04 (.01)	.002	−0.06	−0.04 (.01)	.002	3.27	−.002	.002
Perceived pandemic-related burden	0.13	0.11 (01)	<.001	0.13	0.12 (.01)	<.001	0.13	0.11 (.01)	<.001	3.27	−.002	.002

The significant difference value is represented in bold.
[a] = Wald test indicates that these paths differ significantly from each other.
[b] = Wald test indicates that these paths differ significantly from each other.

countries with low and high individualistic orientation compared to countries with medium levels of individualism (Table 7).

Discussion

Prosocial behavior has been shown to be especially important in times of crisis when these behaviors are crucial to fostering resilience and recovery within affected communities. For example, during the COVID-19 pandemic, many young people were affected by government restrictions to prevent the spread of COVID-19. These unique circumstances may have motivated young adults to engage in helpful behaviors by following national regulations and helping fellow citizens in need. This study aimed to identify psychological, relational, and contextual factors contributing to the prosocial behaviors of adhering to national regulations and helping strangers amidst a pandemic. Findings showed that empathy and the extent to which young people felt burdened by the COVID-19 pandemic were positively linked to adherence and helping. For social identification, these associations varied among different groups of countries.

The Role of Psychological Factors in Prosocial Behavior

Our findings showed that empathy was the strongest and most consistent predictor of adherence and helping strangers. That is, more empathic youth were more inclined to adhere to national measures and to help strangers during the COVID-19 pandemic, which is in line with our hypothesis. This finding supports the notion that individuals high in empathy are sensitive to the needs of others and show an understanding of others' situations and that they are more likely to adhere to government regulations to limit the spread of COVID-19. This is in line with the empathy-altruism hypothesis (Batson, 2011), suggesting that during the COVID-19 pandemic, empathy, or genuine compassion for others, drives prosocial behavior, leading emerging adults to adhere to national measures and help strangers.

Our findings suggest that tapping into a person's sense of altruism and compassion would be effective in promoting adherence to COVID-19 measures. This aligns with previous studies indicating that empathy is associated with higher levels of adherence to COVID-19 measures among adults (e.g., Galang et al., 2021; Morstead et al., 2021; Pfattheicher et al., 2020). Indeed, when governments appealed to individuals' empathic tendencies, they were more likely to adhere to measures (Mourali et al., 2023). The results of the current study suggest this may also hold for young adults.

Moreover, our findings were also consistent with previous studies that found that empathy was related to both higher levels of adherence to COVID-19 measures (e.g., Galang et al., 2021; Pfattheicher et al., 2020) and to higher levels of helping strangers in adolescence across time (Yang et al., 2023). Our findings suggest this also applies to youngsters who transition into adulthood.

As adherence and helping are different types of prosocial behavior and may arise from different motivations, it is interesting that we found empathy to predict both. That is, helping strangers is a form of prosocial behavior that often occurs spontaneously (although it can be requested as well) and that does not involve many personal costs or benefits. In contrast, adherence to national measures is a form of compliant prosocial behavior that often involves personal costs but also yields benefits. Egoistic motivations might thus play a role, particularly in adherence. Still, our results reveal that young adults with higher empathy show higher levels of helping strangers as well as adherence. However, further research is needed into these types of prosocial behavior to shed light on this topic.

The strictness of the COVID-19 approach and national level individualistic orientation did not moderate the relations between empathy with adherence to pandemic measures and helping strangers across countries, underscoring the robustness of the role of empathy during global crises. This finding is consistent with previous studies that found that in different countries or different cultural groups, empathy was related to prosocial behaviors (Carlo et al., 2018; Eisenberg et al., 2010). Moreover, our study demonstrates that empathy remains an important predictor even in countries with strict COVID-19 pandemic measures. However, this finding may not always apply. Although empathy typically fosters social responsibility and aid, protective instincts could limit prosocial actions under strict regulations (He et al., 2022; Jiang et al., 2021; Pfattheicher et al., 2020). In addition, empathy-driven prosocial behavior can be tempered by increased self-protection motives and fear of exposure during a pandemic (He et al., 2022; Jiang et al., 2021; Pfattheicher et al., 2020).

Interestingly, our results show that *social identification with others affected by the pandemic* is the second most important predictor of adherence and helping: individuals who identified more with others were more inclined to adhere to national measures and help strangers. However, these effects were moderated by country-level strictness and national individualistic values. Social identification with others affected by the pandemic was overall weak and positively related with adherence, and this link was significantly moderated by the *level of strictness*, with notable effects observed only in the moderately strict group. Perhaps social identification was related to adherence in countries with moderately strict measures because these environments strike a balance between external enforcement and internal motivation from social identification (Van Bavel et al., 2020). In contrast, the lack of significant associations in low and high strictness countries suggests that too few or too many restrictions may diminish the role of social identification in adherence to national measures. Additionally, this pattern could indicate the presence of a ceiling and flooring effect, where the variability in responses is limited, thus complicating the detection of meaningful relationships (Cohen, 1988). Levels of trust in the government have been found to correlate with both social identification (e.g., De Moor et al., 2022; Putnam, 2000; Rothstein & Stolle, 2008) and adherence to national measures (Bargain & Aminjonov, 2020). In countries where stringent measures were accompanied by effective institutional communication and social support systems, individuals may have experienced higher trust and thereby experienced higher solidarity and a higher motivation to adhere to collective measures.

Furthermore, social identification with others affected by the pandemic was positively related to *helping strangers* across all countries. However, the effect size was higher in countries with relatively *stringent COVID-19 measures*. This suggests that social identification with others affected during the pandemic motivates individuals to engage in prosocial behaviors in environments with more stringent regulations, possibly due to an enhanced sense of collective responsibility and solidarity (Espinosa et al., 2022; Ntontis et al., 2021; Van Bavel et al., 2020). Unlike traditional social identification measures, which often focus on identification with smaller subgroups, our measure captures identification with all affected by COVID-19. This represents an expanded ingroup rooted in the shared experience of the pandemic. Drury et al. (2019) suggest that in crises, such collective experiences foster a wider sense of "we-ness," promoting empathy and cohesion across typical social boundaries. However, the level of social trust may have played a role as well.

Furthermore, we found that *national individualistic orientation* did not moderate the association of social identification with adherence to national measures across countries. Thus, the role of social identification in adherence was independent of the country's level of individualism; across countries, individuals were more likely to adhere to COVID-19 measures if they identified more with others during the pandemic. Heightened perceived similarity may have played a role in both individualistic and in collectivistic oriented countries (Van Bavel et al., 2022). It is possible that in collectivist cultures, which emphasize interdependence and social responsibility, adherence to COVID-19 measures was often framed as a moral duty to protect the community, reinforcing prosocial behavior (Jørgensen et al., 2021). Individuals in these societies were more likely to adhere to public health measures and to help others due to strong social norms and a heightened sense of communal responsibility (Blackburn et al., 2024). Conversely, in individualistic cultures, where personal freedom and self-reliance are emphasized, adherence and helping behaviors were sometimes more influenced by personal distress. In these contexts, people may have engaged in prosocial behavior primarily to reduce their own discomfort or fear of contagion rather than purely out of concern for others (Pfattheicher et al., 2020). Future research should explore these dynamics further to better understand the interplay between social identification and adherence in varying contexts of restriction.

Finally, social identification was positively related to helping strangers in all countries, with higher effect sizes

observed in countries with low and high levels of *national individualistic orientation* compared to countries with average individualistic orientation. In highly individualistic societies, strong social identification may foster a sense of personal agency and responsibility towards others (Yamagishi, 2011). Conversely, social identification aligns with communal values in more collectivist societies, promoting prosocial actions (Triandis, 2018). Future research would benefit from investigating individualism and collectivism as distinct dimensions rather than as two ends of the same spectrum. This approach may yield insights into how these dimensions uniquely influence social behaviors.

Overall, these results underscore the complex interplay between cultural context, government policies, and social psychological factors in shaping prosocial behavior during crises; and stress the importance of considering both cultural and regulatory environments when developing interventions to promote helping behaviors.

The Role of Relational Factors in Prosocial Behavior

Contrary to our hypothesis, we observed that support from family and friends was not significantly related to adherence to COVID-19 regulations across all countries. There was no moderating effect of country characteristics. Our results are not in line with other studies that found that having supportive relationships during the pandemic was related to a higher tendency to adhere to COVID-19 precautionary measures (e.g., Lamarche, 2020) and help others (e.g., Haller et al., 2022).

It might be that supportive social networks might not necessarily translate into greater adherence with health guidelines (Holt-Lunstad et al., 2010; Uchino, 2006). It may be that youth rely on other forms of support, such as online communities or professional networks, to navigate the challenges of the pandemic while adhering to guidelines. Moreover, this result can also be explained by socialization processes, in which youths adopt social norms from their family and friends. When the members of this group do not adhere to specific regulations, one is also less inclined to adhere.

In contrast to the weak zero-order positive correlations between support from family and friends and helping strangers, our main models revealed a negative - albeit weak - relation between support from family and friends and helping strangers. These negative relations are inconsistent with prior research findings (e.g., Harper et al., 2016). However, the contradictory pattern of relations between the zero-order relations and the multivariate model effects might indicate a suppressor effect, and caution should be warranted when interpreting this effect. Alternatively, prior work suggests that family and social support can moderate relations between risk factors and socio-behavioral health outcomes (Szkody et al., 2021). Future research is needed to further examine the relations between family and friend support and helping strangers.

The Role of Contextual Factors in Prosocial Behavior

In line with our expectations, the perceived pandemic-related burden was consistent but weakly related to adherence to regulations and helping strangers, and this did not significantly vary across countries. Youth who perceived a greater pandemic-related burden were more inclined to adhere to guidelines and to help strangers, irrespective of the contextual factors related to pandemic control measures. This finding might provide support for the phenomenon of altruism born of suffering (Staub & Vollhardt, 2008). Our finding is consistent with prior studies that report that individuals who perceived a greater impact of the pandemic may be more inclined to adhere to guidelines (Moran et al., 2021; Pfattheicher et al., 2020).

Similarly, our results confirmed our hypothesis that the perceived pandemic-related burden would be positively related to helping strangers. Our finding aligns with a previous study that found that, during the COVID-19 pandemic, higher stress levels were related to higher levels of helping others in specific countries (Haller et al., 2022). Our study adds to this evidence as we observed this effect across all 14 countries, thus irrespective of the contextual or cultural factors. Experiencing (global) hardship may generate a sense of shared fate or identity and motivate prosocial behaviors. Further research is warranted to investigate whether empathy motivates prosocial behavior by generating a sense of shared fate or identity. Moreover, further research could include mortality rates during global crises because it was found that helping provides a buffer in the association between stressful events and mortality (Poulin et al., 2013).

Strengths and Limitations

The present study had several strengths and limitations. The cross-national study design including countries from four continents allowed us to identify cross-national differences in the pattern of relations between psychological, relational, and social contextual factors and helping behaviors in times of a global health crisis. We also assessed two distinct types of prosocial behavior, providing insight into the multiple predictors and mechanisms of these specific behaviors in times of crises.

Despite the strengths of the present study, we used a cross-sectional design, which prevents establishing causal relation inferences between variables. Regarding future research, one important avenue is to explore further the long-term impact of the COVID-19 pandemic on prosocial behavior and adherence to public health measures. Given that our study was conducted during an acute crisis, it remains unclear whether these behaviors persisted beyond the immediate emergency. Longitudinal studies could examine whether the pandemic led to lasting changes in social norms, trust in institutions, or engagement in prosocial actions. Furthermore, future research could investigate the role of social trust and institutional support in shaping prosocial responses across different cultural and policy contexts.

Furthermore, not all constructs achieved configural or metric invariance across countries, which limits the ability to draw firm comparisons between nations. However, establishing measurement invariance across many countries is difficult and is a common challenge in multi-country studies (Deater-Deckard et al., 2011). Additionally, the instruments for measuring perceived pandemic-related burden and social identification with others affected by the pandemic were developed for this study based on existing questionnaires but lacked extensive validation in diverse contexts. Although configural tests showed that support from family and friends maintained a consistent structure across countries, future research should compare it with recognized scales to better understand its impact on prosocial behavior. Limitations also include using self-reports for prosocial behavior and empathy, which may be subject to bias, and reliance on convenience sampling, affecting the generalizability of the findings. Further research is necessary to confirm these findings and address these limitations.

Another important direction is to examine the mechanisms underlying compliant prosocial behavior, such as adherence, versus spontaneous prosocial behavior, such as helping strangers in crisis situations. Building on Batson's (2011) empathy-altruism hypothesis, future studies could explore how different motivational pathways interact with external factors like government messaging and social media narratives (Capraro & Barcelo, 2021).

Even though the wording of our measure to assess helping strangers was general and could, therefore, include several different helping behaviors, the opportunities to help strangers may have been limited during the pandemic. However, prosocial behaviors can manifest in various ways beyond direct, face-to-face encounters. Research suggests that during the pandemic, individuals adapted their prosocial actions to the circumstances, engaging in remote or digital forms of helping, such as online volunteering, mutual aid initiatives, or providing emotional support through social media and virtual platforms (e.g., Rose et al., 2021). Our measure may not have fully captured these alternative forms of helping, and we acknowledge this as a limitation of our study. Future studies may benefit from incorporating a specific range of helping behaviors, including digital and indirect helping, to comprehensively assess prosocial behavior in crisis contexts.

Regarding practical implications, our findings offer insights for policymakers and practitioners aiming to encourage prosocial behavior during future public health crises. For instance, public health campaigns could leverage empathic messaging to promote empathy and social identification with others, as these are important predictors of prosocial behavior. Additionally, framing health messaging around shared identity or highlighting social norms, group identity, and unity could strengthen social identification with others and encourage people to act prosocially. Governments could also invest in community-based volunteer programs to increase institutional trust and help others. Given the increasing role of social media in shaping perceptions and behaviors, public health initiatives should also consider harnessing digital platforms to amplify prosocial messages.

Conclusion

The present study explored the relations between empathy, support from family and friends, social identification, and perceived pandemic-related burden to adherence to national COVID-19 prevention measures and helping behaviors toward strangers among young adults from 14 diverse countries. Additionally, we investigated whether the strictness of national COVID-19 measures and individualistic values influenced these associations across different countries.

Empathy and perceived pandemic-related burden were strongly and consistently positively associated with prosocial behaviors across 14 countries. In addition, social identification was weakly predictive of prosocial behaviors in various countries, most prominently in countries with a moderate level of strictness. These findings suggest that promoting empathy and social identification and emphasizing the perceived pandemic-related burden may be an effective strategy for increasing the population's prosocial behaviors. Thus, the present findings demonstrate the complexity of multiple predictors of adherence to public health measures and the willingness to help strangers across 14 countries during a global health crisis. These findings provide avenues for policymakers and intervention programs aimed at enhancing prosocial behaviors during future global pandemic crises.

Author Contributions

Marije M.E. van Meegen: Conceptualization, Formal analysis, Writing – original draft, Writing – review & editing. Jolien Van der Graaff: Conceptualization, Data curation, Funding acquisition, Methodology, Supervision, Writing – original draft, Writing – review & editing. Susan Branje: Conceptualization, Writing – original draft, Writing – review & editing. Laura Padilla Walker: Conceptualization, Data collection, Review. Gustavo Carlo: Conceptualization, Data collection, Writing – review & editing. Christian Berger: Conceptualization, Data collection, Writing – review & editing. Alexia Carrizales: Data collection, Writing – review & editing. Claire F. Garandeau: Conceptualization, Data collection, Writing – review & editing. Maria Gerbino: Conceptualization, Data collection, Review. Zehra Gulseven: Conceptualization, Data collection, Writing – review & editing. Skyler T. Hawk: Conceptualization, Data collection, Review. Asiye Kumru: Conceptualization, Data collection, Writing – review & editing. Anna Llorca-Mestre: Conceptualization, Data collection, Review. María Cristina Richaud: Conceptualization, Data collection, Writing – review & editing. Yuh-Ling Shen: Conceptualization, Data collection, Review. Laura K. Taylor: Conceptualization, Data collection, Review. Rita Zukauskiene: Conceptualization, Data collection, Review. Maarten van Zalk: Conceptualization, Data collection, Writing – review & editing.

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Transparency and Openness Statement

Dear Prof. McCauley Ohannessian, The raw data used in this study are not openly available; however, they can be requested from the corresponding author. The covariance matrix and the data scripts are available for public access at https://osf.io/7cjdm/?view_only=2374bdfd90384a18b34b7acd1a9b3b2b. Best regards, Marije van Meegen, Jolien Van der Graaff, Susan Branje, Laura Padilla-Walker, Gustavo Carlo, Christian Berger, Alexia Carrizales, Claire Garandeau, Maria Gerbino, Zehra Gulseven, Skyler T. Hawk, Asiye Kumru, Anna Llorca, Cristina Richaud, Yuh-Ling Shen, Laura K. Taylor, Rita Zukauskiene, Maarten van Zalk.

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Supplemental Material

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