





RESEARCH ARTICLE

Bouncing back from COVID-19: Individual and ecological factors influence national resilience in adults from Israel, the Philippines, and Brazil

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Abstract

One way that countries may differ in responding to the COVID-19 pandemic is how they withstand extreme adversity while maintaining their societal values and institutions. This study explored national resilience in Israel, the Philippines, and Brazil during the COVID-19 pandemic. Using Crisis in Context Theory, cross-national understanding of national resilience was examined by assessing measurement models, exploring country differences in perceptions, and determining its predictors. Data from an internationally diverse sample of 1,587 adults were collected using multiple measures and subsequently subjected to various analytical strategies. Results on the factor structure of NR-13 demonstrated acceptable fit of both first-order and higher-order models for each country, with generally high factor loadings. However, measurement invariance was only supported at the configural level for the first-order model. Among the three countries, national resilience was highest in Israel, followed by the Philippines, and lowest in Brazil. Taken collectively, both individual and ecological variables contributed a significant variance in national resilience in each country. Community resilience, quality of life, and perceived threats were consistently strong predictors of national resilience across countries.

Results are discussed. The [Community and Social Impact Statement](#) of the study can be found in the Supplementary Material section.

KEYWORDS

COVID-19, cross-country, national resilience

1 | INTRODUCTION

The impact of the 2019 Novel Coronavirus disease (COVID-19) on the global community has continued to grow in scale since it was first declared a global pandemic in March 2020. As of July 2021, the World Health Organization (WHO, 2021) reported over 182 million confirmed cases of COVID-19 and over 3.9 million deaths. The COVID-19 pandemic has also caused economic consequences that seem more pronounced in lower-middle-income countries (International Labour Organization [ILO], 2020). Given the serious consequences brought about by the COVID-19 crisis worldwide, it is imperative to investigate countries' capacity to withstand the challenges caused by the pandemic. The present study aims to conduct a cross-country examination of the antecedents of national resilience (NR) in Israel, Brazil, and the Philippines in the days of the COVID-19 pandemic.

One of the ways in which countries may differ in their response to the COVID-19 pandemic is how they can withstand extreme adversity while maintaining their societal values and institutions. NR refers to people's subjective perception of an entire country's capacity to withstand crises and recover from them as quickly as possible (Kimhi, Eshel, Lahad, & Leykin, 2019). Moreover, NR indicates the degree to which the individual trusts the leaders and decision-makers of his country (Kimhi & Eshel, 2019). Earlier studies (Ben-Dor, Pedahzur, Canetti-Nisim, & Zaidise, 2002; Friedland, 2005) in NR proposed that a resilient society has citizens who can preserve national identity, social integration, optimism, and trust in public and political institutions in times of crises. Although NR has been documented to be associated with other constructs such as social cohesion and social capital, among others (Kimhi et al., 2019), NR is characterized as a distinct and a more focused construct as it involves the relationship between the individual and the decision-makers in a country (Kimhi & Eshel, 2019; Kimhi et al., 2019).

NR has been measured using a 25-item scale (Kimhi, Eshel, Leykin, & Lahad, 2017) that addresses trust in leadership and military forces, optimism, nationalism, and trust in national institutions. More recently, the 13-item National Resilience Scale Short Form (NR-13; Kimhi & Eshel, 2019) has been used to capture individuals' identification with their country, sense of solidarity and social justice, and trust in public institutions (Kimhi & Eshel, 2019). Previous research has examined NR in the context of specific adversity or traumatic event such as war and terrorism (Kimhi, Marciano, Eshel, & Adini, 2020a), natural disasters (Koikari, 2019), and the COVID-19 pandemic (Callueng, Aruta, Antazo, & Briones-Diato, 2020; Kimhi, Marciano, Eshel, & Adini, 2020b). While NR has been explored in individual countries, studies comparing NR across countries are sparse despite the potential country-specific factors that may promote or suppress NR (Kimhi et al., 2018). Another limitation in the literature was the dearth of studies that focus on cross-country examination of NR within the context of global health crises such as the COVID-19 pandemic. The present study aims to address these research gaps by exploring cross-country differences in NR and its antecedents within the context of the COVID-19 crisis in Israel, the Philippines, and Brazil.

1.1 | Cross-country considerations in NR

The present study selected Israel, the Philippines, and Brazil due to their distinct differences in terms of country-level economic status, disaster risk response capacity, types of adversities faced by their citizens, and COVID-19 crisis

impact. These unique characteristics in each country may play a role in the way their citizens perceive their country's NR amid the COVID-19 pandemic.

Israel is a developed country with a GDP income of approximately 400 billion US dollars in 2019 (World Bank, 2019), suggesting having a more stable economy than Brazil and the Philippines. However, Israel has long been facing terrors of war that affect the daily life of its citizens. Nonetheless, the economic capacity of Israel as a developed nation plays an important role in the country's recovery from great disasters including the impact of war and terror (Eckstein & Tsiddon, 2004). Similar to all countries, the COVID-19 pandemic is unprecedented adversity in recent decades, which requires national-level preparedness. As of 1 July 2021, Israel reported >841,000 confirmed cases of COVID-19 with at least 6,400 deaths (WHO, 2021). A year before the pandemic, unemployment in Israel was at 3.8%, but this increased to 4.7% at the end of 2020 (Bank of Israel, 2020). Israel's Gross Domestic Product stood at 6.3% in the fourth quarter of 2020 (Bank of Israel, 2020).

The Philippine economy has been in decline in recent years and has further dwindled due to the COVID-19 crisis (Asian Development Bank, 2020). Due to its geographical location, the Philippines is vulnerable to natural disasters (Bollentino et al., 2020), the most common of which are typhoons of varying intensities, which hit the country at an average of 20 times per year. As a developing nation, its capacity for disaster preparedness is limited (Hoffman & Mutarak, 2017). Although the natural disasters that the country constantly faces usually require a regional-level response, the current COVID-19 crisis is unprecedented adversity that requires national-level responses. As of 1 July 2021, there were > 1.4 million confirmed cases of COVID-19 and at least 24,500 deaths in the Philippines (WHO, 2021). In April 2020, a month after the lockdown, the Philippine Statistics Authority (PSA, 2020a) reported an unemployment rate of 17.6%, a record high representing 7.3 million Filipinos who were unemployed due to the economic shutdown brought about by the COVID-19 crisis. By the start of 2021, the unemployment rate was at 8.7% (PSA, 2021). Like other countries, the Philippine economy shrank in 2020, with a Gross Domestic Product rate of -8.3% in the fourth quarter, which brought the full-year rate to -9.5% (PSA, 2021).

Brazil experienced an economic crisis since 2014 with slowing growth, including 2 years of decreasing GDP (IBGE, 2020a), paired with political crises (including the impeachment of the former president Dilma Rousseff) and societal instability. Like the Philippines, the economic limitations of Brazil as a developing country hinder its capacity to respond to extreme national adversities. As of 1 July 2021, there have been >18.5 million confirmed cases of COVID-19 in Brazil, with at least 516,000 deaths (WHO, 2021). Brazil's unemployment rate at the end of 2020 was at 13.67%, the highest in over 20 years (World Bank, 2020a). Because of the economic slowdown brought about by the COVID-19 pandemic, Brazil's economy contracted by 9.7% in the second quarter of 2020, but it is projected to rebound by 2021 (World Bank, 2020b).

1.2 | Individual and ecological factors influencing NR

Guided by the literature on factors influencing NR, we identified individual (i.e., individual capacity, tendencies, and characteristics of a person) and ecological level factors (i.e., factors in the immediate and wider environment that influence a person) that could play a relevant role in people's perception of NR during the COVID-19 crisis. In terms of individual-level factors, we identified individual or psychological resilience, quality of life, and perceived threats as potentially relevant factors that could contribute to NR. Recent research showed that people's psychological resilience was associated with higher levels of NR in two time points during the COVID-19 crisis in Israel (Kimhi, Eshel, Marciano, & Adini, 2020c). In addition, psychological resilience and quality of life positively predicted NR in Filipino and Israeli adults during the COVID-19 pandemic (Callueng et al., 2020; Kimhi, Marciano, Eshel, & Adini, 2020d). On the other hand, the perceived threat of the COVID-19 crisis negatively predicted Filipinos' perception of NR during the coronavirus pandemic (Callueng et al., 2020).

In terms of ecological factors, we identified community resilience, safety at home, and financial difficulties in the family as factors within a person's environment that could influence NR during the COVID-19 pandemic.

Past evidence suggests that community resilience was associated with NR and its three dimensions (i.e., identification with country, solidarity and social justice, and trust in public institutions) among Israeli adults pre-pandemic (Kimhi & Eshel, 2019), and the same pattern has been observed during the COVID-19 crisis among Israeli (Kimhi, Marciano, et al., 2020a) and Filipino adults (Callueng et al., 2020). Recent findings demonstrated that safety at home positively predicted NR among Israeli Jewish adults following a recent rocket attack (Kimhi, Marciano, et al., 2020b). On the other hand, greater financial difficulty at home predicted lower NR among Israeli Jewish adults (Kimhi & Eshel, 2019). Taken together, the literature points to the importance of looking at both individual- and ecological-level factors that could influence people's perception of NR during varying types of great adversities including the COVID-19 crisis.

1.3 | Theoretical perspective

Crisis in Context Theory (Myer & Moore, 2006), a theoretical proposition based on Ecological Systems Theory (Bronfenbrenner, 1979, 1995), proposed that a crisis can bring several consequences to individuals, stakeholders, and systems (Myer & Moore, 2006). The theory argues that responding to the needs of an individual and a system in times of crisis requires understanding the individual and environmental factors that contribute to people's response to adversities. Crisis in Context Theory views the impact of crises as layers (i.e., individual and system alongside each other) such that crises do not only affect individuals, but also the ecological or larger systems (i.e., family, stakeholders, community, and wider environments including countries, and even the world). While factors within the individual (e.g., one's personal characteristics and abilities) may influence social systems' capacity to respond to adversities, there are also factors in the wider environment that could indirectly play a role in the process of equipping people and the social system to effectively respond during adversities. Myer and Moore (2006) explained that, in times of great crisis, larger social systems (i.e., family, communities, wider society), and not only individuals, can be the target of intervention, recognizing that the wider societal systems are also subjected to the impact of crises. Following this proposition, the present study investigated the influence of individual and ecological factors on people's perception of NR and its dimensions during the COVID-19 pandemic in Israel, the Philippines, and Brazil. Individual-level factors include psychological resilience, quality of life, and perceived threats, and ecological-level factors consist of community resilience, safety at home, and financial difficulty in the family.

1.4 | The present study

The present study was a cross-country examination of factorial validity and antecedents of NR in Israel, the Philippines, and Brazil during the COVID-19 pandemic. Specifically, we had three research aims. First, we sought to examine the factor structure of NR-13 in these countries. Based on the initial factor structure of NR-13 (Kimhi & Eshel, 2019), we proposed an adequate data fit of both first-order and higher-order models in each of the three countries. Second, we determined country differences in the NR-13 subscales and total scale. Specifically, we proposed that Israel would have higher levels of overall NR and its dimensions compared to the Philippines and Brazil due to Israel's history of withstanding previous national adversities (e.g., Kimhi et al., 2017) and effective response to the COVID-19 crisis (Ritchie et al., 2021). Third, we examined the influence of individual and ecological factors on NR. In terms of individual factors, we hypothesized that psychological resilience and quality of life would positively predict perceptions of NR (Callueng et al., 2020; Kimhi, Marciano, et al., 2020d). On the other hand, perceived threats would negatively predict perceptions of NR. In terms of ecological factors, we reasoned that community resilience and safety at home will positively predict perceptions of NR (Callueng et al., 2020). Furthermore, we posited that financial difficulties would negatively predict perceptions of NR.

2 | METHOD

2.1 | Participants

Participants came from independent samples in three countries - Israel, the Philippines, and Brazil. The Israeli sample was composed of 605 adults (50.6% females) ranging from 18 to 81 years ($M = 42.40$, $SD = 15.64$). The Philippine sample was composed of 401 adults (63.6% females), aged 18 to 68 years ($M = 30.09$, $SD = 11.14$). The Brazilian sample included 581 participants (69.2% females), with ages ranging from 15 to 80 years ($M = 39.45$ and $SD = 13.33$). The demographic characteristics of participants for each country are detailed in Table 1.

All data were gathered anonymously, following approval of the IRB from Tel Aviv University for Israel, CONEP (Brazilian National Board of Research Ethics, res. 510/2016-CNS) for Brazil, and Cavite State University – General Trias for the Philippines. Participants' electronic consent was obtained before they filled out the online questionnaires. Survey questionnaires were translated into the national languages of the respective countries (i.e., Hebrew in Israel, Filipino in the Philippines, and Portuguese in Brazil). Data from the Israeli sample were collected through an internet survey company from 10 to 14 April 2020. For the Philippine sample, the online form was sent through private messages and social media posts from 7 April to 20 May 2020. For the Brazilian sample, the online form was sent via private messages and social media posts between 14 May 2020 and 24 May 2020.

2.2 | Measures

2.2.1 | National resilience

The present study used the NR-13 (Kimhi & Eshel, 2019) to assess the Israeli, Filipino, and Brazilian participants' perceptions of their country's capacity to withstand adversities and recover quickly. NR-13 has three subscales:

TABLE 1 Demographic characteristics of participants by country

Demographic variable	Israel		Philippines		Brazil	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
Gender						
Female	309	50.82	252	63.48	179	30.76
Male	299	49.18	145	36.52	403	69.24
Education						
Elementary graduate	4	.66	0	0	31	5.33
High school graduate	140	23.06	44	11.08	41	7.05
College level	225	37.01	41	10.33	88	15.12
College graduate	159	26.15	267	67.25	252	43.30
Postgraduate	80	13.16	45	11.34	170	29.21
Income						
Much lower than average	155	25.49	27	6.80	65	11.17
Lower than average	149	24.51	59	14.86	128	21.99
Average	166	27.30	121	30.48	132	22.68
Higher than average	110	18.09	157	39.55	198	34.02
Much higher than average	28	4.61	33	8.31	59	10.14

identification with country (IDC; 'My country is my home, and I don't intend to leave it.') (six items), solidarity and social justice (SSJ; 'Social relations between the different groups in my country are good.') (four items), and trust in public institutions (TPI) (three items). For TPI, participants rated their level of trust in different institutions, including the government, the police, and the education system. The NR-13 items were adapted to the context of the COVID-19 pandemic. For IDC and SSJ, participants responded using a six-point scale (1 = *do not agree at all* to 6 = *completely agree*). For TPI, participants rated their degree of trust using a six-point scale (1 = *no trust at all* to 6 = *very high trust*). Higher scores indicate greater levels in each domain of NR. Reliability indices of NR-13 in the Israeli, Filipino, and Brazilian samples are presented in the Results section.

2.2.2 | Psychological resilience

The current study utilized the 10-item Connor-Davidson Resilience Scale (CD-RISC 10; Connor & Davidson, 2003) to measure a person's capacity to withstand life's adversities (e.g., *Tend to bounce back after an illness or hardship*). Participants responded on a five-point scale (1 = *Not true at all times* to 5 = *True nearly all of the time*), with a higher score indicating a greater capacity to bounce back from great adversities. The CD-RISC 10 yielded high reliability coefficients for Israel ($\alpha = .87$), the Philippines ($\alpha = .90$), and Brazil ($\alpha = .85$).

2.2.3 | Quality of life

We used the nine-item My Life Today (MLT) scale (Kimhi & Eshel, 2009; Kimhi & Shamai, 2004) to assess the participants' overall perceptions of their quality of life across several life domains (e.g., health, leisure, family, job, etc.). Participants responded to the question, 'What is your life like at the present?' using a six-point scale (1 = *not good at all* to 6 = *very good*). The MLT scale had high reliability coefficients for Israel ($\alpha = .83$), the Philippines ($\alpha = .86$), and Brazil ($\alpha = .84$).

2.2.4 | Perceived threats

We used the perceived threats instrument (Kimhi & Eshel, 2012) to assess the participants' perceptions of threats brought about by the COVID-19 crisis in four domains: health, economic, security, and political situations. Participants rated how threatening the COVID-19 was to each of the four domains using a five-point scale (1 = *not threatening at all* to 5 = *threatening to a very great extent*). The perceived threats instrument yielded moderate to high reliability coefficients for Israel ($\alpha = .61$), the Philippines ($\alpha = .87$), and Brazil ($\alpha = .70$).

2.2.5 | Community resilience

The 10-item Conjoint Community Resilience Assessment Measure (CCRAM-10) was used to measure the participants' perceptions of their local community's capacity to withstand the COVID-19 crisis (Leykin, Lahad, Cohen, Goldberg, & Aharonson-Daniel, 2013). A sample item is, 'My community is prepared for an emergency including the Coronavirus crisis.' Participants responded on a five-point scale (1 = *strongly disagree* to 5 = *strongly agree*), with higher scores indicating perceptions of greater community resilience. The CCRAM-10 yielded high reliability coefficients for Israel ($\alpha = .92$), the Philippines ($\alpha = .91$), and Brazil ($\alpha = .87$).

2.2.6 | Home safety

Participants reported the extent of their sense of safety at home during the pandemic by answering the question, 'How safe are you at your home during this period of the Coronavirus crisis?' using a five-point scale (1 = *Not at all* to 5 = *To a very great extent*). Higher scores indicated greater feelings of safety at home. Recent studies have utilized this item in measuring Israeli adults' sense of safety at home in times of great disasters including, the COVID-19 crisis (Kimhi et al., 2020).

2.2.7 | Financial difficulties in the family

To assess the degree of financial problems experienced in the family, participants responded to the question, 'Do you or your family currently experience financial difficulties due to the Coronavirus crisis [such as unemployment, reduced business activity and so on]?' using a five-point scale (1 = *Not at all* to 5 = *To a very great extent*).

2.3 | Data analysis

Several statistical procedures were used to address the primary aims of the study. For research aim 1, confirmatory factor analysis (CFA) was conducted using a maximum likelihood estimator (ML; Muthen & Muthen, 1998-2012) to determine the factor structure of NR-13 for each country. Two models were tested: a first-order model (Model 1) proposed by Kimhi and Eshel (2019) and a higher-order model (Model 2). Goodness of data-model fit was evaluated using comparative fit index (CFI) and Tucker-Lewis index (TLI) values between .90 and .95 as well as root mean square error approximation (RMSEA) and standardized root mean square residual (SRMR) values of < .08 as criteria for an adequate model fit (Kenny, 2014; Kline, 2011). Moreover, factor loadings of $\lambda \geq .50$ were considered as strong (Renshaw, 2018). After establishing a baseline model for each country, measurement invariance was conducted at the configural, metric, and scalar levels. In addition, we used the $\Delta CFI < -.01$ and $\Delta RMSEA < .015$ criteria for determining model equivalence (Chen, 2007; Cheung & Rensvold, 2002). CFA was conducted using Mplus version 7.4 (Muthen & Muthen, 1998-2012).

For research aim 2, we used one-way ANOVA to determine between-country differences in NR-13 subscale and total scores. Effect size was estimated using partial eta squared (η^2) with the following criteria: .01-.05 = small, .06-.13 = medium, .14 and higher = larger (Cohen, 1988). For research aim 3, we used descriptive statistics as a preliminary analysis and subsequently conducted hierarchical regression analysis to examine the influence of individual and ecological factors on NR-13 subscales and total. Guided by the Crisis in Context Theory, regression analysis was conducted in three steps for each country - demographic factors (i.e., age, gender, educational background, and income) were first entered as independent variables, followed by individual factors (i.e., psychological resilience, perceived threats, and quality of life), and then by ecological factors (i.e., community resilience, financial difficulties, and home safety). Data analyses for research aims 2 and 3 were conducted using IBM SPSS Statistics (Version 27).

3 | RESULTS

3.1 | Confirmatory factor analysis

Before conducting CFA, we calculated skewness and kurtosis for country-specific data separately. Findings showed that indices were consistently less than |2|, indicating that scores were normally distributed for each country. Next, we conducted CFA to evaluate two hypothesized models of NR-13 using a maximum likelihood estimator (ML) to

establish a well-fitting baseline model for each country separately. In Model 1 (i.e., first-order model), the 13 items were structured as indicators of the three fully-correlated first-order latent factors (i.e., IDC, SSJ and TPI). In Model 2 (higher-order model), three fully-correlated first-order latent factors were structured as indicators of a higher-order latent factor of overall NR.

As summarized in Table 2, results from the CFA of Model 1 indicated consistently sub-optimal model fit for data in each country due to RMSEA above the acceptable criterion of below .08. After examining modification indices to improve model fit for each country, we added covariance between residuals of items with similar content as parameters to the model. Added parameters were: two for Israel (items 1 and 2 and items 5 and 6); two for the Philippines (items 4 and 6 and items 5 and 6); and three for Brazil (items 1 and 2, items 1 and 3, and items 4 and 6). Findings of CFA for modified Model 1 (i.e., Model 1.1) showed adequate model fit for each country (all RMSEAs < .08; CFIs \geq .95; TLIs \geq .93; SRMRs \leq .04). Chi-square (χ^2) values were significant ($p = .00$) that can be attributed to large sample sizes (Brown, 2015). Similarly, results of CFA for Model 2 that structured IDC, SSJ, and TPI as indicators of overall NR indicated adequate model fit for each country. Furthermore, Table 3 summarizes factor loadings (λ) of all 13 items to their hypothesized first-order factors as well as loadings of first-order factors to the higher-order factor of NR. Factor loadings were generally high and above .40 except for item 11 ($\lambda = .34$) and item 12 ($\lambda = .37$) as indicators of TPI in the Brazil data. Intercorrelations (ρ) of IDC, SSJ, and TPI were high and in the expected direction.

Given that baseline CFA for each country yielded an adequate data-model fit, we conducted measurement invariance to establish possible generalizability of Models 1 and 2 of NR-13 with increasing levels of constraints. Findings for Model 1 indicated configural invariance was supported: $\chi^2 = 673.71$, $df = 179$, $p = .00$; CFI = .95, TLI = .94, RMSEA = .07, SRMR = .04. This means that the number of latent factors and the pattern of item loadings were similar in the three countries. However, subsequent metric and scalar invariance tests were not supported in the three countries. Furthermore, measurement invariance at the configural level for Model 2 resulted in no convergence.

TABLE 2 CFA model fit: baseline

Model	χ^2	df	p	CFI	TLI	RMSEA (90% CI)	SRMR
Combined sample							
M1: First-order no mod.	693.274	62	.000	.957	.946	.080 (.075–.086)	.028
M2: First-order with mod.	429.238	59	.000	.975	.967	.063 (.057–.069)	.024
M3: Higher-order	429.238	59	.000	.975	.967	.063 (.057–.069)	.024
Israel							
M1: First-order no mod.	325.808	62	.000	.928	.910	.084 (.075–.093)	.038
M2: First-order with mod.	251.815	60	.000	.948	.932	.073 (.064–.082)	.035
M3: Higher-order	251.815	60	.000	.948	.932	.073 (.064–.082)	.035
Philippines							
M1: First-order no mod.	257.364	62	.000	.949	.936	.089 (.078–.100)	.034
M2: First-order with mod.	173.321	60	.000	.971	.962	.069 (.057–.081)	.031
M3: Higher-order	173.321	60	.000	.971	.962	.069 (.057–.081)	.031
Brazil							
M1: First-order no mod.	409.030	62	.000	.865	.830	.098 (.089–.107)	.055
M2: First-order with mod.	246.805	59	.000	.927	.903	.074 (.065–.084)	.045
M3: Higher-order	246.805	60	.000	.927	.903	.074 (.064–.084)	.045

TABLE 3 Factor loadings of the modified first-order and higher-order models

Scale/item	Israel		Philippines		Brazil	
	λ_1	λ_2	λ_1	λ_2	λ_1	λ_2
<i>Identification with my country (IDC)</i>		.90		.96		.91
1. I believe that my government will make the right decision during a time of crisis	.76		.90		.67	
2. During a national crisis society in my country will back up government decisions and those of the president	.71		.86		.46	
3. I have full confidence in the ability of the security forces of my country to protect our population.	.77		.88		.75	
4. My country is my home, and I do not intend to leave it.	.57		.49		.57	
5. My society has coped well with past crises and will cope well with the current coronavirus crisis.	.78		.73		.82	
6. I am optimistic about the future of my country.	.74		.82		.72	
<i>Solidarity and social justice (SSJ)</i>		.90		.88		.97
7. Social relations between the different groups in my country are good.	.72		.85		.72	
8. In my society, there is a high level of social solidarity (i.e., mutual assistance and concern for one another).	.79		.68		.61	
9. Being hostile to other groups is not a characteristic of my society	.61		.70		.40	
10. In my society, there is a reasonable level of social justice.	.80		.81		.64	
<i>Trust in public institutions (TPI)</i>		.77		.93		.67
11. The senators and house of representatives	.73		.84		.34	
12. The education system	.70		.82		.37	
13. The police	.60		.87		.81	
<i>National resilience (NR Total)</i>						

Note: λ_1 = standardized item loadings for first-order factors; λ_2 = standardized first-order factor loadings for second-order factor.

3.2 | Cross-country differences in NR

Table 4 shows one-way ANOVA and post-hoc results for the NR-13 subscale and total scores. Significant country variations were found consistently in IDC [$F(2, 1,584) = 770.69, p \leq .001, \eta^2 = .49$], SSJ [$F(2, 1,584) = 371.08, p \leq .001, \eta^2 = .32$], TPI [$F(2, 1,584) = 183.48, p \leq .001, \eta^2 = .19$], and NR-13 total [$F(2, 1,584) = 599.92, p \leq .001, \eta^2 = .43$]. Country accounted for large effect sizes in the NR-13 scores ranging from $\eta^2 = .19$ (TPI) to $\eta^2 = .49$ (IDC). Israel had the highest means in IDC ($M = 4.55, SD = .99$), SSJ, ($M = 3.68, SD = 1.09$) and NR-13 total ($M = 4.03, SD = .89$), while Philippines had the highest mean in TPI ($M = 3.73, SD = 1.23$). Brazil had the lowest means in all NR-13 subscale and total scores. Moreover, post-hoc mean comparisons indicated significant differences between Israel and Philippines, Israel and Brazil, and Philippines and Brazil in all NR-13 subscale and total scores.

TABLE 4 One-way ANOVA and posthoc results for NR-13

Scale	Israel		Philippines		Brazil		F	Partial η^2	Mean differences		
	M (SD)	M (SD)	M (SD)	M (SD)	Israel versus Philippines	Israel versus Brazil			Philippines versus Brazil		
Identification with country	4.55 (.99)	3.65 (.94)	2.44 (.84)	2.44 (.84)	770.69***	.49	.89***	2.11***	1.21***		
Solidarity and social justice	3.68 (1.05)	3.17 (.90)	2.28 (.69)	2.28 (.69)	371.08***	.32	.51***	1.40***	.89***		
Trust in public institutions	3.46 (1.07)	3.73 (1.23)	2.59 (.73)	2.59 (.73)	183.48***	.19	-.28***	.87***	1.15***		
National resilience	4.03 (.89)	3.52 (.91)	2.43 (.63)	2.43 (.63)	599.92***	.43	.51***	1.60***	1.10***		

*** $p \leq .001$.

3.3 | Influence of individual and ecological factors on NR

Descriptive statistics and correlations between study variables are shown in Table 5. Across the three countries, individual (i.e., psychological resilience, quality of life, and perceived threats) and ecological factors (i.e., community resilience and home safety) were found to have significant correlations (p 's < .05) with perceived NR. In addition, correlation between demographic variables and perceived NR was evident but not consistent across countries. Cronbach's α values of the NR-13 total and subscales were generally in the acceptable range.

Table 6 presents the results of the hierarchical regression analyses to examine the influence of demographic variables, individual, and ecological factors on NR for each country. No multicollinearity was noted in the analysis, with TOLs ranging from .58 to .93, and VIFs ranging from 1.01 to 1.74.

3.3.1 | Israel

In reference to ΔR^2 in Table 6, greater variance in IDC ($\Delta R^2 = .15$), SSJ ($\Delta R^2 = .11$), TPI ($\Delta R^2 = .12$), and NR-13 total ($\Delta R^2 = .17$) was explained by ecological than individual or demographic factors. Among the demographic factors entered in Step 1, age significantly influenced IDC ($\beta = .11$) but not SSJ, TPI, or NR-13. Education also significantly but negatively influenced IDC ($\beta = -.12$), SSJ ($\beta = -.13$), and NR13 ($\beta = -.12$). Results on the influence of individual factors in Step 2 indicated that quality of life significantly and positively influenced IDC ($\beta = .20$), SSJ ($\beta = .18$), TPI ($\beta = .15$), and NR-13 total ($\beta = .21$). Perceived threats significantly and negatively influenced IDC ($\beta = -.12$), SSJ ($\beta = -.12$), and NR-13 total ($\beta = -.12$), but not TPI. Psychological resilience significantly and positively influenced IDC ($\beta = .13$). Influence of ecological factors in Step 3 indicated that community resilience significantly and positively influenced IDC ($\beta = .38$), SSJ ($\beta = .35$), TPI ($\beta = .38$), and NR-13 total ($\beta = .43$). Home safety significantly and positively influenced IDC ($\beta = .12$). Financial difficulties did not influence any of the NR-13 subscales and total.

3.3.2 | Philippines

Greater variance in IDC ($\Delta R^2 = .20$), TPI ($\Delta R^2 = .23$), and NR-13 ($\Delta R^2 = .22$) was explained by individual than ecological or demographic factors. In contrast, greater variance in SSJ ($\Delta R^2 = .11$) was explained by ecological than individual or demographic factors. All of the demographic factors entered in Step 1, except for education, were found to significantly influence NR-13 subscales and total. Age significantly and positively predicted IDC ($\beta = .24$), SSJ ($\beta = .24$), TPI ($\beta = .11$), and NR-13 total ($\beta = .22$). Gender significantly and negatively influenced IDC ($\beta = -.10$) and TPI ($\beta = -.10$) only. Income significantly and negatively influenced IDC ($\beta = -.23$), SSJ ($\beta = -.25$), TPI ($\beta = -.29$), and NR-13 total ($\beta = -.28$). Results on the influence of individual factors in Step 2 indicated that all individual factors significantly influenced NR-13 subscales and total. Quality of life significantly and positively influenced IDC ($\beta = .26$), SSJ ($\beta = .24$), TPI ($\beta = .30$), and NR-13 total ($\beta = .29$). Similarly, psychological resilience significantly and positively influenced IDC ($\beta = .21$), SSJ ($\beta = .14$), TPI ($\beta = .19$), and NR-13 total ($\beta = .20$). On the other hand, perceived threats significantly and negatively influenced IDC ($\beta = -.19$), SSJ ($\beta = -.14$), TPI ($\beta = -.21$), and NR-13 total ($\beta = -.20$). Influence of ecological factors in Step 3 indicated that community resilience significantly and positively influenced IDC ($\beta = .39$), SSJ ($\beta = .47$), TPI ($\beta = .46$), and NR-13 total ($\beta = .47$). Similarly, financial difficulties significantly and positively influenced IDC ($\beta = .10$) and NR-13 total ($\beta = .09$). Home safety did not influence any of the NR-13 subscales and total.

3.3.3 | Brazil

Greater variance in IDC ($\Delta R^2 = .14$) and NR-13 total ($\Delta R^2 = .13$) was explained by individual than ecological or demographic factors. In contrast, greater variance in TPI ($\Delta R^2 = .10$) was explained by ecological than individual or

TABLE 5 Descriptive statistics, reliability, and bivariate correlation of study variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Israel														
1. National resilience	—													
2. Identification with country	.92**	—												
3. Solidarity and social justice	.86**	.68**	—											
4. Trust in public institutions	.76**	.55**	.54**	—										
5. Age	.04	.09*	-.05	.05	—									
6. Gender	.04	.03	.02	.05	-.13**	—								
7. Income	.03	.02	.02	.05	.06	-.15**	—							
8. Education	-.09*	-.09*	-.12**	-.02	.18**	.05	.24**	—						
9. Psychological resilience	.17**	.21**	.12**	.07	.07	-.07	.13**	.13**	—					
10. Perceived threats	-.18**	-.19**	-.17**	-.07	-.04	.11**	-.12**	-.01	-.15**	—				
11. Quality of life	.27**	.28**	.22**	.16**	.11**	.02	.07	.09*	.41**	-.26**	—			
12. Community resilience	.49**	.46**	.39**	.39**	.05	.03	.06	.01	.28**	-.11**	.34**	—		
13. Home safety	.21**	.26**	.12**	.11**	.05	.06	-.07	.10*	.30**	-.16**	.34**	.23**	—	
14. Financial difficulties	-.08	-.05	-.09*	-.07	-.18**	.12**	-.31**	-.12**	-.01	.29**	-.22**	-.12**	.04	—
Mean	4.02	4.54	3.68	3.45	30.09	—	—	—	3.55	3.03	3.7	3.34	4.15	2.88
SD	0.87	0.99	1.05	1.07	11.19	—	—	—	0.65	0.77	0.75	0.8	0.82	1.27
Skewness	-0.29	-0.63	-0.1	-0.05	1.36	—	—	—	-0.39	-0.09	-0.25	-0.22	-0.98	0.17
Kurtosis	-0.29	-0.02	-0.31	-0.32	1.09	—	—	—	0.28	0.17	-0.03	-0.22	1.28	-1.00
Cronbach's α	0.91	0.87	0.81	0.72	—	—	—	—	0.87	0.61	0.83	0.92	—	—
Philippines														
1. National resilience	—													
2. Identification with country	.95**	—												
3. Solidarity and social justice	.87**	.73**	—											
4. Trust in public institutions	.90**	.79**	.70**	—										
5. Age	.16**	.18**	.18**	.07	—									

(Continues)

TABLE 5 (Continued)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
6. Gender	-.08	-.09	-.03	.10	.05	—								
7. Income	-.26**	-.22**	-.24**	-.28**	.14**	.02	—							
8. Education	-.03	.02	-.03	-.05	.42**	-.03	.34**	—						
9. Psychological resilience	.37**	.36**	.29**	.36**	.14**	-.04	-.01	.14**	—					
10. Perceived threats	-.26**	-.25**	-.20**	-.26**	-.13**	.02	.02	.00	-.05	—				
11. Quality of life	.40**	.38**	.32**	.39**	.18**	-.12*	.07	.24**	.51**	-.09	—			
12. Community resilience	.64**	.56**	.59**	.62**	.18**	-.03	-.13**	.05	.36**	-.24**	.41**	—		
13. Home safety	.25**	.25**	.19**	.22**	.18**	-.12*	.07	.13**	.31**	-.12*	.40**	.266**	—	
14. Financial difficulties	.09	.09	.09	.06	-.07	.08	-.41**	-.29**	-.01	.11*	-.27**	-.02	-.08	—
Mean	3.53	3.66	3.17	3.74	42.31	—	—	—	3.88	3.28	4.58	3.44	3.67	2.62
SD	0.91	0.95	0.9	1.23	15.65	—	—	—	0.58	0.94	0.7	0.65	0.84	1.01
Skewness	-0.31	-0.42	-0.21	-0.27	0.36	—	—	—	-0.35	-0.21	-0.71	-0.36	-0.58	0.04
Kurtosis	-0.47	-0.48	-0.27	-0.46	-.98	—	—	—	0.23	-0.69	0.66	0.51	0.51	-0.31
Cronbach's α	0.94	0.91	0.85	0.88	—	—	—	—	0.9	0.87	0.86	0.91	—	—
Brazil														
1. National resilience	—													
2. Identification with country	.92**	—												
3. Solidarity and social justice	.83**	.63**	—											
4. Trust in public institutions	.61**	.34**	.40**	—										
5. Age	.20**	.24**	.15**	.01	—									
6. Gender	-.11**	-.12**	-.05	-.09*	-.03	—								
7. Income	-.11**	-.08	-.14**	-.07	.17**	-0.03	—							
8. Education	-.21**	-.15**	-.24**	-.14**	.13**	0.03	.49**	—						
9. Psychological resilience	.24**	.26**	.18**	.08	.26**	-.12**	.16**	.12**	—					
10. Perceived threats	-.27**	-.27**	-.15**	-.21**	-.10*	0.03	-.25**	-0.07	-.21**	—				
11. Quality of life	.28**	.31**	.18**	.12**	.20**	-0.04	.16**	.09*	.43**	-.25**	—			

TABLE 5 (Continued)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
12. Community resilience	.45**	.38**	.39**	.36**	.28**	-.004	0.03	-.002	.31**	-.24**	.25**	—	—	—
13. Home safety	.14**	.17**	.03	.10*	0.06	0.02	.16**	.14**	.17**	-.17**	.25**	.20**	—	—
14. Financial difficulties	-.01	-.01	.00	.00	-.12**	0.05	-.42**	-.26**	-.12**	.30**	-.25**	-.07	-.07	—
Mean	2.43	2.44	2.28	2.59	39.45	—	—	—	3.49	3.47	4.17	3	3.68	2.62
SD	0.63	0.84	0.69	0.74	13.32	—	—	—	0.62	0.77	0.79	0.68	0.87	1.24
Skewness	0.34	0.62	0.14	0.11	0.35	—	—	—	-.051	-.032	-.047	-.022	-.067	0.34
Kurtosis	-0.15	0.13	-0.2	0.19	-.55	—	—	—	0.22	-0.12	0.35	-0.04	0.67	-0.84
Cronbach's α	0.85	0.84	0.68	0.51	—	—	—	—	0.85	0.7	0.84	0.87	—	—

* $p < .05$, ** $p < .01$

TABLE 6 Multiple regression on the influence of individual and ecological factors on NR

Variable	Israel				Philippines				Brazil			
	ΔR^2	F	β	t	ΔR^2	F	β	t	ΔR^2	F	β	t
IDC												
Step 1	.02	3.57**			.10	11.33***			.10	16.60***		
Age			.11	2.77**			.24	4.49***			.26	6.53***
Gender			.06	1.50			-.10	-2.07**			-.11	-2.81**
Income			.05	1.13			-.23	-4.61***			-.05	-1.00
Education			-.12	-2.85**			-.04	-.74			-.16	-3.56***
Step 2	.11	12.64***			.20	24.02***			.14	25.72***		
Age			.09	2.24*			.16	3.33**			.19	4.86***
Gender			.07	1.82			-.06	-1.30			-.09	-2.43*
Income			.01	.27			-.22	-4.77***			-.14	-3.27**
Education			-.14	-3.55***			-.10	-2.05*			-.15	-3.59***
Psychological resilience			.13	3.03**			.21	4.15***			.11	2.62**
Perceived threats			-.12	-3.08**			-.19	-4.47***			-.22	-5.67***
Quality of life			.20	4.59***			.26	5.06***			.20	4.93***
Step 3	.15	22.72***			.12	27.98***			.05	22.98***		
Age			.08	2.29*			.10	2.28*			.15	3.80***
Gender			.04	1.18			-.06	-1.55			-.09	-2.58*
Income			.02	.62			-.13	-2.79**			-.12	-2.66**
Education			-.13	-3.51***			-.07	-1.43			-.14	-3.37**
Psychological resilience			.03	.74			.11	2.37*			.06	1.50
Perceived threats			-.12	-3.04**			-.13	-3.19**			-.19	-4.73***
Quality of life			.07	1.75			.16	3.16**			.18	4.28***
Community resilience			.38	10.11***			.39	8.43***			.21	5.40***
Home safety			.12	3.20**			.03	.71			.07	1.94
Financial difficulties			.04	1.06			.10	2.23*			.05	1.27

TABLE 6 (Continued)

Variable	Israel				Philippines				Brazil			
	ΔR^2	F	β	t	ΔR^2	F	β	t	ΔR^2	F	β	t
SSJ												
Step 1	.02	2.78***			.11	11.62***			.10	15.13***		
Age			-.02	-.51			.24	4.55***			.19	4.66***
Gender			.04	-.87			-.04	-.89			-.04	-.90
Income			.06	1.41			-.25	-5.00***			-.05	-1.10
Education			-.13	-3.03**			-.05	-.82			-.24	-5.30***
Step 2	.07	7.93***			.13	17.26***			.06	14.73***		
Age			-.04	-1.06			.18	3.55***			.13	3.29**
Gender			.04	1.04			-.01	-.11			-.02	-.45
Income			.03	.77			-.24	-5.09***			-.11	-2.38*
Education			-.14	-3.44**			-.10	-1.91			-.24	-5.36***
Psychological resilience			.05	1.12			.14	2.73**			.11	2.59*
Perceived threats			-.12	-2.95**			-.14	-3.05**			-.12	-3.01**
Quality of life			.18	4.01***			.24	4.58***			.11	2.62**
Step 3	.11	14.07***			.17	26.25***			.08	17.20***		
Age			-.05	-1.41			.11	2.56*			.07	1.70
Gender			.02	.63			-.01	-.31			-.01	-.38
Income			.01	.35			-.15	-3.20**			-.09	-2.04*
Education			-.13	-3.19**			-.06	-1.37			-.22	-5.08***
Psychological resilience			-.01	-.30			.04	.82			.06	1.35
Perceived threats			-.11	-2.71**			-.06	-1.39			-.07	-1.66
Quality of life			.08	1.68			.12	2.34*			.09	1.98*
Community resilience			.35	8.66***			.47	10.25***			.31	7.66***
Home safety			-.03	.52			-.00	-.02			-.03	-.74
Financial difficulties			.02	-.60			.07	1.57			-.02	-.46

(Continues)

TABLE 6 (Continued)

Variable	Israel				Philippines				Brazil			
	ΔR^2	F	β	t	ΔR^2	F	β	t	ΔR^2	F	β	t
TPI												
Step 1	.01	1.69			.10	10.78***			.03	4.21**		
Age			.07	1.58			.11	2.11*			.03	.76
Gender			.07	1.73			-.10	-2.04*			-.09	-2.11*
Income			.07	1.57			-.29	-5.76***			-.01	-.17
Education			-.05	-1.19			.00	-.03			-.14	-2.93**
Step 2	.02	3.12**			.23	27.25***			.06	7.77***		
Age			.05	1.22			.03	.56			-.00	-.03
Gender			.07	1.65			-.05	-1.17			-.08	-1.97
Income			.05	1.29			-.28	-6.21***			-.08	-1.67
Education			-.06	-1.39			-.07	-1.40			-.12	-2.66**
Psychological resilience			.00	.08			.19	3.94***			.02	.49
Perceived threats			-.03	-.69			-.21	-5.05***			-.22	-5.08***
Quality of life			.15	3.19***			.30	6.03***			.08	1.66
Step 3	.12	11.32***			.16	36.72***			.10	12.80***		
Age			.04	1.07			-.03	-.80			-.07	-1.69
Gender			.05	1.21			-.06	-1.51			-.08	-2.07*
Income			.04	1.04			-.19	-4.47***			-.05	-1.12
Education			-.04	-1.00			-.04	-.84			-.10	-2.32*
Psychological resilience			-.07	-1.57			.10	2.14			-.04	-1.01
Perceived threats			-.02	-.52			-.13	-3.48**			-.16	-3.77***
Quality of life			.04	.85			.18	3.68***			.04	.87
Community resilience			.38	9.25***			.46	10.80***			.33	7.92***
Home safety			.03	.59			-.00	-.06			.04	.92
Financial difficulties			.00	.04			.05	1.23			.02	.57

TABLE 6 (Continued)

Variable	Israel				Philippines				Brazil			
	ΔR^2	F	β	t	ΔR^2	F	β	t	ΔR^2	F	β	t
NR-13 Total												
Step 1		2.89*			.12	13.16***			.11	17.58***		
Age	.02		.07	1.69			.22	4.21***			.23	5.80***
Gender			.07	1.58			-.09	-1.92			-.10	-2.61**
Income			.07	1.53			-.28	-5.57***			-.05	-1.03
Education			-.12	-2.91**			-.03	-.62			-.22	-4.79***
Step 2	.09	10.54***			.22	28.77***			.13	26.06***		
Age			.04	1.11			.14	2.97**			.16	4.14***
Gender			.07	1.79			-.04	-1.05			-.08	-2.22*
Income			.03	.80			-.26	-5.97***			-.15	-3.33**
Education			-.14	-3.49**			-.10	-2.07*			-.21	-4.87***
Psychological resilience			.09	2.00			.20	4.18***			.11	2.67**
Perceived threats			-.12	-2.86**			-.20	-4.79***			-.23	-6.03***
Quality of life			.21	4.75***			.29	5.89***			.18	4.44***
Step 3	.17	23.00***			.17	40.32***			.09	28.60***		
Age			.04	1.00			.07	1.79			.09	2.52*
Gender			.04	1.22			-.05	-1.40			-.08	-2.39*
Income			.03	.77			-.16	-3.95***			-.12	-2.75**
Education			-.12	-3.34**			-.06	-1.48			-.19	-4.65***
Psychological resilience			-.01	-.21			.10	2.20*			.05	1.14
Perceived threats			-.11	-2.77**			-.12	-3.24**			-.18	-4.70***
Quality of life			.08	1.81			.17	3.61***			.14	3.67***
Community resilience			.43	11.35***			.47	11.27***			.32	8.51***
Home safety			.08	2.03*			.01	.35			.05	1.24
Financial difficulties			.01	.33			.09	2.08*			.03	.81

* $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$.

demographic factors. Greater variance in SSJ ($\Delta R^2 = .10$) was explained by demographic than individual or ecological factors. Among the demographic factors entered in Step 1, age significantly and positively influenced IDC ($\beta = .26$), SSJ ($\beta = .19$), and NR-13 total ($\beta = .23$). Gender significantly and negatively influenced IDC ($\beta = -.11$), TPI ($\beta = -.09$), and NR-13 total ($\beta = -.10$). Education significantly and negatively influenced IDC ($\beta = -.16$), SSJ ($\beta = -.24$), TPI ($\beta = -.14$), and NR-13 total ($\beta = -.22$). Income did not significantly influence NR-13 total and its subscales. Results on the influence of individual factors in Step 2 indicated that perceived threats significantly and negatively influenced IDC ($\beta = -.22$), SSJ ($\beta = -.12$), TPI ($\beta = -.22$), and NR-13 total ($\beta = -.23$). Quality of life significantly and positively influenced IDC ($\beta = .20$), SSJ ($\beta = .11$), and NR-13 total ($\beta = .18$). Similarly, psychological resilience significantly and positively influenced IDC ($\beta = .11$), SSJ ($\beta = .11$), and NR-13 total ($\beta = .11$). Both quality of life and psychological resilience did not significantly influence TPI. Influence of ecological factors in Step 3 indicated that community resilience significantly and positively influenced IDC ($\beta = .21$), SSJ ($\beta = .31$), TPI ($\beta = .33$), and NR-13 total ($\beta = .33$). Financial difficulties and home safety did not influence any of the NR-13 subscales and total.

4 | DISCUSSION

The current study explored NR among adults in Israel, the Philippines, and Brazil during the COVID-19 pandemic. We examined the factor structure of the NR-13 across the three countries, determined cross-country differences in NR, and investigated the influence of demographic, individual, and ecological factors on NR in each country. Overall, we found that both the three-factor structure and the higher-order factor structure of the NR-13 were viable models in each country; however, multigroup invariance was not supported. Moreover, we found significant differences in NR and its dimensions among these countries. Further, we observed country-specific patterns in how individual and ecological factors influenced NR and its dimensions.

4.1 | NR-13 latent structure

The measurement model of the NR-13 in each country was favourable. Both the first-order and higher-order models achieved acceptable fit. All 13 items have generally adequate loadings on their hypothesized latent factors of IDC, SSJ, and TPI. In turn, these first-order latent factors accounted for substantial variance in a broad construct referred to as overall NR. These findings strengthen the initial factor structure of the NR-13 with data from Israeli Jewish adults and students (Kimhi & Eshel, 2019). The NR-13, as a brief version of the 25-item NR Scale (Kimhi et al., 2018), was developed as a valid and efficient measure of NR in cross-cultural research. With this in mind, our findings provided support for the use of the NR-13 in international, multi-country research. Furthermore, the adoption of the NR-13 to assess a country's ability to cope with the adversities of the COVID-19 pandemic captured the claim of scholars that NR is a broad and dynamic construct, and that the NR-13 can reflect the context of the crisis or adversity the country is experiencing (Fletcher & Sarkar, 2013). For example, the item, 'My society has coped well with past crises and will cope well with the current Coronavirus crisis,' was modified to meaningfully situate a context assessment of NR.

However, the findings on measurement invariance of NR-13 only supported similarities in the number of latent factors and the pattern of item loadings (i.e., configural model) across the three countries studied. More strict and higher levels of invariance were not met which can be attributed to what Friedland (2005) argued that NR may be difficult to describe especially when socio-economic and political intricacies of a country are considered. It is possible that items in NR-13 that were posited to capture the construct of NR operate differently across the cultures covered in this study (Byrne, 2012). Since invariance was supported at the configural level, it may be reasonable to use the NR-13 when comparing countries on various dimensions of NR. However, the utility of the NR-13 in research comparing causal model associations across countries may not be possible until metric and scalar invariance are established.

4.2 | Country differences in NR

Analysis of cross-country differences in overall NR and its dimensions showed that Israeli participants have the highest levels of IDC, SSJ, and overall NR, while Filipinos scored the highest in TPI. The greater economic capacity and effective COVID-19 response of Israel as a more developed country, compared to Brazil and the Philippines, may have played a crucial role in providing the services that people need during the COVID-19 crisis. Past research explained that a stronger economy and effective crisis response management could minimize damages, which may increase public resilience (Kim & Marcouiller, 2016). In terms of trust in public institutes, Filipinos may have developed trust in public institutes as these sectors provide relief assistance during the COVID-19 crisis. For example, the local and national governments directly provided financial aid during the first few months of the lockdown in the Philippines.

On the other hand, participants from Brazil yielded the lowest scores in terms of overall NR and its dimensions. A possible explanation for this finding is the seven-year-old political crisis in Brazil that has caused polarization and distrust in the government. During the COVID-19 pandemic, the response of the Brazilian Federal Government has been described as problematic (Lancet, 2020). The increasing political polarization and misinformation have also made it difficult to establish the societal solidarity necessary to effectively respond to the COVID-19 crisis (King & da Fonseca, 2021). We propose that the role of NR in effectively dealing with the pandemic in Brazil merits further research. In summary, we posit that understanding the contexts and nuances in a country may provide meaningful insights in effectively responding to great adversities such as the COVID-19 pandemic.

4.3 | Factors influencing NR

In terms of demographic factors, our findings showed that age was the strongest predictor of IDC in the three countries, with older adults identifying more with their country than younger adults. Education was the strongest predictor of SSJ for Israel and Brazil only, with those having more education expressing a lower sense of solidarity and social justice. Age, however, remained to be the strongest predictor of SSJ in the Philippines as older adults tended to have a higher sense of solidarity and social justice. None of the demographic factors predicted TPI in Israel. Income was the strongest predictor of TPI in the Philippines, while education was the strongest predictor in Brazil. Filipinos who reported lower incomes and Brazilians who reported lower education levels expressed more trust in their governments. Education was the strongest predictor of overall NR in Israel, but income was the strongest predictor in the Philippines. Age and education were equally predictive of overall NR in Brazil. The inclusion of demographic factors in the regression analysis showed that there are country differences in terms of their influence on overall NR and its domains. As the main interest of this study were the individual and ecological factors, we focused our discussion on their influence on NR and its domains in the three countries.

In terms of individual and ecological predictors, we observed similarities in the factors that influenced NR in the three countries. Quality of life was the strongest individual-level predictor of IDC and SSJ across countries. This suggests that regardless of country, individuals who can maintain their work, health, social relationships, among others, are more likely to identify with their country and perceive the presence of solidarity and justice in society, even during a pandemic. Quality of life was also the strongest individual-level predictor of TPI and overall NR for Israel and the Philippines, but perceived threats were the strongest predictor of TPI and overall NR in Brazil. This is consistent with an earlier finding in a five-country study of Kimhi et al. (2018), which showed that a higher level of quality of life facilitates a greater perception of society's capacity to withstand adversities. For Brazil, however, the government's problematic response to the pandemic and the country's 'weak social protection system' (Ponce, 2020, p. 483) may explain why perceived threats were a stronger predictor of trust in public institutions and NR than the quality of life.

Among the ecological factors, community resilience was the strongest predictor of NR and its dimensions across the three countries. This is consistent with recent evidence that resilience at the community level facilitates a greater

perception of resilience at the national level (Callueng et al., 2020; Kimhi et al., 2019). When people witness and experience support and crisis response in their local community, they are more likely to perceive that the adversities caused by the COVID-19 pandemic can be overcome at the national level. In addition, financial difficulties negatively predict NR in Brazil and the Philippines, but not in Israel. This may be explained by the high rate of job losses in Brazil and the Philippines during the COVID-19 pandemic (IBGE, 2020b; Philippine Statistics Authority, 2020b).

Overall, we found individual and ecological factors to be equally predictive of NR in the Philippines and Brazil. In Israel, on the other hand, ecological factors compared with individual factors were more predictive of NR. We explain that Israel's disaster response capacity and more efficient COVID-19 management, relative to Brazil and the Philippines, may have effectively mitigated the impact of the pandemic down to the individual level. These factors may have allowed Israeli citizens to trust more on ecological resources including local and national government welfare and utilize less individual and personal resources in dealing with the threat of the COVID-19 crisis. On the other hand, the limited response capacity and less effective COVID-19 management of Brazil and the Philippines may have compelled their respective citizens to rely not only on ecological resources such as governmental and community welfare but also on their individual and personal resources. For instance, Israel, with a population of only 9.3 million, was one of the leading countries in the widespread vaccine rollout (Rosen, Waitzberg, & Israeli, 2021). As of 26 June 2021, >10.6 million vaccine doses have been administered in Israel (WHO, 2021), which helped in plummeting the COVID-19 transmission in the country (Ritchie et al., 2021). On the other hand, while Brazil has started the vaccine rollout in the middle of January 2021, the process has been rather slow due to a lack of supply for a population of >200 million (Wouters et al., 2021). As of 24 June 2021, only >86.3 million doses have been administered to the Brazilian public (WHO, 2021). Meanwhile, the first official vaccine rollout in the Philippines only started on March 1, 2021 with >9.5 million doses administered as of 23 June 2021 (WHO, 2021). In terms of COVID-19 infection, there are >841,000, >18.5 million, and >1.4 million confirmed cases in Israel, Brazil, and the Philippines, respectively, as of 1 July 2021 (WHO, 2021). COVID-19 deaths in Israel (>6,400) were much fewer compared with those in the Philippines (>24,500) and Brazil (>516,000) as of 1 July 2021 (WHO, 2021). Moreover, compared to Brazil and the Philippines, Israel seemed to have better management of unemployment benefits and welfare (Department of Labor and Employment, 2021; Ministry of Economy-Brazil, 2021; National Insurance Institute of Israel, 2021).

4.4 | Implications

The findings of the present study offer several implications to research and disaster mitigation policies. First, findings from the measurement of NR suggest that NR-13 can be used as a valid and reliable cross-cultural tool in assessing societies' capacity to recover from global health crises such as the COVID-19 pandemic. Second, we recommend that to strengthen people's perception of NR, national governments should assure the delivery of government support to the local community levels. Third, the study recommends that government efforts may focus on providing services and assistance that could minimize the disruption of the COVID-19 crisis in people's lives. Lastly, our findings highlight that ecological factors are as important as individual factors in strengthening people's perception of NR especially in developing countries like Brazil and the Philippines. Policies that centre on improving individual factors (e.g., psychological resilience, quality of life) and on strengthening ecological factors (e.g., community resilience, home safety, and financial stability) must be given equal priority by local and national governments.

4.5 | Limitations and future directions

The limitations of the study offer several opportunities for future research. First, the participants from Brazil and the Philippines were collected through convenience sampling, and we cannot claim that the participants are representative of the population. Future studies may consider using sampling procedures that could provide more

representative samples. Second, the current study relied on quantitative data. Future studies may utilize mixed method designs that include both quantitative and qualitative approaches to better understand how each country handles serious crises such as the COVID-19 pandemic. Third, since the study included variables intended as antecedents of NR, future research may include other variables that may be used to establish the discriminant validity of NR-13. Lastly, the study was conducted during the early phase of the COVID-19 pandemic. Future research may examine changes in people's perception of NR over time in different countries. Nonetheless, the findings of the present research provided meaningful insights that could be used in developing policies that enhance the capacity of different societies to effectively respond to a global health crisis such as the COVID-19 pandemic.

DATA AVAILABILITY STATEMENT

All pertinent data, materials, and codes for analysis will be made available by the authors upon reasonable request by any party.

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REFERENCES

- Asian Development Bank. (2020). Philippines GDP growth forecast update. Retrieved from <https://www.adb.org/news/philippine-economy-decline-further-2020-amid-covid-19-recovery-2021>
- Bank of Israel. (2020). Economic indicators: Labor force and demographics. Retrieved from <https://www.boi.org.il/en/DataAndStatistics/Pages/Indicators.aspx?Level=2&IndicatorId=1&Sid=5>
- Ben-Dor, G., Pedahzur, A., Canetti-Nisim, D., & Zaidise, E. (2002). The role of public opinion in Israel's national security. *American Jewish Congress: Congress Monthly*, 69(5), 13–15.
- Bollentino, V., Alcayna-Stevens, T., Sharma, M., Dy, P., Pham, P., & Vinck, P. (2020). Public perception of climate change and disaster preparedness: Evidence from The Philippines. *Climate Risk Management*, 30, 100250. <https://doi.org/10.1016/j.crm.2020.100250>
- Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by nature and design*. Cambridge, MA: Harvard University Press.
- Bronfenbrenner, U. (1995). Developmental ecology through space and time: A future perspective. In P. Moen, G. H. Elder, Jr., & K. Luscher (Eds.), *Examining lives in context* (pp. 619–647). Washington, DC: American Psychological Association.
- Brown, T. A. (2015). *Confirmatory factor analysis for applied research*. New York, NY: Guilford Press.
- Byrne, B. M. (2012). *Structural equation modeling with Mplus: Basic concepts, applications, and programming*. New York, NY: Routledge Taylor & Francis.
- Callueng, C., Aruta, J. J. B. R., Antazo, B. G., & Briones-Diato, A. (2020). Measurement and antecedents of national resilience in Filipino adults during coronavirus crisis. *Journal of Community Psychology*, 48, 2608–2624. <https://doi.org/10.1002/jcop.22438>
- Chen, F. F. (2007). Sensitivity of goodness of fit indexes to lack of measurement invariance. *Structural Equation Modeling*, 14, 464–504.
- Cheung, G. W., & Rensvold, R. B. (2002). Evaluating goodness-of-fit indexes for testing measurement invariance. *Structural Equation Modeling*, 9, 233–255.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*. New York, NY: Routledge Academic.
- Connor, K. M., & Davidson, J. R. T. (2003). Development of a new resilience scale: The Connor-Davidson resilience scale (CD-RISC). *Depression and Anxiety*, 18, 71–82. <https://doi.org/10.1002/da.10113>
- Department of Labor and Employment. (2021). Bayanihan 2 for workers: DOLE to meet aid deadline. Retrieved from <https://www.dole.gov.ph/news/bayanihan-2-for-workers-dole-to-meet-aid-deadline/>
- Eckstein, Z., & Tsiddon, D. (2004). Macroeconomic consequences of terror: Theory and the case of Israel. *Journal of Monetary Economics*, 51(5), 971–1002. <https://doi.org/10.1016/j.jmoneco.2004.05.001>
- Fletcher, D., & Sarkar, M. (2013). Psychological resilience: A review and critique of definitions, concepts, and theory. *European Psychologist*, 18(1), 12–23. <https://doi.org/10.1027/1016-9040/a000124>

- Friedland, N. (2005). The elusive concept of social resilience. In N. Friedland, A. Arian, A. Kirschenbaum, & A. Karin (Eds.), *The concept of social resilience* (pp. 7–10). [Hebrew]. Haifa: The Technion: Samuel Neaman Institute.
- Hoffman, R., & Muttarak, R. (2017). Learn from the past, prepare for the future: Impacts of education and experience on disaster preparedness in The Philippines and Thailand. *World Development*, 96, 32–51. <https://doi.org/10.1016/j.worlddev.2017.02.016>
- IBGE. (2020a). System of quarterly national accounts. Retrieved from <https://www.ibge.gov.br/en/statistics/economic-national-accounts/17262-quarterly-national-accounts.html?=&t=o-que-e>
- IBGE. (2020b). For the first time ever, less than half persons at working age is employed. Retrieved from <https://agenciadenoticias.ibge.gov.br/en/agencia-news/2184-news-agency/news/28160-for-the-first-time-ever-less-than-half-persons-at-working-age-is-employed>
- International Labour Organization. (2020). ILO monitor: Covid-19 and the world of work. (6th Ed). Retrieved from https://www.ilo.org/wcmsp5/groups/public/-dgreports/-dcomm/documents/briefingnote/wcms_755910.pdf
- Kenny, D. A. (2014). Measuring model fit in structural equation modeling. Retrieved from www.davidakenny.net/cm/fit.htm
- Kimhi, S., & Eshel, Y. (2009). Individual and public resilience and coping with long-term outcomes of war. *Journal of Applied Biobehavioral Research*, 14(2), 70–89. <https://doi.org/10.1111/j.1751-9861.2009.00041.x>
- Kimhi, S., & Eshel, Y. (2012). Determinants of students' perceptions of conventional and unconventional war threats. *Democracy and Security*, 8(3), 228–246. <https://doi.org/10.1080/17419166.2012.710147>
- Kimhi, S., & Eshel, Y. (2019). Measuring national resilience: A new short version of the scale (NR-13). *Journal of Community Psychology*, 47, 517–528. <https://doi.org/10.1002/jcop.22135>
- Kimhi, S., Eshel, Y., Lahad, M., & Leykin, D. (2019). National resilience: a new self-report assessment scale. *Community Mental Health Journal*, 55(4), 721–731. <https://doi.org/10.1007/s10597-018-0362-5>
- Kimhi, S., Eshel, Y., Leykin, D., & Lahad, M. (2017). Individual, community, and national resilience in peace time and in the face of terror: A longitudinal study. *Journal of Loss and Trauma*, 22(8), 698–713. <https://doi.org/10.1080/15325024.2017.1391943>
- Kimhi, S., Eshel, Y., Marciano, H., & Adini, B. (2020). Distress and resilience in the days of COVID-19: Comparing two ethnicities. *International Journal of Environmental Research and Public Health*, 17(11), 3956. <https://doi.org/10.3390/ijerph17113956>
- Kimhi, S., Eshel, Y., Marciano, H., & Adini, B. (2020c). A renewed outbreak of the COVID–19 pandemic: A longitudinal study of distress, resilience, and subjective well-being. *International Journal of Environmental Research and Public Health*, 17(21), 7743. <https://doi.org/10.3390/ijerph17217743>
- Kimhi, S., Marciano, H., Eshel, Y., & Adini, B. (2020a). Community and national resilience and their predictors in face of terror. *International Journal of Disaster Risk Reduction*, 50, 101746. <https://doi.org/10.1016/j.ijdrr.2020.101746>
- Kimhi, S., Marciano, H., Eshel, Y., & Adini, B. (2020b). Resilience and demographic characteristics predicting distress during the COVID-19 crisis. *Social Science & Medicine*, 265, 113389. <https://doi.org/10.1016/j.socscimed.2020.113389>
- Kimhi, S., Marciano, H., Eshel, Y., & Adini, B. (2020d). Recovery from the COVID-19 pandemic: Distress and resilience. *International Journal of Disaster Risk Reduction*, 50, 101843. <https://doi.org/10.1016/j.ijdrr.2020.101843>
- Kimhi, S., Parmak, M., Boon, H., Kallioli, S., Groh, A., & Ryan, S. (2018). Community and national resilience and quality of life: A preliminary cross-cultural study. *American International Journal of Social Science*, 7(1), 1–11.
- Kimhi, S., & Shamai, M. (2004). Community resilience and the impact of stress: Adult response to Israel's withdrawal from Lebanon. *Journal of Community Psychology*, 32(4), 439–451. <https://doi.org/10.1002/jcop.20012>
- Kim, H., & Marcouiller, D. W. (2016). Natural disaster response, community resilience, and economic capacity: A case study of coastal Florida. *Society and Natural Resources*, 29(8), 981–997. <https://doi.org/10.1080/08941920.2015.1080336>
- King, A. P., & da Fonseca, E. M. (2021). COVID-19 in Brazil: Presidential denialism and the subnational government's. In S. L. Greer, E. J. King, A. Peralta, & E. M. da Fonseca (Eds.), *Coronavirus politics: The comparative politics and policy of COVID-19*. Ann Arbor, Michigan: University of Michigan Press.
- Kline, R. B. (2011). *Principles and practice of structural equation modeling* (3rd. ed.). New York, NY: Guilford Press.
- Koikari, M. (2019). Re-masculinizing the nation: Gender, disaster, and the politics of national resilience in post-3.11 Japan. *Japan Forum*, 31(2), 143–164. <https://doi.org/10.1080/09555803.2017.1378698>
- Lancet, T. (2020). COVID-19 in Brazil: “So what?”. *Lancet*, 395(10235), 1461.
- Leykin, D., Lahad, M., Cohen, O., Goldberg, A., & Aharonson-Daniel, L. (2013). Conjoint community resiliency assessment Measure-28/10 items (CCRAM28 and CCRAM10): A self-report tool for assessing community resilience. *American Journal of Community Psychology*, 52, 313–323. <https://doi.org/10.1007/s10464-013-9596-0>
- Ministry of Economy-Brazil. (2021). Actions to reduce the economic impact of the Covid-19 pandemic. Retrieved from <https://www.gov.br/economia/pt-br/acao-a-informacao/acoee-programas/covid-19>
- Muthen, L. K., & Muthen, B. O. (1998–2012). *Mplus user's guide* (7th ed.). Los Angeles, CA: Author.
- Myer, R. A., & Moore, H. B. (2006). Crisis in context theory: An ecological model. *Journal of Counseling & Development*, 84(2), 139–147. <https://doi.org/10.1002/j.1556-6678.2006.tb00389.x>

- National Insurance Institute of Israel. (2021). Unemployment benefits following the Corona crisis. Retrieved from <https://www.btl.gov.il/English%20Homepage/Benefits/Unemployment%20Insurance/Corona-crisis/Pages/default.aspx>
- Philippine Statistics Authority. (2020a). Employment situation in April 2020. Retrieved from <https://psa.gov.ph/content/employment-situation-april-2020#:~:text=Unemployment%20rate%20rose%20to%2017.7,to%20the%20Philippine%20labor%20market>
- Philippine Statistics Authority. (2020b). Employment situation in July 2020. Retrieved from <https://psa.gov.ph/content/employment-situation-july2020#:~:text=Unemployment%20rate%20in%20July%202020,17.7%20percent%20during%20April%202020.>
- Philippine Statistics Authority. (2021). Philippine GDP posts –8.3 percent in the fourth Quarter 2020; –9.5 percent for full-year 2020. Retrieved from <https://psa.gov.ph/national-accounts>
- Ponce, D. (2020). The impact of coronavirus in Brazil: Politics and the pandemic. *Nature Reviews Nephrology*, 16, 483. <https://doi.org/10.1038/s41581-020-0327-0>
- Renshaw, T. L. (2018). Psychometrics of the revised college students subjective wellbeing questionnaire. *Canadian Journal of School Psychology*, 33(2), 136–149. <https://doi.org/10.1177/0829573516678704>
- Ritchie, H., Mathieu, E., Rodés-Guirao, L., Appel, C., Giattino, C., Ortiz-Ospina, E., ... Roser, M. (2021). Israel: Coronavirus Pandemic Country Profile. In *Our World in Data*. Retrieved from <https://ourworldindata.org/coronavirus/country/israel?country=~ISR>
- Rosen, B., Waitzberg, R., & Israeli, A. (2021). Israel's rapid rollout of vaccinations for COVID-19. *Israel Journal Health Policy Research*, 10, 6. <https://doi.org/10.1186/s13584-021-00440-6>
- World Bank. (2019). Israel - Data - World Bank. Retrieved from <https://data.worldbank.org/indicator/NY.GDP.MKTP.CD?locations=IL>
- World Bank. (2020a). Unemployment, total (% of total labor force) (modeled ILO estimate) - Brazil. Retrieved from <https://data.worldbank.org/indicator/SL.UEM.TOTL.ZS?locations=BR>
- World Bank. (2020b). The World Bank in Brazil. Retrieved from <https://www.worldbank.org/en/country/brazil/overview>
- World Health Organization. (2021). Coronavirus (COVID-19) Dashboard. Retrieved from <https://covid19.who.int/>
- Wouters, O. J., Shadlen, K. C., Salcher-Konrad, M., Pollard, A. J., Larson, H. J., Teerawattananon, Y., & Jit, M. (2021). Challenges in ensuring global access to COVID-19 vaccines: Production, affordability, allocation, and deployment. *The Lancet*, 397, 1023–1034. [https://doi.org/10.1016/S0140-6736\(21\)00306-8](https://doi.org/10.1016/S0140-6736(21)00306-8)

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