Citizenship culture and collective efficacy; psychometric properties and relationships with crime and demographic factors in Mexican university students

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Abstract

Levels of Citizenship Culture (CC) and Collective Efficacy (CE) were measured in three Mexican cities. Participants were 1007 university students from Chihuahua, Guadalajara, and Puebla, with a mean age of 19.7 years, who were mostly women (65.1%). CC and CE scales showed high internal reliability and factor solutions relevant for the theories of each construct. CC and CE showed significant direct correlations (0.237, . <.001). Relationships were also found between these variables and socioeconomic status, age, and sex. Moreover, the inverse and significant relation between CC and CE with victimization and criminality was confirmed. The city with the lower CC and CE was Chihuahua, which, in turn, displayed the highest victimization and crime rates. Given that the subjects in this study were university students, results should be interpreted with caution as regards their external validation. However, these findings suggest the usefulness of these scales for performing diagnoses, formulating policies, and assessing actions and programs focused towards reducing violence and insecurity by strengthening solidarity, norm compliance, and citizen participation, which may contribute to the promotion of peace.

Keywords: CITIZENSHIP CULTURE, COLLECTIVE EFFICACY, CITIZEN SECURITY, VICTIMIZATION, CRIMINALITY.

Introduction

Citizenship Culture

The Citizenship Culture concept (CC) refers to "the set of shared minimum habits, actions, and rules which generate a sense of belonging; enable urban coexistence; and create respect for common heritage and recognition of civil rights and duties" (Decree 295, 1995 [own translation]). The goal of citizenship culture is that members of a community follow social and legal norms, as well as cooperate willingly through personal self-regulation and mutual interpersonal regulation (Decree 295, 1995; Mockus, 2003).

According to Mockus (2012), citizenship culture reflects the strength and harmony of three regulatory systems of human behavior: law, morality, and culture. In the Mockus framework, culture is group influence, among citizens. In this sense, the prevailing informal norms, behaviors. and attitudes in a social group will influence the manifestation of legal or illegal behaviors. Citizenship culture seeks to reduce moral and cultural justifications for illegal behavior and to increase moral and cultural support for the law. In the words of Mockus, the four objectives of citizenship culture are to "(1) increase compliance with norms of mutual interaction, (2) increase the number of citizens encouraging compliance with norms of mutual interaction, (3) increase the number of disputes peacefully resolved based on a shared vision of the city, and (4) increase the ability of citizens to communicate through art, culture, recreation, and sport. "(p.145). Citizenship culture seeks to enable the inhabitants of each city "to have equal access to the city and its resources, to exercise full citizenship, and to have the capacity to build their lives and to participate in the equitable development of the city" (Berney, 2010, p. 541).

CC is the conceptual basis of public policies which seek "to promote the wellbeing of citizens and the democratization of cities, through the transformation of citizens' behavior" (Ruiz, 2012, p. 5 [own translation]).

In 2008, the Inter-American Development Bank (IDB) recognized the issues concerning delinquency and insecurity in Latin America and proposed an approach drawn from CC to improve coexistence and security. To this end, the IDB sponsored a CC diagnosis in Colombia, Mexico, Ecuador, and Bolivia. The diagnosis yielded a CC level index ranging between -1 and 1 (Mockus et al. 2012). To assess CC, a survey was designed and administered in different cities. Although this survey has been adjusted over the years (Decree 295, 1995; Mockus, 2003; Mockus et al., 2012), it has five main dimensions: agreements, mutual regulation, rules, public probity, and constitutional security. The results of this diagnosis had shown a significant relationship between CC and citizen security, where the culture constitutes a fundamental pillar for coexistence and the reduction of violence within communities (Mockus et al., 2012).

From a psychosocial perspective, the concept of CC refers to a type of community dynamic in which voluntary compliance with the rules of public space is prioritized for the sake of the common good, and includes an attitude of participation in political activity that affects the neighborhood, and respect for other residents (Ruíz, 2007a, 2010). In order to assess this specific definition, Ruiz (2005) has developed a scale that has been administered in Latin American populations (Ruiz, 2005, 2007a, 2007b, 2010; Ruiz & Turcios, 2009; Sotelo & Ruiz, 2012), with Cronbach's alpha values of between .91 and .93. This instrument has shown that places with the most CC display the lowest perceived risk of victimization (Ruiz 2007a, 2007b), fewer social issues (such as illiteracy and famine) and fewer instances of family victimization (Ruiz, 2007b). Furthermore, a positive relation between CC or CE and satisfaction with the police has been found (Ruiz, 2007a, 2007b), together with a better perception of the emotional climate. Among university students, a high CC has been associated with a lower fear of crime and higher satisfaction with police action (Ruiz, 2007b; Ruiz & Turcios, 2009).

Collective efficacy

Collective efficacy (CE) refers to a community's beliefs regarding its capacity to cope with different situations, as well as to commit to the achievement of collective goals or undertake tasks, despite the obstacles that may arise (Carroll et al., 2005).

Collective efficacy is of particular importance, because it is a psychosocial process that has been identified as a protective factor against perceived insecurity, violence, criminality, and public health issues (Sampson, 2003). Thus, the higher the perceived collective efficacy, the greater the sense of belonging to the community and active member participation (Carroll et al., 2005).

In order to assess CE, Carroll & Reese (2003, as cited in Carroll, Rosson, & Zhou, 2005) proposed the Community Collective Efficacy (CCE) scale, which has been adjusted and administered among the Hispanic population (Ruiz, 2010). In university students, this variable is associated with less fear of becoming a victim inside and outside the home, less fear of the place of residence, and a lower perceived probability of being the victim of a crime (Ruiz, 2010), as well as lower criminality rates at the regional level (Espinosa & Ruiz, 2012), fewer homicide reports (Ruiz, 2016) and higher levels of satisfaction with the police (Ruiz, 2019).

The Mexican Context

Global peace indexes in the past ten years have ranked Mexico unfavorably, ranging from 98th in 2008 to 140th in 2017, 137 th in 2019 th and 140 in 2020 [1]. Mexico ranks last in the Central American and Caribbean region (Institute for Economics and Peace, 2018a, 2020a, 2021). These data reflect the national situation in 25 of the 32 states that have seen a decline in peace levels, coupled with a 15% increase in the crime rate in 2017 (Institute for Economics and Peace, 2018b, 2020b).

An official record of 1,817,916 ordinary crimes at the state level shows that assault, homicide, theft, sexual and domestic violence have steadily risen (Executive Secretariat of the National Public Security System, 2018). These data are similar to those of 2020 with 1,841,202 offences registered in Mexico (Executive Secretariat of the National Public Security System, 2020). According to the National Survey on Crime Victimization and Perception of Public Security (ENVIPE), in 2016, there were 24,200,000 victims within the country, as a result of 31,100,000 crimes [2]; 74.3% of the population over 18 years felt unsafe; and 61.1% considered insecurity and delinquency to be the country's main problems (INEGI, 2017). In 2019, 22.3 million victims were estimated, 79% of the population above 18 years felt unsafe, and 68,2% regarded insecurity as the main problem in the country (INEGI, 2020).

Even though the Mexico Peace Index showed an increase from 28% in 2013 to 34% in 2017 of people who reported that they had cooperated with their community to prevent crime (Institute for Economics and Peace, 2018b), citizen collaboration must still be strengthened in this regard. For example, 69% of youths who have taken part in acts of violence with firearms mentioned that neither member of their community nor the local police responded in any way to the incident. This is especially important if we recall that the most peaceful states are also the ones with the largest numbers of community members who report that they have cooperated to prevent crime. According to the same report, the trust community members place in their local police and governments, as well as their willingness to collaborate with them, have an inversely proportional relationship with crime and corruption levels within local institutions (Institute for Economics and Peace, 2018b).

Regarding CC, in the diagnosis conducted by the IDB, Mexico City and Monterrey both ranked low as regards CC indicators, with indexes of -.03 and -.05 respectively, in comparison with lower indexes such as those in La Paz, Bolivia (-.09) and Quito, Ecuador (-.06), as well as with other positive indexes in which CC was being consolidated, as in the cases of Bogota (.06) and Medellin (.08). According to the same study, the greatest weakness in Mexican cities was found in public probity and norms. Probity measures showed a low rejection of bribery and low credibility in public servants and citizen integrity. As for norms, limited rejection

of illegality and violence was found, together with the perception that the authorities fail to regulate these issues. A low perception of a harmonious relation between law enforcement and the habits and awareness of citizens was also identified (Mockus et al., 2012).

In the city of Monterrey, similar surveys were undertaken between 2010 and 2015. Data from these surveys pointed to an increase in interpersonal trust among citizens, willingness to compromise, participation in city matters, trust in the authorities, and security (Corpovisionarios, 2015).

In 2010, the first Survey on Citizen Security was undertaken in the city of Cuernavaca. The results indicated that neighborhoods with high levels of CE have a low perception of insecurity and that the perception of insecurity has more to do with the lack of a sense of belonging and less with actual crime rates (Valenzuela, 2012).

The scale in Ruiz (2005, 2007a, 2007b) has not been previously implemented in Mexico. In addition to the study conducted by the IDB, evidence on CC in this country has been scarce. The results of the administration of the Ruiz scale (2005) have shown that measurement of citizenship culture can be an indicator of the presence of perceived social problems in the city environment, including perceptions of common crime, drug trafficking, hunger or health problems in five Latin American countries (Ruiz & Turcios, 2009), experiences of personal criminal victimization (Ruiz, 2007a, Ruiz & Turcios, 2009), fear of crime (Ruiz, 2007b, Ruiz & Turcios, 2009) and satisfaction with the police (Ruiz, 2007b; Ruiz, 2010). All these aspects are essential to determining the correlates of violence in Mexico.

Little exploration in citizenship culture, as it has been defined and assessed according to this scale, has been done in this context. Instead, studies have emphasized political culture, citizen participation, and democratic culture in relation to the political and cultural relation between citizens and institutions (e.g. Duarte & Jaramillo, 2009; Tejera, 2006, 2011). These studies reveal that just over 10% of Mexicans belong to or participate in one or more organizations, such as parents' associations, neighbors' associations, and sports and religious associations. Citizen participation increases when community interests are severely affected. However, what tends to happen is that tensions and conflicts between neighbors and neighborhoods hinder rapprochement between neighbors, especially in urban areas (Tejera, 2007, 2009, 2011).

Even though this line of research in Mexico has included aspects related to CC and CE, there are no previous studies available in which these two constructs have been assessed with the definitions and the criteria of the present study. In this respect, it is important to have instruments adapted to Mexico, which make it possible to study the CC and the EC, and their relationship with the prevalence of violence and its effects.

In accordance with the relationship found in previous studies between CC, CE and crime rates, fear of crime, citizen participation in community problem-solving, and norms, an assessment of these constructs was carried out within the Mexican context in a population of university students in Chihuahua, Guadalajara, and Puebla.

Given these considerations, the promotion of community cooperation and care, as well as norm compliance focused on participation and teamwork, become a priority. To this effect, citizenship culture and collective efficacy become especially relevant as processes that reinforce values that work as psychosocial antidotes against violence.

The first goal of this study is to identify the psychometric properties of the brief Citizen Culture (CC) scale and the collective community efficacy (CE) scale designed by Carroll et al. (2005), in Mexican samples. The long version of the CC (Ruiz and Turcios, 2009) and CE (Ruiz, 2019) scales proved to have internal reliability in university students from various Latin American samples: México, Argentina, Brasil, Venezuela, Peru, El Salvador, Bolivia, Costa Rica, Guatemala, and Paraguay. Internal reliability of CE ranged from 0,64 (Spain) to 0,97 (Colombia), and direct correlations between CE and satisfaction with police were found in three of five countries (Ruiz, 2019). CE showed a four factor structure (Carroll et al., 2005). Furhermore, CC scale internal reliability was 0,92 in a combined sample from five countries, with six dimensions, according a principal components analysis with university students and adults (Ruiz, 2007). In our knowledge, there are

not CE scale factor analysis in Latin-American countries, and the factor structure of CC could be different respect to Ruiz (2007), on account of the very short size of his sample (n: 253). A second objective is to explore the role of sociodemographic variables such as age and gender in perceptions of CC and CE. Third and last, the aim is to identify the association between CC and CE and criminal violence indicators, at the individual and aggregate level by city.

Methodology

Participants

A cross-sectional and exploratory study was undertaken with the participation of 1007 university students in three Mexican cities (Chihuahua, with 19.8%; Guadalajara, with 40.4%; and Puebla, with 39.9% of subjects) from the fields of criminology, psychology, law, and health sciences. In Guadalajara and Puebla, the study was administered at public universities, whereas in Chihuahua it carried out at a private university. The mean age of participants was 19.7 years (IC 95%: 19.5 – 19.83), and they were mostly women (65.1%), single (above 93%), and middle' class (86.4%). Social class was defined by the participants themselves. However, we must consider that they have sufficient family financial resources to go to university, pay for transportation, food and buy school supplies. According to some sources, the middle class in Mexican society accounts for 34% of the general population, but these percentages are not self-reported.

Instruments

The following instruments were implemented:

a) Citizenship Culture Scale (CCS): this consists of 19 items, each with four possible answer options, in which the respondent must indicate how often they perceive a series of behaviors among fellow citizens where they live (ranging from 1 = never to 4 = always). For instance, items in this scale include 7-Inhabitants love their city; 10-There is a feeling of unity among city residents, 17-People respect laws because they believe this is best for everyone. This scale was previously developed by Ruiz (2005) in a version with 35 items and a reliability of .91. Furthermore, it has been implemented in Colombia (whole scale, Ruiz, 2007a, 2007b, 2010; abridged version, Sotelo & Ruiz, 2012) and in Spain, El Salvador, Argentina, and Peru (Ruiz & Turcios, 2009), with values for internal reliability of between $\alpha = .91$ and $\alpha = .94$. In Colombia, the abridged 19-item version obtained an internal reliability above .90 (Ruiz, 2012).

b) Collective Efficacy Scale (CES): a 17-item scale on dynamics within the community. The respondent must indicate the extent to which they consider each aspect occurs within the community (ranging from 1 = strongly agree to 4 = strongly disagree). Some scale items include 1-As a community, we can handle mistakes and setbacks without getting discouraged; 5-We can resolve crises in the community without any negative after effects, 10-Our community can cooperate in the face of difficulties to improve the quality of community facilities, or 14-People in our community can continue to work together, even when it requires a great deal of effort. The original scale shows satisfactory internal reliability (α: .90, in Carroll et al., 2005). In Colombian subjects, the scale has yielded coefficients of between .87 and .90 (Espinosa & Ruiz, 2012; and Ruiz et al., 2012, respectively; Ruiz-Pérez, 2019). At the department level, a relationship has been found between higher rates of collective efficacy and fewer reports of homicide (Ruiz, 2016).

c) Sociodemographic profiles of the subjects: age, sex, socioeconomic status divided in three socio-economic classes (middle, lower, and upper-class), marital status, and occupation.

d) Crime victimization indicators: a number of experiences with crimes, in which students were victims, were made available for this study. Based on an initial list of sixteen crimes, five types of associated crime victimization were identified using cluster analysis (Chan, et al., 2017). The resulting criminal typology was

categorized as follows: family deaths and kidnapping, sexual aggression and harassment, road traffic injuries (which occurred to oneself and/or to a family member), theft with a street chase, and extortion through obscene phone calls.

e) Crime indicators: figures from the Index of Municipal Violence were used, together with the homicide rate, reported by the Citizen Council for Public Security and Criminal Justice (2016).

Procedure

In the beginning, the Civic Criminal Scale (Sotelo & Ruiz, 2012) and the linguistic expressions and content of the Collective Efficacy Scale (Espinosa & Ruiz, 2012; Ruiz et al., 2012) were revised and adjusted for a Mexican population. It was subsequently adjusted for virtual implementation, with the use of the Surveymonkey software.

The electronic survey was carried out in a computer laboratory. Each computer had the link to access the survey on screen, which would notify the user about their informed consent and confidentiality safeguards. The basic criteria for inclusion were to be a student at any of the participating universities in any of the undergraduate programs to which the participating professors and collaborators had access. It did not matter what semester these students were studying.

Ethical considerations

The ethical aspects of this study were established in accordance with the guidelines set forth by the Declaration of Helsinki (2013) and the Sociedad Mexicana de Psicología (2007), as well as studies conducted specifically in virtual contexts (Hoerger & Currell, 2012). Prior to the implementation of the instruments, the nature and the goals of the study were explained to participants and a special item regarding informed consent was included. They were asked to answer this item with whether or not they agreed to participate. If someone answered negatively, their participation would be cancelled. Participants' confidentiality and the anonymity of their data were previously guaranteed. Furthermore, they were informed that this data would be analyzed collectively for academic and research purposes. Their participation in the study was completely voluntary and they received no compensation.

Results

Citizenship Culture Scale (CCS)

First, the internal reliability of the CCS and the homogeneity of each item in relation to the rest of the scale were calculated. Cronbach's alpha coefficient yielded .90 for the entirety of the scale, with correlations between each item and the rest of the scale (with homogeneity indexes of between .509 and .606), which can be considered satisfactory.

As for the factorial structure of the CCS, Bartlett's and KMO's sphericity coefficients indicate that it can be subjected to factor analysis (see Table 2). Thus, the number of factors to be extracted from the scale was determined through a parallel analysis following the method used by Lorenzo-Seva et al. (2011, as cited in Domínguez et al., n.d.), which yielded a three-factor solution. Next, a principal component analysis of the CCS was conducted on three factors. The eigenvalues, variance percentage, and factor loadings of these factors for each item are shown in Table 1.

Table 1

Principal components analysis with oblimin rotation matrix straight from the CCE scale.

Bartlett: (171) = 6324, p <.0001

KMO: 0.932

ITEM	Factor 1	Factor 2	Factor 3
1. Fellow citizens act with solidarity and collaboration	.813		
2. In general, basic norms of citizen coexistence are respected	.793		
3. People act with loyalty towards the city	.680		
4. There is respect towards fellow citizens	.602		
5. The inhabitants take care of their city		.403	
6. People act responsibly towards their city		.351	
7. People love the city			.617
8. Citizens care about the wellbeing of others			.319
9. The inhabitants value this place			.618
10. There is a sense of union among the people who live here			.619
11. Citizens are committed with the place where they live			.516
12. People partake in projects and activities related with the development of the city		.334	.463
13. The inhabitants identify with the city			.819
14. People feel affection towards the city			.857
15. Citizens display tolerance towards each other		.608	

Table 1

According to the factor loadings on each axis, the first aspect refers to Citizenship culture values, such as solidarity, collaboration, loyalty, and respect. The second dimension also includes several items related to respect, but, in this case, they have more to do with Motives for complying with norms; in this case, compliance with city norms is done voluntarily, without any need for coercive action from the police, for example. Lastly, the third factor includes elements of city Belonging and Affection, in the sense that when there is positive affection towards the city, there is also a sense of belonging. At the same time, a sense of belonging to the city leads to a sense of affection towards it. The three-factor model yields an RMSR of 0.056, a little over the expected ideal fit (0.034). With this result in mind, the total score of the scale and the three scores obtained from each of the factors will be considered for subsequent analysis.

Collective Efficacy Scale (CES)

For the CCS, an internal reliability of $\alpha = .91$ was obtained, while the homogeneity indexes of each item in relation with the rest of the scale ranged between .512 and .641. Regarding the factorial structure of the scale, KMO's and Bartlett's sphericity coefficients were satisfactory (see Table 2). In accordance with the parallel analysis performed according to the method used by Lorenzo-Seva et al. (2011, as cited in Domínguez et al., n.d.), a three-dimension structure is suggested, with an RMSR coefficient of .0569. Through a principal component analysis (Table 2), it was found that the first axis includes the aim of improving education coverage for special groups and service coverage for elderly and disabled people, as a result of which it is called Citizen care. The second factor includes ideas related to the active commitment of the community to air and water care, crisis regulation within the community, collaboration in the face of obstacles, and engagement with community goals. This factor was called Autonomy. The third axis, it involves lawmaking, resource generation, and the promotion of tourism without the loss of self-identity. Because this factor has to do with the self-regulation of the community, it can be labelled Self-Regulation. Parallel analysis of the same scale with Horn's method yields a similar result.

Table 2

Principal components analysis, oblimin rotation matrix straight from the CCE scale.

Bartlett: (171) = 7104.9, p <.0001

KMO: 0.9201

ITEM	Factor 1	Factor 2	Factor 3
1. Our community can enact fair laws, despite conflicts within the country			.731
2. I am confident that our community can create adequate resources to develop new jobs despite changes in the economy			.850
3. Our community can present itself in ways that increase tourism while maintaining its unique character			.802
4. Despite occasional problems with the economy, we can assist economically disadvantaged members of our community			.396
5. We can resolve crises in the community without any negative aftereffects			.309
6. I am convinced that we can improve the quality of life in the community, even when resources are limited or become scarce			.429
7. We can greatly improve the roads in our city, even when there is strong opposition from some	.472		.402
8. Despite a growing population, our community can preserve parklands in our city	.397		.443

Table2

Based on preliminary results, some global indicators regarding citizenship culture and collective efficacy were calculated, together with partial indicators based on the factorial dimensions identified during the factor analysis of each scale. In the case of citizenship culture, item 12, with loadings in two factors, was added to the dimension in which it had the most loading (third axis). For the collective efficacy scale, items 4 and 7 were added to factor 2 (Autonomy), and item 14 was added to the first factor (Citizen care), because they all displayed the most loading in each respective factor. The descriptive statistics (mean and standard deviation) of the total scales and subscales of citizenship culture and collective efficacy can be observed in Table 3. The means provide an indication of the aspects within citizenship culture and/or collective efficacy perceived as more or less frequent.

Table 3

Internal reliability of the Citizenship culture and Collective Efficacy scales

Scale	N	Mean and standard deviation	α
Citizenship culture	968	2.27 (0.41)	.902
Civic values	1034	2.33 (0.49)	.845
Motivation	1005	2.17 (0.47)	.884
Belonging-Affection	1004	2.32 (0.49)	.880
Collective efficacy	925	2.62 (0.55)	.912
Citizen care	990	2.75 (0.70)	.899
Autonomy	982	2.79 (0.62)	.873
Self-regulation	966	2.33 (0.64)	.880

Table 3

Relations between scales and criminal violence indicators

On the one hand, significant, direct correlations were found between citizenship culture indicators, collective efficacy indicators, and both scales (see Table 4). Specifically, the correlation between citizenship culture and collective efficacy is r (867): ,237, p <.001, which equals 5% variance between both indicators.

Table 4

Correlations between citizenship culture and collective efficacy indicators (n between 867 and 972)

Scale	Values	Motives	Belonging	Collective efficacy	Citizen care	Autonomy	Self-regulation
Citizenship culture	.755***	.871***	.890***	.237***	.138***	.198***	.256***
Values		.579***	.515***	.178***	.123***	.148***	.188*
Motives			.614***	.196***	.111***	.147***	.240***
Belonging				.220***	.135***	.190***	.215***
Collective efficacy					.802***	.888***	.859***
Citizen care						.589***	.567***
Autonomy							.608***

*** $p < .001$

Table 4

An analysis of these factors by city reveals that, in Chihuahua, there is a lower perception of citizenship culture, and particularly of civic values. Regarding collective efficacy, it is also the city with lowest levels of collective efficacy in the autonomy dimension, even though it is the city with the most active participation in community issues (see Table 5, with F for equality of variance among groups). Intraclass correlation coefficients (Shieh, 2016) and Cohen d effect sizes (Bujang & Baharum, 2017) were computed to confirm city effect. For ICC1, results were not significant (Citizenship culture ICC1: 0,010; collective efficacy ICC1: 0,002), so differences between cities should be explained by factors other than the city. ICC1 formula was used with correction for "n" when there are differences between samples sizes (Ruiz, 2014). Regarding effect sizes, Cohen d effect sizes were calculated by each city pairs: coefficients showed a low effect size between Chihuahua and Puebla (d: 0,15) and Chihuahua and Guadalajara (d: 0,24), and a very low effect Puebla-Guadalajara (d: 0,09).

Table 5

Variance analysis of citizenship culture and collective efficacy indicators by city.

Variable	Puebla (n = 362)	Chihuahua (n = 188)	Guadalajara (n = 389)	F
Citizenship culture	2.26 (0.43)	2.20 (0.36)	2.30 (0.40)	(2.936) = 3.73*
Civic values	2.32 (0.49)	2.25 (0.48)	2.37 (0.48)	(2.999) = 4.10*
Autonomy (EC)	2.79 (0.61)	2.67 (0.67)	2.87 (0.58)	(2.971) = 6.80***
Self-regulation (EC)	2.32 (0.64)	2.47 (0.67)	2.28 (0.61)	(2.955) = 5.56**

* p <.05; ** p <.01; *** p <.001

Table 5

On the other side, regarding sociodemographic variables, it was found that higher social status is associated with a higher perception of citizenship culture [r (941) = ,142, p. <.001] and collective efficacy [r (919) = ,119, p. <.001], as well as high scores in all subscale indicators (p. between .01 and .001). Older age is associated with a lower perception of citizenship culture, at the global level [r (939) = .89, p. <.01], the level of values [r (1002) = ,091, p. <.01], the level of motives [r (975) = .082, p. >.05], and the level of belonging-affection [r (973) = ,076]. Interestingly, there was no significant correlation between age and the dimensions of collective efficacy. Lastly, men showed a higher level of belonging [r (974) = ,069, p. <.05, women: 1; men: 2].

Regarding the relationship between the scales and crime indicators, on the one hand, figures from the 2015 Municipal Homicide Rate for the cities of Puebla, Chihuahua, and Guadalajara (Citizen Council for Public Security and Criminal Justice, 2016) were taken into account. These data, together with the collective efficacy and citizenship culture measures, were included in Table 6, which shows that the city with the lowest indexes of citizenship culture and collective efficacy also have the highest homicide rate.

Table 6

Scores for citizenship culture and collective efficacy, Municipal Homicide Rate in Mexico, 2015.

City	Citizenship culture	Collective efficacy	Homicide rate
Chihuahua	2.89	2.2	16.31
Guadalajara	3.13	2.3	13.89
Puebla	3.09	2.26	4.89

Table 6

Lastly, in order to determine the concurrent validity of both citizenship culture and collective efficacy, correlations were established for these indicators and the crime victimization indicators mentioned in the instrument section. As shown in Table 7, in general, higher perception of criminality is associated with lower perception of citizenship culture and collective efficacy. However, if each victimization indicator is considered a criterion variable, regression analysis shows that the weight of the demographic indicators is low: between 1% and 3% of variance explained (see Table 8).

Table 7

Pearson correlations between citizenship culture and collective efficacy indicators with crime victimization

	Violent deaths and kidnappings	Sexual aggression and harassment	Road traffic injuries	Theft and persecution	Extortion and obscene phone calls
Citizenship culture	-.087***	-.124***	-.123***	-.159***	-.126***
Civic values	-.107***	-.093**	-.131***	-.150***	-.127***
Motives	-.059 ns	-.087**	-.074*	-.115***	-.064*
Belonging-Affection	-.050 ns	-.118***	-.097**	-.135***	-.129***
Collective efficacy	-.067*	-.110***	-.090**	-.120***	-.140***
Citizen care	-.073*	-.088**	-.099**	-.095**	-.96**
Autonomy	-091**	-.199***	-.085**	-.101**	-.139***
Self-regulation	.001 ns	-.052 ns	-.068*	-.100**	-.089**

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

Table 8

Stepwise linear regression analysis on crime victimization indicators

Criterion variable	Predictor variable	Standardized Beta	R2 Adjusted	t	Equation
Violent deaths and kidnapping	Civic values	-.110	1%	-3.24***	F(1.855) = 10.50***
Sexual aggression and harassment	Belonging and affection	-.107	2%	-.12**	F(1.862) = 10.18***
	Autonomy	-.089		-2.59**	
Road traffic injuries	Civic values	-.138	1.8%	-4.096***	F(1.860) = 16.78***
Theft and persecution	Civic values	-.096	3.1%	-2.41*	F(3.859) = 10.11***
	Belonging	-.082		-2.04*	
	Autonomy	-.074		-2.16*	
Extortion and obscene phone calls	Belonging	-.105	2.8%	-3.07**	F(1.860) = 13.40***
	Autonomy	-.120		-3.49***	

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

Table 8

Discussion

Mexico ranked 59th out of 163 countries in the Positive Peace Index (PPI), "with a better overall score than both the global and the Central American and Caribbean regional averages" (Institute for Economics and

Peace, 2018b, p. 41). When a country ranks higher in the PPI than the GPI (Global Peace Index), this indicates that it has the potential to improve its levels of peacefulness (Institute for Economics and Peace, 2018b); the present study seeks to contribute to this goal.

In the context of violence and low peace indexes in Mexico, collecting information that may help reduce these issues is essential. The CC and CE scales constitute useful tools in the Mexican context for the constant assessment and measurement of community processes that help strengthen solidarity, compliance with norms, participation, and autonomy in problem-solving. These positive community characteristics can contribute to decreasing violence and insecurity and, better still, promote peace.

Regarding the first objective of this study, the psychometric properties of the CC and CE scales display high levels of internal reliability with coefficients of .90 for the former and .91 for the latter, suggesting that these scales can be used with Mexican university students. These data are consistent with those collected previously in Colombia, where Cronbach's alpha values for CC were found to be .91 (Ruiz, 2005), .93 (Ruiz, 2007a, 2007b), and .94 (Ruiz, 2010). In regard to CE, the level of internal reliability in this study is also similar to that reported in previous studies with values of .90 (Carroll & Reese, 2003, as cited in Carroll, Rosson, Zhou, 2005; Espinosa & Ruiz, 2012).

In Ruiz (2007a), it was suggested that a study with a larger sample be carried out to clarify the factorial structure of the CC construct, which might—as was hypothesized—yield a one-dimensional solution as a result. In Mexico, a larger sample than the one in previous studies (n = 1007) was made available. For example, in Ruiz (2007a), the sample size was n = 253. Sample sizes could explain the differences in factorial structure. Moreover, the strong direct correlations between CC and CE levels in the current study and others (Ruiz, 2010; Ruiz & Turcios, 2009; Ruiz-Pérez, 2019) raise another point: are CC and CE different constructs or can one be a component of the other? This question should be studied in future research since it goes beyond the purpose of the present study. Likewise, it is worth continuing to explore the relationship between CC and CE, and homicide rates.

As for the CE scale, the three-factor solution found in this study largely coincides with the four-factor solution found by Carroll et al. (2005), with a smaller sample (n = 146). In the case of the present article, with a sample almost six times larger, it follows that the structure should be simplified to three factors: care, cooperation, and autonomy, with the second factor from Carrol et al. (2005) being distributed among axes 1 and 2 of the present result. Moreover, the structure coincides with the factors previously identified in the model developed by Ruiz et al. (2012) within the Hispanic population.

Since CC surveys are generally used to identify and monitor cities that have made the construction of citizenship a key element of their public security policy, the measurements yielded by this type of constructs are useful for comparing communities and identifying areas where changes for the promotion of more peaceful, democratic societies can be implemented (Corpovisionarios, 2015; Mockus et al., 2012).

As a second objective of this research on the assessment of the association between CC, CE, and socioeconomic status, the results in this study indicate that, as in previous studies (Ruiz, 2010), the higher the socioeconomic status, the higher the levels of CC and CE. This fact requires the social scientists to continue shedding light on poverty and to continue intervening to narrow social gaps. It is important to point out that 53,400,000 people in Mexico (a third of the country's population) live in poverty (CONEVAL, 2018). According to the Standardized World Income Inequality Database (2016) and the Global Wealth Report (2014), as cited in Esquivel (2015), Mexico is within the 25% comprising the most unequal countries, 21% of Mexico's total income belongs to the wealthiest 1% in the country, while the richest 10% owns 64.4% of the country's wealth. Whereas the number of millionaires in Mexico grew by 32% between 2007 and 2012, in the rest of the world, the number decreased by 0.3% (Esquivel, 2015). Even though this context permeates the levels of CC and CE in the country, the opposite effect can occur: if CC and CE are strengthened, inequality between Mexicans could decrease. This issue should be addressed in subsequent research.

Moreover, the fact that higher CC is reported for younger ages may indicate that efforts in civic and citizen education (Flórez, 2011) are bearing fruit in the upcoming generations of Mexicans. This is particularly true in the group of Mexican university students who were active students in the past decade. This hypothesis is valuable and hopeful and should therefore be addressed in future research within this line of inquiry.

In regard to the fact that men show a stronger sense of belonging than women, given the evidence of an inverse association between CC and CE and the perception of security (Ruiz, 2007a, 2007b; Ruiz et al., 2012; Valenzuela, 2012), the fact that women feel more insecure in public as well as private places (INEGI, 2018) could influence this result.

Lastly, with respect to the third objective of the present study, data confirm the significant inverse relationship between crime victimization, CC and CE that has been found in previous studies (Ruiz, 2007b, 2016). This finding is consistent with the result showing Chihuahua to be the city with the least CE, particularly as regards the autonomy factor, at least at the individual level, because the ICC1 of CC and CE failed to show a group effect. Chihuahua is ranked 26th in Mexico's peace index, while Jalisco and Puebla are ranked 15th and 7th respectively (Institute for Economics and Peace, 2018b). Furthermore, according to data from the ENVIPE (INEGI, 2017), 74.2% of Chihuahua citizens feel insecure, as opposed to 65.7% in Jalisco, and 68.1% in Puebla. In keeping with this information, in an earlier study, significant differences were found in Chihuahua in comparison with Guadalajara and Puebla regarding victimization reports by university students (Chan et al., 2017). The results of this study showed a consistent pattern. There were more victimization reports by Chihuahua students, followed by Puebla students, in 15 out of 16 victimization indicators, with a higher victimization mean in the former state. In the same study, some aspects, such as sexual aggression and harassment, increased two-, three-, or five-fold in Chihuahua, in comparison with Puebla and Guadalajara.

Moreover, the correlations between scale scores and objective violence indicators (Citizen Council for Public Security and Criminal Justice, 2016) show that responses to the scales can be considered indirect indicators of generalized criminal violence and its effect on the social network. It is striking that, in Chihuahua, despite the low collective efficacy and a low autonomy factor, there was a higher score in the factor related to active participation in community issues. This could be explained as a collective response mechanism to the violence present in this context, and possibly the activity of Non-Governmental Organizations.

Finally, we would like to point out certain limitations of the present study. First, the samples are not representative of the cities or the country in which the research was conducted. This issue affects the external validity of the measurements of psychological constructs such as EC and CC. Caution must therefore be exercised in generalizing results when comparing cities, especially when the effect sizes found in each pair of cities are weak. However, it is important to recognize the usefulness and legitimacy of using samples consisting exclusively of university students to build indicators representative of regions of societies (Páez & Vergara, 2000). In this respect, the literature suggests finding theoretically coherent relations between psychosocial indicators at the aggregate level and macro-objective indicators, since people ultimately inhabit contexts and perceive social realities. For example, the pioneering efforts of Hofstede (1991, 2011) to culturally describe over 50 countries were based on surveys of IBM employees in each of these societies. It is important to consider the differences that could exist in the answers to these scales in different populations from those in this research. It is necessary to continue this line of research to include other population groups in specific communities.

Second, although the results of the present study show correlational relationships between CC, CE and objective violence indicators, these data must be observed with caution. These correlational results could be moderated by other variables. For example, factors such as the perception of the police have been found to play a greater role in crime reduction than collective efficacy (Xu et al., 2005). In futures studies, it would be important to consider this this of variables and their role in the relationship between CC, CE and

victimization. Apropos of this, Sampson (2003) wrote that high collective efficacy has an effect on a society with lower levels of criminality, but that high criminality causes a low level of collective efficacy. The results of the association with indicators of violence and victimization warrant further research.

Just as Carroll et al. (2005) proposed, the CE measurement is important for recognizing a community's capacities. If there are positive beliefs in CE, it is more likely that common goals will be pursued through collective actions, resources will be utilized better, and the community will be more persistent in coping with failure and producing quicker, more positive results for all its members. Conversely, high levels of insecurity or violence (such as organized crime) can hamper efforts to achieve community integration, collective efficacy and/or citizenship culture. In other words, when can collective efficacy reduce crime? Is it possible to build collective efficacy in communities with high levels of violence, not only in social environments with low or medium crime rates?

In this sense, the main limitation of this study is related to the cross-sectional design used. Ideally, the relationship between CC and CC with respect to crime should be tested longitudinally, especially through an intervention design that could determine whether an improvement in the constructs measured by these scales through the implementation of various programs reduces crime. Likewise, it would be useful to observe whether certain programs designed to fight crime have an effect on such constructs, or whether it is necessary to implement specific measures to improve citizen culture and collective effectiveness in addition to reducing crime itself.

The results of our study provide tools for assessing the levels and improvements of CC and CE, after any program or implementation strategy is put into effect, as well as their relationship with crime and victimization indicators. In addition, based on the factorial structure found in both scales, the proposed categories warrant further study and a more detailed analysis of indicators with respect to the two-way relationship between communities and security and peace.

1. [1] In 2008, the peace index was calculated for 143 countries. Between from 2017 and 2020, it was calculated for 163 countries.
[2] This data displays a dark figure of approximately 94%.

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Citizenship culture and collective efficacy; psychometric properties and relationships with crime and demographic factors in Mexican university students

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