Measurement and antecedents of national resilience in Filipino adults during coronavirus crisis

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Abstract
Resilience is a broad concept that encompasses individual and social resources to thrive from difficult circumstances. The resilience that occurs as a collective effort or country-wide phenomenon is referred to as national resilience (NR), which connotes the ability of a nation to deal with crises while keeping its social fabric intact. Like the rest of the world, the Philippines has been greatly impacted by the coronavirus pandemic and we argue that a stable and robust NR is needed to bounce back from the challenges and adversities of the crisis. This pioneering study on NR in Filipino adults was conducted to achieve two aims (1) assess the psychometric properties of the Filipino adapted National Resilience Scale (NRS-Filipino) and (2) determine demographic and psychological variables that influence NR. Data from 401 participants yielded an exploratory factor analysis with a good model fit for a four-factor solution that is similar to the original National Resilience Assessment Scale. NRS-Filipino also demonstrated acceptable reliability and convergent validity. Among the variables purported to be associated with NR, community resilience, and political attitudes came out as strong predictors.

Keywords
coronavirus crisis, Filipino adults, national resilience, scale validation
INTRODUCTION

The coronavirus disease (COVID-19) is a severe acute respiratory syndrome caused by coronavirus 2 that originated in Wuhan, China on December 31, 2019 (World Health Organization [WHO], 2020a). The virus is primarily transmitted through microdroplets ejected by an infected person to another person through the upper respiratory tract or the eyes, while aerosol transmission remains under investigation (Kowalik et al., 2020). Within 2–14 days after exposure to COVID-19, infected persons may manifest a wide range of symptoms such as dry cough, shortness of breath or difficulty breathing, fever, muscle or body aches, and lung infiltrates (Sohrabi et al., 2020). On January 30, 2020, WHO declared the COVID-19 outbreak as a "public health emergency of international concern" (WHO, 2020b) and later on March 11, 2020, COVID-19 was considered a pandemic due to the alarming levels of transmission and global inaction (WHO, 2020c). At present, there are >19 million confirmed cases and approximately 700,000 deaths worldwide (WHO, 2020d). Other than a massive loss of life, the pandemic is projected to trigger a global economic recession (International Monetary Fund, 2020) and an increase in the number of individuals experiencing mental health concerns (Fiorillo & Gorwood, 2020; United Nations, 2020).

In the Philippines, President Rodrigo Duterte declared a state of public health emergency on March 8, 2020, due to an increasing number of documented COVID-19 cases as early as January 2020. A few days later, the national government implemented the enhanced community quarantine (ECQ) measures that placed the National Capital Region and the entire Luzon island on lockdown to contain the spread of the virus. ECQ totally prohibited mass gatherings and limited movement of people. ECQ guidelines entailed closure of nonessential establishments, public and private agencies, schools, and local and international transport systems. A work from home scheme was adopted by public and private offices through online delivery of services and transactions. A skeletal workforce consisting of the military, frontline health, and emergency workers, and those ensuring border control were not covered by the ECQ. The rest of the country was placed under general community quarantine (GCQ) that allowed local government units some flexibility in implementing lockdown depending on the risk level of the area. For example, one member in every household is allowed to go out for essential needs within a specific time frame during the day (ECQ and GCQ Guidelines, 2020). Most recent COVID-19 statistics from the Philippine Department of Health (2020) reported >120,000 confirmed cases and nearly 2200 deaths.

The extreme adversity brought about by the COVID-19 pandemic can be a huge threat to the stability and resilience of the Philippines. Although the Philippines has experienced natural disasters and sociopolitical conflicts, the COVID-19 pandemic that generally placed the Philippines on lockdown for >4 months now is the first crisis on a national scale that required an unprecedented level of response. This study is a pioneer in examining perceptions of Filipinos on national resilience (NR) that may contribute to increasing empirical interest in understanding the concept of NR at a level of global crisis such as the COVID-19.

1.1 National resilience

Resilience is a broad concept that constitutes psychological and social resources to thrive from difficult circumstances. Compared with psychological or individual resilience, research on NR is limited (Eshel & Kimhi, 2016a, 2016b, 2016c; Kimhi & Eshel, 2019). NR refers to the ability of a nation to deal with its crises while keeping its social fabric intact (Canetti, Waismel-Manor, Cohen, & Rapaport, 2014), and is comprised of the four major components of patriotism, optimism, social integration, and trust in political and public institutions (Ben-Dor, Pedahzur, Canetti-Nisim, & Zaidise, 2002). Israel has been a pioneering context in NR research and findings point to these components as leverage to Israel's ability to cope with half a decade of Israel–Palestinian conflict (Elran, 2006; Gal, 2014).

Cross-national studies on NR began quite recently (Kimhi et al., 2018) and findings concur that the concept of NR is an important factor for nations that are dealing with adversities (Marciano, Kimhi, & Eshel, 2019).
1.2 | Measurement of NR

Previous studies used the National Resilience Assessment Scale (NRAS; Kimhi, Dror, & Sapir, 2017; Kimhi, Goroshit, & Eshel, 2013) to measure the construct of NR; however, Kimhi (2016) noted that validity of NRAS was not adequately substantiated. To fill this gap, Kimhi, Eshel, Lahad, and Leykin (2019) investigated the psychometric properties of the 25-item NRAS using data from Jewish Israeli adults. Findings of exploratory factor analysis (EFA) indicated that 24 items clustered into four distinct yet somewhat related factors: identifying with the state, solidarity and social justice, trust in national institutions, and trust in public justice. The reliability of the NRAS was strong, which was replicated in a cross-cultural study (Kimhi et al., 2018) that included student samples from Australia, Germany, Great Britain, Israel, and Greece.

In an attempt to develop an efficient measure of NR for use in cross-national research and across adversities, a short version of the NRAS was validated using data from a sample of Israeli adults (Kimhi et al., 2018). EFA results yielded 13 items to form the National Resilience Scale short version (NR-13) with three independent but related factors describing identification with one’s country, solidarity and social justice, and trust in public institutes. In addition, the internal consistency of the NR-13 ranged from adequate to strong across international samples (Kimhi et al., 2018).

1.3 | Determinants of NR

NR construct has been further studied in terms of association with demographic and psychological factors, which in turn provided support to convergent validity of the NRAS and NR-13.

1.3.1 | Demographic factors

Past studies (Eshel & Kimhi, 2016a, 2016b, 2016c; Kimhi & Eshel, 2019; Kimhi et al., 2019, 2013, 2018) reported the influence of demographic factors on NR. Findings indicated that gender was associated with NR with males reporting a higher level of resilience than females. Age was significantly and positively correlated with NR. Moreover, participants who disclosed as more religious and inclined to right-wing political attitudes reported greater perceived NR. Compared with those residing in more communal areas urban, or city residents had higher perceived NR.

1.3.2 | Suppressing factors

Distress, sense of danger, and perceived threat were examined in this study as suppressing factors of NR. Distress is defined as having anxiety and depression symptoms. Sense of danger refers to a persisting fear of future danger which can negatively impact postadversity adaptation (Eshel & Kimhi, 2016a, 2016b, 2016c). Studies with Israeli adults and higher education students reported a negative correlation of distress and sense of danger with NR (Eshel, Kimhi, & Marciano, 2020; Kimhi et al., 2019; Kimhi, Eshel, Leykin, & Lahad, 2017; Marciano et al., 2019). That is, the more distressed and greater sense of danger, the lower is the perceived NR. Similarly, there was a significant negative relationship of distress and sense of danger with NR in higher education students from Australia, Great Britain, and Israel but not significant in students from Germany and Greece (Kimhi et al., 2018).

Perceived threat refers to a person’s evaluation of potential threats of harm or danger to self or others (King, King, Gudanowski, & Vrevren, 1995). This construct has been primarily linked to posttraumatic stress disorder
(Huang & Kashubeck-West, 2015) as well as negative emotions such as harm, anxiety, challenge, and distress (Kimhi & Eshel, 2012). A previous study involving college students in Israel indicated that the perceived threat of war was negatively related to public resilience (i.e., a combination of community resilience and NR; Kimhi & Eshel, 2012). No study has examined yet the link between perceived threat of COVID-19 and NR. However, a very recent study in adults from 35 countries reported that the likelihood of feeling threatened by COVID-19 increases significantly with age, number of days in quarantine, emotionality, and hoarding behavior. In addition, the perceived threat of the pandemic was found to be significantly higher in adults from North America compared with their peers from Europe (Garbe, Rau, & Toppe, 2020).

1.3.3 | Promoting factors

In this study, individual resilience and community resilience were considered as promoting factors of NR. Individual resilience has been the scope of most resilience research (Kimhi et al., 2017) and is defined as the capacity of an individual to maintain healthy functioning despite adversities and the ability to adapt to extremely distressing situations (Eshel et al., 2020). The individual resilience of Israeli adults was positively linked to NR (Kimhi, 2016).

Community resilience refers to the reciprocal relationship between individuals and their immediate community, wherein individuals have the capacity to seek help from the community while the community has the capacity to extend help towards individuals (Kimhi & Eshel, 2019; Marciano et al., 2019). Higher community resilience translates to higher levels of community strength, which controls stress indicators; while lower community resilience may lead to community vulnerability, thus leading to recovery setbacks after adversities. Consistent in studies involving Israeli adults (Eshel & Kimhi, 2016a, 2016b, 2016c; Kimhi et al., 2019, 2013, 2018) and students from Australia, Germany, Great Britain, Israel, and Greece; community resilience is significant and positively associated with NR at a generally moderate level.

2 | RESEARCH AIMS AND HYPOTHESES

To the best of our knowledge, no research has been conducted on examining NR in the Philippines. Considering the adversities of the coronavirus crisis, we pursued this study with the primary goal to inquire into the perceptions of NR in Filipinos during a pandemic. To achieve this goal, two aims were proposed. First, since there is no existing measure of NR validated for use with the Philippine population, we examined the psychometric properties of the Filipino adaptation of the National Resilience Scale (NRS-Filipino). Second, we investigated a set of factors that can be associated with NR, including demographic and psychological variables.

In light of the foregoing literature and study aims, we posited these hypotheses:

(1) NRS-Filipino comprising of 14 items adapted from the original NRAS (Kimhi et al., 2019) plus two new items specifically relevant to coronavirus crisis will demonstrate a valid and reliable multidimensional measure of NR.
(2) In terms of demographic factors, Filipinos who are older, male, more religious, and inclined to political right-wing attitudes will have greater NR. In addition, those residing in urban communities will have higher NR.
(3) In terms of suppressing factors, participants with greater distress, sense of danger, perceived threat, and awareness of individual/s infected with coronavirus within the community will have lower NR.
(4) In terms of promoting factors, participants with higher individual and community resilience will have greater NR.
3 | METHODS

3.1 | Participants

The study involved a convenient sample of 401 adults residing in the Philippines. More than half of the participants were females (63.34%) and single (72.57%). Participants' ages ranged from 18 to 68 years (M = 30.09, SD = 11.14), with a little more than half in the age bracket 22–29 years (55.36%). In terms of educational attainment, the majority of them earned bachelor's degrees (66.83%). More than a third of the participants indicated receiving higher than average income (39.40%). The demographic profile of the participants is presented in Table 1.

3.2 | Measures

3.2.1 | National resilience

NR was measured using a scale composed of 16 items, with 14 items adapted from the original 25-item NRAS (Kimhi et al., 2019) and the remaining 2 items (see Items 11 and 12 in Table 1) were developed by Shaul Kimhi and colleagues to increase content relevance of the scale in characterizing participants' perceptions of NR during coronavirus crisis. Items were adapted in Filipino and answered using Likert response options ranging from 1 (strongly disagree) to 5 (strongly agree), with a higher score indicating a greater level of NR. The psychometric properties of the NRS-Filipino is reported in Section 4.

3.2.2 | Community resilience

The 10-item Filipino version of the Conjoint Community Resilience Assessment Measure (CCRAM-10) was utilized to assess participants' perceptions on the ability of a community to deal with a coronavirus crisis (Leykin, Lahad, Cohen, Goldberg, & Aharonson-Daniel, 2013). Participants responded to each item (e.g., "My community is prepared for an emergency including the Coronavirus crisis") on a 5-point scale (1 = strongly disagree to 5 = strongly agree), with a higher score indicating a greater level of community resilience. The structural validity of the CCRAM-10 demonstrated a stable five-factor model (i.e., leadership, collective efficacy, preparedness, place attachment, and social trust) based on data from two adult samples in Israel (Leykin et al., 2013) and China (Cui & Han, 2019). CCRAM-10 reliability was adequate for both factor and overall scores, ranging from \(\alpha = .66\) to \(\alpha = .86\) (Cui & Han, 2019). In this study, we used the overall score as an index of community resilience with a reliability \(\alpha = .90\).

3.2.3 | Individual resilience

The 10-item Filipino version of the Connor–Davidson Resilience Scale (CD-RISC 10) was used to measure a person's capacity to effectively recover from the coronavirus crisis (Campbell-Sills & Stein, 2007; Connor & Davidson, 2003). Participants responded to each item (e.g., "Able to adapt to change") on a 5-point scale (0 = not true at all times to 4 = true nearly all of the time), with a higher score indicating a greater level of individual resilience. Previous studies demonstrated a stable single-factor structural validity of the CD-RISC 10 based on adult samples in China (Wang, Shi, Zhang, & Zhang, 2010) and Spain (Blanco, Guisande, Sanchez, Otero, & Vazquez, 2019). CD-RISC 10 reliability in previous studies was \(\alpha = .86\) (Blanco, Guisande, Sánchez, Otero, & Vázquez, 2019). In the present study, we used the overall score as an index of individual resilience with a reliability \(\alpha = .90\).
3.2.4 | Distress

To measure distress in the context of the coronavirus pandemic, the present study used eight items of the Brief Symptoms Inventory (Derogatis & Savitz, 2000; Derogatis & Spencer, 1982) assessing anxiety (e.g., "A feeling of tension") and depression (e.g., "A feeling of worthlessness"). Participants responded on a 5-point scale (1 = not at all to 5 = to a very great extent) with a higher score indicating greater distress symptoms. In the present study, we subjected the item scores to EFA that resulted in a single factor with an eigenvalue of 4.85 and 60.60% variance explained. All factor loadings were significant, ranging from 0.62 (Item 1) to 0.82 (Item 6). Thus, we used the combined score of depression and anxiety items as an index of distress with an overall reliability $\alpha = .90$.

3.2.5 | Perceived threat

Based on the previous study of Kimhi and Eshel (2012), a Filipino translation of four items were specifically developed to measure the participants’ perception of the extent of the threat that the current coronavirus crisis posed to four different

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**TABLE 1** Demographic profile of participants ($N = 401$)

| Characteristic                          | Number | %    |
|----------------------------------------|--------|------|
| **Gender**                             |        |      |
| Male                                   | 147    | 36.66|
| Female                                 | 254    | 63.34|
| **Age (years)**                        |        |      |
| <20                                    | 39     | 9.72 |
| 20–29                                  | 222    | 55.36|
| 30–39                                  | 68     | 16.96|
| 40–49                                  | 36     | 8.98 |
| 50–59                                  | 23     | 5.74 |
| >60                                    | 13     | 3.24 |
| **Marital status**                     |        |      |
| Married                                | 103    | 25.68|
| Single                                 | 291    | 72.57|
| Widowed/sepuraed                       | 5      | 1.25 |
| Did not indicate                       | 2      | .50  |
| **Educational attainment**             |        |      |
| High school graduate                   | 43     | 10.72|
| Some college                           | 39     | 9.73 |
| Bachelor’s degree                      | 268    | 66.83|
| Postgraduate level or degree           | 45     | 11.22|
| Did not indicate                       | 6      | 1.50 |
| **Income**                             |        |      |
| Much lower than average                | 27     | 6.73 |
| Lower than average                     | 59     | 14.71|
| Average                                | 122    | 30.42|
| Higher than average                    | 158    | 39.40|
| Much higher than average               | 35     | 8.73 |

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domains including the economic, health, security, and political situations. Participants were asked to think of the current coronavirus crisis and were instructed to rate how threatening it was to each of the four domains by responding on a 5-point scale (1 = not threatening at all to 5 = threatening to a very great extent), with a high score indicating greater perceived threats. The present study used the overall score as an index of perceived threat with a reliability $\alpha = .84$.

### 3.2.6 | Sense of danger

The 6-item Filipino translated version of Sense of Danger Scale (Solomon & Prager, 1992) was adapted to measure the participants’ perception of personal, familial, national, and global dangers brought about by the current coronavirus crisis (e.g., “To what extent do you feel that your life is in danger due to the Coronavirus?”). Participants were requested to describe their feelings in the past 2 weeks by rating each item using a 5-point scale (1 = not at all to 5 = very much). In previous studies, Sense of Danger Scale has demonstrated adequate reliability of $\alpha = .75$ based on Israeli adults (Eshel & Kimhi, 2016a, 2016b, 2016c). In this study, we used the overall score as an index of sense of danger with a reliability $\alpha = .85$.

### 3.2.7 | Demographic factors

Participants were asked to provide demographic information such as age (in years), gender, and place of residence that was later coded as either rural or urban based on the classification of the Philippine Statistics Authority (2010). In addition, awareness of person(s) with coronavirus illness, religiosity, and political attitude were also inquired. Awareness of person(s) with coronavirus illness was measured by one item (To the best of your knowledge, is a person with a diagnosis of Coronavirus lives in your community?) wherein participants indicated either a "yes" or "no" response. Religiosity was measured by asking participants to rate an item (How would you define yourself regarding religiosity?) on a scale ranging from 1 = secular to 4 = very religious. The political attitude was measured by a single item (How would you describe yourself politically?) with response options ranging from 1 = strong right to 5 = strong left.

### 3.3 | Procedure

Before the survey was converted into an online format, items were translated from English to the Filipino language following the double-translation and reconciliation procedure (International Test Commission, 2018). First, two bilingual experts who are Filipino native speakers independently translated the materials from English to Filipino. Second, a third bilingual expert who also is a native speaker of Filipino reviewed item by item the two translations and identified areas for corrections with consideration for linguistic, psychological, and cultural equivalence. Finally, the three experts discussed together and reconciled the corrections, and arrived at the final translated version of the survey.

An online survey questionnaire was completed by the participants after consent was obtained. The study was part of cross-national research approved by the Institutional Review Board of the Tel Aviv University in Israel.

### 4 | RESULTS

#### 4.1 | Exploratory factor analysis

Preliminary analyses indicated that NRS-Filipino scores were normally distributed with skewness and kurtosis values consistently $< |2|$. Hence, EFA was conducted using the maximum likelihood estimator on Mplus 7 (Muthén and Muthén,
1998–2012). The number of factors to retain was based on multiple criteria: (1) number of factors in the model can explain the data better than a model with one fewer factor, (2) model with one more factor does not improve appreciably in fit, and (3) solution was interpretable and most theoretically sensible (Fabrigar, Wegener, MacCallum, & Strahan, 1999; Floyd and Widaman, 1995). In addition, we were guided by a multiple factor structure of existing NR scales (Kimhi & Eshel, 2019; Kimhi et al., 2019) from which items of the NRS-Filipino were adapted.

The goodness of data-model fit was determined using a combination of absolute and incremental fit indices. Comparative fit index (CFI) and Tucker–Lewis index (TLI) values between 0.90 and 0.95, and root mean square error approximation (RMSEA) and standardized root mean square residual (SRMR) below 0.08 are considered to suggest acceptable fit; while CFI and TLI values above 0.95 and RMSEA and SRMR values below 0.05 indicate a good model fit (Kline, 2016). In terms of retaining items, factor loading ≥ 0.40 on the relevant factor and <0.40 on all other factors is acceptable (Netemeyer, Bearden, & Sharma, 2003).

Initial EFA was conducted for one through four-factor solutions and results indicated a good data-model fit for a four-factor solution: \( \chi^2 = 160.29, \text{df} = 52, p < .001, \text{CFI} = 0.981, \text{TLI} = 0.963, \text{SRMR} = 0.016, \text{RMSEA} \text{ [90% confidence interval (CI)] = 0.063 [0.051–0.075]. All 16 items have loadings of 0.40 and above on relevant factors; however, Item 6 (I am optimistic about the future of my country) and Item 15 (Trust in educational system) cross-loaded on two factors. EFA was rerun twice by dropping Items 6 and 15 separately from each solution. The solution with Item 15 eliminated yielded the best results that also demonstrated a good model fit for a four-factor model: \( \chi^2 = 130.65, \text{df} = 51, p < .001, \text{CFI} = 0.984, \text{TLI} = 0.967, \text{SRMR} = 0.014, \text{RMSEA} \text{ [90% CI] = 0.062 [0.049–0.079]. The final EFA solution consisted of 15 items with distinct and robust factor loadings ranging from 0.50 (Item 16) to 0.86 (Item 1), onto four theoretically sensible factors with a total explained variance of approximately 78%. Factor 1 is labeled as trust in national government (TNG) with five items (1, 2, 3, 11, and 12). Factor 2 is named as coping with a national crisis (CNC) with three items (4, 5, and 6). Factor 3 is labeled as SSJ with four items (7, 8, 9, and 10). Factor 4 is named as trust in public institutions (TPI) with three items (13, 14, and 16). Table 2 shows the item loadings and explained variance across factors.

### 4.2 Reliability and factor intercorrelations

Table 3 reports descriptive statistics of the NRS-Filipino that indicated approximately normal distribution (skewness and kurtosis < |2|) for subscale and total scores. The reliability of the NRS-Filipino scores was calculated using item loadings to estimate the latent construct (H) coefficient (Mueller & Hancock, 2008) and observed item scores to yield scale’s Cronbach α coefficient. Latent construct reliability was observed to be strong for TNG (H = 0.91), adequate for SSJ (H = 0.76), and CNC (H = 0.70), and acceptable for TPI (H = 0.69). Similarly, α coefficient was strong for TNG (\( \alpha = .95 \)) and total NR (\( \alpha = .95 \)), and adequate for SSJ (\( \alpha = .85 \)), CNC (\( \alpha = .83 \)), and TPI (\( \alpha = .76 \)).

Intercorrelations of NRS-Filipino scales indicated strong relationships between subscales ranging from \( r = .64 \) (CNC and SSJ) to \( r = .76 \) (TNG and TPI) suggesting overlapping yet distinct aspects of NR construct. In addition, strong relationships were observed between subscales and total NR scores ranging from \( r = .85 \) (CNC) to \( r = .93 \) (TNG).

### 4.3 Convergent validity

Convergent validity of NRS-Filipino was established by correlating subscale and total scores with criterion variables using Pearson correlation. As shown in Table 4, series of bivariate correlations indicated that the NRS-Filipino subscale and total scores were significantly and negatively correlated with a sense of danger, distress, and perceived threats. On the other hand, the NRS-Filipino subscale and total scores were significantly and positively
### TABLE 2 Geomin rotated item loadings of the four-factor EFA

| Item statement                                                                 | Item loading TNG | CNC | SSJ | TPI |
|--------------------------------------------------------------------------------|------------------|-----|-----|-----|
| **Factor 1: Trust in national government (TNG)**                               |                  |     |     |     |
| 1 I believe that my government will make the right decision during a time of crisis, including the current coronavirus crisis. | **0.86**         | 0.11| -0.02| -0.03 |
| 2 During a national crisis, such as the current coronavirus crisis, society in my country will back up government decisions and those of the president. | **0.85**         | 0.09| 0.07| -0.14 |
| 3 I have full confidence in the ability of the security forces of my country to protect our population including the current coronavirus crisis. | **0.83**         | 0.02| -0.06| 0.11 |
| 11 I have full faith in the ability of my country’s health system to care for the population in the current coronavirus crisis. | **0.56**         | -0.05| 0.29| 0.15 |
| 12 I have complete confidence in the ability of my government to take care of all aspects relevant to overcoming the current coronavirus crisis. | **0.79**         | -0.05| 0.08| 0.13 |
| **Factor 2: Coping with national crisis (CNC)**                               |                  |     |     |     |
| 4 My country is my home, and I don’t intend to leave it.                       | -0.04            | **0.70** | 0.04| -0.05 |
| 5 My society has coped well with past crises and will cope well with the current coronavirus crisis. | 0.07             | **0.65** | 0.03| 0.15 |
| 6 I am optimistic about the future of my country.                             | **0.26**         | **0.64** | -0.00| 0.15 |
| **Factor 3: Solidarity and social justice (SSJ)**                             |                  |     |     |     |
| 7 Social relations between the different groups in my country are good.        | 0.30             | 0.06 | **0.54** | -0.01 |
| 8 In my society, there is a high level of social solidarity (i.e., mutual assistance and concern for one another). | -0.03            | 0.12 | **0.63** | -0.02 |
| 9 The expression "man is a wolf to man" is not characteristic of my society | 0.00             | -0.02| **0.65** | 0.07 |
| 10 In my society, there is a reasonable level of social justice.             | 0.08             | 0.01 | **0.75** | 0.03 |
| **Factor 4: Trust in public institutions (TPI)**                              |                  |     |     |     |
| 13 Trust in the police                                                        | 0.32             | 0.04 | -0.02 | **0.60** |
| 14 Trust in the senators and house of representatives                          | 0.12             | 0.06 | 0.25 | **0.50** |
| 16 Trust in mass media                                                         | -0.01            | 0.03 | 0.12 | **0.76** |
| **Variance explained (%)**                                                    | **59.30**        | 6.64| 6.40| 5.15 |

Note: Bold values significant above .40.

Abbreviation: EFA, exploratory factor analysis.

### TABLE 3 Descriptive statistics, reliability, and Pearson correlation of NRS-Filipino subscales and total

| Scale                | M   | SD   | H   | α   | Skew | Kurtosis | TNG   | CNC   | SSJ   | TPI   | Total NR |
|----------------------|-----|------|-----|-----|------|----------|-------|-------|-------|-------|----------|
| TNG                  | 3.26| 1.10 | 0.91| .95 | -0.23| -0.81    | -     | 0.73  | 0.75  | 0.76  | 0.93     |
| CNC                  | 3.93| 0.92 | 0.70| .83 | -0.74| 0.09     | -     | 0.64  | 0.67  | 0.85  |          |
| SSJ                  | 3.17| 0.89 | 0.76| .85 | -0.21| -0.24    | -     | 0.68  | 0.86  |       |          |
| TPI                  | 3.70| 1.12 | 0.69| .76 | -0.08| -0.44    | -     |       | 0.89  |       |          |
| Total NR             | 3.52| 0.88 | .95 | -0.24| -0.56| -        |       |       |       |       |          |

Abbreviations: CNC, coping with national crisis; NR, national resilience; NRS-Filipino, Filipino adapted National Resilience Scale; SSJ, solidarity and social justice; TNG, trust in national government; TPI, trust in public institutions.
correlated with individual resilience and community resilience. The size of correlations ranged from low \((r = .10\) for SSJ and sense of danger) to strong \((r = .67\) for community resilience and total NR) across criterion variables.

### 4.4 | Antecedents of NR

#### 4.4.1 | Multiple regression

Sequential multiple regression analysis was conducted to determine the relative contribution of demographic and psychological factors on total NR scores (i.e., subsequently referred to as NR). In Step 1 of the regression equation, demographic characteristics such as age, religiosity, and political attitudes were entered. In Step 2, suppressing factors that included sense of danger, distress, and perceived threat was added to the equation. Finally, in Step 3, promoting factors such as individual resilience and community resilience were added to the equation. To determine possible multicollinearity, indices of tolerance (TOL) and variance inflation factor (VIF) from the regression analysis were referred to. As a general guideline, TOL below 0.10 or VIF above 10 may indicate the presence of multicollinearity of variables (Oakland, Callueng, & Harris, 2012). No multicollinearity was noted in the analysis, with TOLs ranging from 0.71 to 0.99, and VIFs ranging from 1.01 to 1.42.

As summarized in Table 5, the results of the regression analysis indicated that in Step 1, the three demographic characteristics collectively explained approximately 18\% \((\Delta R^2 = .18, \Delta F(3, 383) = 29.28, p \leq .001)\) of the variance in NR. Participants who are older \((\beta = .15, t = 3.25, p \leq .001)\), more religious \((\beta = .21, t = 4.23, p \leq .001)\), and proclivity for right-wing political attitudes \((\beta = -.29, t = -6.16, p \leq .001)\) tend to have higher NR. In Step 2, the addition of suppressing factors accounted for an approximately 8\% increase in the variance of NR, \((\Delta R^2 = .08, \Delta F(3, 383) = 13.57, p \leq .001)\). Greater levels of distress \((\beta = -.22, t = -4.62, p \leq .001)\) and perceived threat \((\beta = -.17, t = -3.49, p \leq .001)\) were associated with lower NR. On the other hand, sense of danger \((\beta = .04, t = -.89, p \geq .05)\) was not significantly associated with NR. In Step 3, the addition of promoting factors accounted for approximately 29\% increase in the variance of NR \((\Delta R^2 = .29, \Delta F(2, 381) = 12.76, p \leq .001)\). Higher levels of individual resilience \((\beta = .16, t = 3.96, p \leq .001)\) and community resilience \((\beta = .52, t = 13.82, p \leq .001)\) were associated with higher NR.

Overall, the total variance of NR explained by the combined demographic and psychological factors was approximately 55\%, with community resilience and political attitudes strongly associated with NR relative to other variables in the study.

### Table 4 Pearson correlation of NRS-Filipino and criterion variables

| Variable            | TNG  | CNC  | SSJ  | TPI  | Total NR |
|---------------------|------|------|------|------|----------|
| Sense of danger     | -.12 | -.11 | -.10 | -.12 | -.13***  |
| Distress            | -.30*** | -.32*** | -.25*** | -.30*** | -.33*** |
| Perceived threats   | -.26*** | -.24*** | -.19*** | -.22*** | -.25*** |
| Individual resilience | .30*** | .36*** | .30*** | .37*** | .38*** |
| Community resilience | .60*** | .47*** | .60*** | .61*** | .67*** |

Abbreviations: CNC, coping with national crisis; NR, national resilience; NRS-Filipino, Filipino adapted National Resilience Scale; SSJ, solidarity and social justice; TNG, trust in national government; TPI, trust in public institutions.

*\(p \leq .05\).
**\(p \leq .01\).
***\(p \leq .001\).
Influence of dichotomous categorical variables as possible determinants of NR was analyzed through series of one-way analysis of variance to determine whether NR can be discriminated by participants’ gender, type of residence, and awareness of a person infected by coronavirus within the community (see Table 6). Mean difference by gender was not significant \([F(1, 391) = 2.83, p \geq .05, \text{partial } \eta^2 = 0.01]\), with males (\(M = 3.42, \text{SD} = 0.94\)) and females (\(M = 3.57, \text{SD} = 0.90\)) reporting similar NR scores. Mean difference by type of residence was significant \([F(1, 391) = 21.70, p \leq .001, \text{partial } \eta^2 = 0.05]\) explaining approximately 5% of the variance in NR. Participants from rural communities (\(M = 3.73, \text{SD} = 0.86\)) have higher NR than those from urban communities (\(M = 3.33, \text{SD} = 0.86\)). Similarly, the mean difference by awareness of person(s) infected by coronavirus was significant \([F(1, 391) = 30.01, p \leq .001, \text{partial } \eta^2 = 0.07]\) accounting for approximately 7% of the variance in NR. Participants who were aware of person(s) with coronavirus within their communities (\(M = 3.30, \text{SD} = 0.83\)) have lower NR scores than those who were not aware (\(M = 3.77, \text{SD} = 0.88\)).

### Table 5 Sequential multiple regression on the influence of demographic and psychological factors on NR

| Variable                  | \(R^2\) | \(\Delta R^2\) | \(B\)    | SE \(B\) | \(\beta\) | \(t\)     | \(F\)    |
|---------------------------|---------|---------------|----------|----------|----------|----------|----------|
| **Step 1**                |         |               |          |          |          |          |          |
| Intercept                 | .19     | .18           | 3.63     | 0.30     | .15      | 12.16    | 29.28    |
| Age                       |         |               | 0.01     | 0.00     | .15      | 3.25     |          |
| Religiosity               |         |               | 0.28     | 0.06     | .21      | 4.43     |          |
| Political attitudes       |         |               | -0.36    | 0.06     | -.29     | -6.16    |          |
| **Step 2**                |         |               |          |          |          |          |          |
| Intercept                 | .26     | .08           | 4.63     | 0.40     | .09      | 1.98     | 13.57    |
| Age                       |         |               | 0.01     | 0.00     | .18      | 3.85     |          |
| Religiosity               |         |               | 0.23     | 0.06     | .26      | -5.72    |          |
| Political attitudes       |         |               | -0.32    | 0.06     | -.22     | -4.89    |          |
| Sense of danger           |         |               | -0.06    | 0.07     | -.04     | -0.89    |          |
| Distress                  |         |               | -0.25    | 0.05     | -.22     | -4.62    |          |
| Perceived threat          |         |               | -0.16    | 0.05     | -.17     | -3.49    |          |
| **Step 3**                |         |               |          |          |          |          |          |
| Intercept                 | .55     | .29           | 1.01     | 0.40     | .04      | .97      | 124.76   |
| Age                       |         |               | 0.01     | 0.01     | .06      | 1.64     |          |
| Religiosity               |         |               | 0.08     | 0.05     | .06      | 1.64     |          |
| Political attitudes       |         |               | -0.31    | 0.04     | -.25     | -6.97    |          |
| Sense of danger           |         |               | -0.08    | 0.05     | -.05     | 1.41     |          |
| Distress                  |         |               | -0.08    | 0.05     | -.07     | -1.67    |          |
| Perceived threat          |         |               | -0.08    | 0.04     | -.08     | -2.26    |          |
| Individual resilience     |         |               | 0.24     | 0.06     | .16      | 3.96     |          |
| Community resilience      |         |               | 0.71     | 0.05     | .52      | 13.32    |          |

Abbreviation: NR, national resilience.

*\(p \leq .05\).

**\(p \leq .001\).

### 4.4.2 | Group differences

Influence of dichotomous categorical variables as possible determinants of NR was analyzed through series of one-way analysis of variance to determine whether NR can be discriminated by participants’ gender, type of residence, and awareness of a person infected by coronavirus within the community (see Table 6). Mean difference by gender was not significant \([F(1, 391) = 2.83, p \geq .05, \text{partial } \eta^2 = 0.01]\), with males (\(M = 3.42, \text{SD} = 0.94\)) and females (\(M = 3.57, \text{SD} = 0.90\)) reporting similar NR scores. Mean difference by type of residence was significant \([F(1, 391) = 21.70, p \leq .001, \text{partial } \eta^2 = 0.05]\) explaining approximately 5% of the variance in NR. Participants from rural communities (\(M = 3.73, \text{SD} = 0.86\)) have higher NR than those from urban communities (\(M = 3.33, \text{SD} = 0.86\)). Similarly, the mean difference by awareness of person(s) infected by coronavirus was significant \([F(1, 391) = 30.01, p \leq .001, \text{partial } \eta^2 = 0.07]\) accounting for approximately 7% of the variance in NR. Participants who were aware of person(s) with coronavirus within their communities (\(M = 3.30, \text{SD} = 0.83\)) have lower NR scores than those who were not aware (\(M = 3.77, \text{SD} = 0.88\)).
The overarching goal of the study was to probe into the perceptions of Filipino adults on NR during the coronavirus crisis. Two aims were set forth to achieve this goal: first was to assess the psychometric properties of the NRS-Filipino, and second was to examine demographic and psychological factors as determinants of NR. Data were collected from 401 adults through an online survey conducted during the early phase of coronavirus pandemic in the Philippines.

5.1 Measurement of NR

Examination of the psychometric characteristics of the NRS-Filipino entailed determining a theoretically sensible factor structure, calculating reliability at the latent and item levels, and establishing convergent validity. Findings from EFA yielded a four-factor solution with a good model fit and strong factor loadings for 15 items that were nonoverlapping in factorability. The final items clearly clustered into four factors that were labeled as TNG, CNS, SSJ, and TPI. These factors are consistent with existing measures of NR, such as the NRAS (Kimhi et al., 2019) and NR-13 (Kimhi & Eshel, 2019). This is not surprising as 14 of 16 original items of the NRS-Filipino were adapted from the NRAS. The inclusion of two new items that reflects government’s ability to protect the country during the coronavirus crisis in the Philippines is in accord to the idea that NR is not a static concept and requires contextual changes to capture meaningful perceptions of people on specific adversity (Canetti et al., 2014; Eshel & Kimhi, 2016a, 2016b, 2016c; Fletcher & Sarkar, 2013). Both items clustered on the factor of TNG, which may be considered as a more valuable component in promoting and supporting NR amid the extreme adverse impact of coronavirus pandemic. The deletion of item, “Trust in educational system,” suggests that educational institutions may play a less essential role in helping a nation recover from the adverse effects of the coronavirus health crisis. Moreover, when ECQ/GCQ was implemented in the Philippines sometime in March 2020, the school year was about to end and thus, the educational system has not been much impacted by the early phase of the pandemic. It is possible that if the survey is conducted later or in the aftermath of the pandemic, the educational system can be a pivotal agency to collaborate with the national government in ensuring the safety and well-being of children and youth.

Moreover, reliability analyses of the NRS-Filipino subscale and total scores demonstrated strong internal consistency, which is consistent with the NRAS and NR-13. In addition, the significant relations of the NRS-Filipino
subscale and total scores to relevant psychological measures supported convergent validity. Putting together, the results indicate that NRS-Filipino could be utilized to assess NR of Filipinos during extreme adversities like the coronavirus crisis as well as contribute to closing the gap on the dearth of valid and practical tools to measure NR internationally. Hence, we confirmed Hypothesis 1 that NRS-Filipino is a valid and reliable multidimensional measure of NR.

5.2 | Antecedents of NR

Our findings partially supported Hypothesis 2 that demographic variables are significantly associated with NR. As expected, we found that Filipino adults who are older, more religious, and those holding more right-wing political attitudes tend to have greater levels of perceived NR, confirming findings in earlier studies (Kimhi et al., 2017, 2013). However, findings did not support the hypothesis that males and those living in urban areas have higher perceived NR than females and those residing in rural areas.

It appears that over time, the experiences of older individuals in facing adversities allow them to develop greater confidence in the capacity of the nation to recover in the midst of crisis (Eshel, Kimhi, Lahad, & Leykin, 2016). Moreover, believing in a higher being that has control over individual and world outcomes tend to promote the greater perception of NR echoes previous research (Kimhi et al., 2013; Marciano et al., 2019). Religion is a highly treasured value that Filipinos consider as a stronghold in times of personal or collective crisis (Austria, 2008). In a similar vein and confirming previous findings (Eshel et al., 2020; Kimhi & Eshel, 2019; Kimhi et al., 2019, 2013), we found that individuals who held more right-wing political views tend to perceive higher levels of NR.

Although the present ruling political party in the Philippines can be characterized by nationalist and liberal ideas (Timberman, 2019), it is possible that the widespread adversity of the coronavirus pandemic may have changed political views of the Filipinos as leaning to a more conservative attitude, at least at the perceptual level. Hibbing, Smith, and Alford (2014) described individuals with conservative or right-wing political orientation as more responsive and attuned to negative stimuli such as the threat of the current health pandemic, and there seems to be an emerging pattern on the influence of political ideology on coronavirus pandemic. Similar to the Philippines, a recent study by Dryhurst, Schneider, Kerr, and van der Linden (2020) indicated that people from the United Kingdom and the United States that lean more to conservative political orientation reported a lower risk of the coronavirus crisis.

Unlike earlier studies (e.g., Kimhi et al., 2013) reporting that people from urban areas tend to have a higher level of NR, the present study found that Filipino adults residing in rural communities reported higher levels of NR. One explanation is that rural communities in the Philippines have been characterized to give support to right-wing political movements and policies (Borras, 2020). Hence resulting in a greater perception of NR, which can be attributed to right-wing political attitudes as previously discussed. In addition, higher NR in participants from rural areas may have become more pronounced due to various provisions of relief assistance and resources from the government during the coronavirus crisis. On the other hand, we believe that compared with people in rural areas, individuals residing in urban areas may have greater exposure to mass media and online information, and thus, tend to be more critical of the responses and management of the national government during the coronavirus crisis. This, in turn, may have resulted in perceived lower levels of NR.

In contrast to previous research that reported lower levels of perceived NR in females mostly from Middle Eastern countries (Eshel et al., 2020), the current study found that Filipino females had similar levels of NR with males. This finding attests to the Philippines having the smallest gender gap in the Asian region notably in the areas of leadership, economic participation and opportunity, and professional and technical positions (Kosakowska-Berezecka, Besta, Bosson, Jurek, & Zukauskiene, 2020; World Economic Forum, 2019)—all of which can boost NR. Philippine culture also promotes gender equality and empowerment. For example, both men and women take
active leadership roles in national and local institutions and egalitarian roles in solving the nation’s problems including supporting the nation in facing and recovering during the coronavirus crisis.

Our findings partially supported Hypothesis 3 that suppressing factors negatively influence NR. Specifically, we found that participants who felt more distressed, higher perceived threat, and aware of person(s) infected with coronavirus within the community reported lower levels of perceived NR. However, sense of danger was not associated with NR. Earlier studies provided support that greater distress (Eshel et al., 2020; Kimhi et al., 2017) and perceived threat (Canetti et al., 2014) were associated with lower levels of perceived NR. Anxiety and distress are normal responses to such extreme circumstances of the coronavirus crisis. Our stress systems have evolved to respond in highly adaptive ways, thereby enabling humans to deal with these challenges (de Kloet, Sibug, Helmerhorst, & Schmidt, 2005). It is possible that participants’ negative feelings may have been affected by their knowledge of someone with COVID-19 illness within one’s local community. Such emotional experience also can be explained by construal-level of psychological distance (Trope & Liberman, 2010) such that, individuals who realize that the actual threats are present in their local community tend to perceive the risk as concrete and proximal compared to individuals who are not aware of COVID-19 cases in one’s community. Moreover, awareness of COVID-19 cases in an immediate community may increase a person’s anxiety and the risk of being infected since the coronavirus is mainly transmitted through close contact with a person infected by the virus. Coronavirus is highly contagious and there could be several ways (e.g., interaction in public places, not wearing a mask and other protective equipment, touching surfaces with a virus, and poor hand hygiene, among others) that an infected person in the neighborhood could very easily spread the virus in one’s local community if safety measures such as social distancing, hygiene practices, and lockdown are not strictly implemented within the community. It is, therefore, not surprising that individuals with an awareness of an infected person in one’s local community reported lower levels of NR.

However, the present findings did not find support for the hypothesis that sense of danger could have a significant negative influence on NR. One possible explanation is that the survey was conducted during the first 2–3 weeks of lockdown in the Philippines when there were only a few confirmed cases of coronavirus mostly in highly dense areas like Metro Manila; thus, sense of danger of the coronavirus crisis may not have been widespread and to a high degree. Findings may have been different if participants’ sense of danger on the coronavirus crisis was assessed later during the lockdown with a possible surge of cases. For example, the study of Eshel and Kimhi (2016a, 2016b, 2016c) showed that sense of danger was associated with NR following a disaster such as a missile attack.

Finally, our findings confirmed Hypothesis 4 that promoting factors such as individual and community resilience positively influence NR; that is, individuals who reported higher levels of individual and community resilience showed greater levels of perceived NR. This finding is consistent with earlier studies indicating that people who have a greater capacity to bounce back from adversity and perceive the community with capacities for collective action, collaboration, and empowerment are more likely to trust their national leaders and government institutions to resolve crises and maintain stability in the country (Eshel et al., 2020; Kimhi & Eshel, 2019; Kimhi et al., 2019).

Overall, the present study found several demographic and psychological factors as antecedents of NR during the coronavirus crisis in the Philippines, which were consistent with findings from previous research in other countries (Eshel et al., 2020; Kimhi et al., 2019, 2018). More importantly, we highlight that community resilience and political attitudes are the strongest predictors of NR in the Philippines. Since NR may be viewed as a collection of resilient individuals and communities, it is not surprising that Filipinos who perceive their local community as resilient would believe that the Philippine society, in general, may be capable to effectively withstand the coronavirus crisis. It is possible that since the response of one’s local community during the coronavirus crisis (e.g., strict implementation of lockdown by local authorities, distribution of relief goods, and cash) has been relatively quick and directly observable, people tend to generalize these as indicators of effective management at the national level. Likewise, right-wing political attitude as a significant antecedent of NR explains the importance of trust in the political system during an intractable crisis such as the coronavirus pandemic.
5.3 Limitations and future research

This is the first known study of NR in a Filipino sample and in the context of a pandemic. Although the findings regarding the measurement and antecedents of NR are promising, methodological limitations of the study are acknowledged. First, participants were largely from a limited geographical area and were derived from a convenience sample of adults, findings may not be generalizable to the population studied. To address this shortcoming, we suggest that future research can replicate our findings with larger and more diverse samples, including those from other regions and socioeconomic groups. Second, the survey was conducted during the early phase of the coronavirus pandemic and that participants' perceptions on NR may differ if data were obtained after the crisis. To remedy this limitation, we suggest that additional research can be conducted to investigate Filipinos' perceptions of NR after the pandemic. Finally, the factor structure and psychometric properties of the NRS-Filipino was initially examined based on data from one group of adults and collected at a single point of time. Additional research is recommended to determine the stability and generalization of the structural validity and technical adequacy of the NRS-Filipino across samples and times.

PEER REVIEW
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