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Individual Differences in Collectivism Predict City Identification and City Evaluation in Australian, French, and Turkish Cities

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Abstract
Collectivism is a sociocultural variable that predicts how people relate to social groups. Cities are social groups. Hence, collectivism should predict how people relate to cities. To test this prediction, the researchers sampled 1,660 residents of four cities in three countries. Participants completed an online survey containing measures of collectivism, city identification, and city evaluation. Results showed that, within each city sample and across the combined samples, a specific measure of collectivism called collective interdependent self-construal was positively related to city evaluation. Furthermore, city identification mediated the relation between collective interdependent self-construal and city evaluation. These results demonstrate that people's general tendency to construe social groups as part of their self predicts their identification with their city, which in turn helps to explain their positive appraisal of their city. These results are discussed from the perspectives of both environmental psychology and social psychology.

KEYWORDS: city identification; city evaluation; collectivism; place attachment; place identification.

"Maybe it's because I'm a Londoner, That I love London so, Well, maybe it's because I'm a Londoner, That I think of her wherever I go." (Hubert Gregg, 1947, English songwriter).

1. Introduction

Hubert Gregg's (1947) opening verse about London neatly captures the relations between his residency in a city, his evaluation of the city, and the extent to which the city has become a part of him. But are these relations specific to cities or are they part of a wider set of social psychological processes that apply to social groups in general and, if the latter, what broader social psychological constructs predict city identification and city evaluation? The present research addressed these questions by investigating individual differences in collectivism as a potential predictor of city identification and evaluation. We begin with a discussion of city identification and city evaluation and then move on to consider how collectivism might relate to each of these variables.

1.1. City identification

There has been a wealth of research on place attachment and place identification or place identity (for reviews, see Droseltis & Vignoles, 2010; Lewicka, 2011; Rollero & De Piccoli, 2010; Scannell & Gifford, 2010). In the present research, we focused on identification and attachment to *cities* because, unlike other places such as homes, neighbourhoods, regions, countries, etc., cities represent prototypical "places" (Tuan, 1975), and they contain large and dense groups of interacting people. Consequently, they are ideally suited for the investigation of place identification and attachment.

A common complaint in the area of place identification and attachment is that the vast array of closely-related constructs and definitions make it difficult to see the forest for the trees, and this confusion often leads researchers to become "stuck in definitional questions" (Lewicka, 2011, p. 208). Despite these potential problems, it is important to locate the concept of *city identification* within the literature on place attachment and identification. In this context, we define city identification as an ongoing process that combines place identification and place attachment. The place identification aspect relates to "membership of a group of people who are defined by location" (Twigger-Ross & Uzzell, 1996, p. 206). More specifically, city identification involves the incorporation of the city as a social group into one's social identity (Bernardo & Palma-Oliveira, 2016; Droseltis & Vignoles, 2010; Twigger-Ross & Uzzell, 1996). City identification also involves place attachment, which refers to feelings of being bonded to a place and its people (Rollero & De Piccoli, 2010; Zenker & Petersen, 2014). Hence, we conceptualised city identification as involving both identification with, and attachment to, other residents and the city as a whole.

It is important to distinguish city identification from the *personal autobiographical experience* of a city (i.e., "place of mine;" Knez, 2014). City identification refers to the *process* of attachment and affiliation that leads to current feelings of identification. In contrast, personal autobiographical experience about a city refers to the longterm *outcome* of the identification process. This autobiographical outcome is a relatively stable and continuous aspect of the self-concept that is based in memories related to the city (Casey, 2000; Knez, 2014). The current article focuses on the process of city identification rather than on its longterm effect on personal autobiographical experience or identity. In particular, the present article focusses on the effect of city identification on city evaluation.

1.2. The effect of city identification on city evaluation

According to social identity theory, people are motivated by a need for self-esteem to achieve and maintain a positive social identity (Martiny & Rubin, 2016). One means of achieving a positive social identity is to favour one's own social groups, and people who identify highly with their social groups should be most likely to engage in this ingroup favouritism because they have the most to gain in terms of self-esteem (Martiny & Rubin, 2016). Based on this social psychological perspective, there should be a positive relation between city identification and city evaluation: People who identify with their city should be more likely to evaluate that city positively.

There is a substantial body of evidence supporting the prediction of a positive relation between place identification and place evaluation (for a review, see Ramkissoon & Mavondo, 2015). For example, Rollero and De Piccoli (2010) found that residents of Turin in Italy who had high levels of place attachment described their city using more positive words than participants who had low levels of attachment. Similarly, Ramkissoon and Mavondo (2015) found a positive relation between place identification and satisfaction among visitors to the Dandenong Ranges National Park in Australia. Most recently, Bernardo and Palma-Oliveira (2016) found a positive relation between neighbourhood identification and satisfaction among residents of a neighbourhood in Lisbon, Portugal.

In summary, place identification and evaluation are positively related, and this relation is consistent with social psychological theories of group processes. However, researchers are less clear about social psychological predictors of city identification and evaluation, and it is to this issue that we now turn.

1.3. Collectivism as a predictor of city identification and city evaluation

Prior research has identified the demographic variables of gender, age, education level, and especially length of residency as predictors of place identification and attachment. Specifically, women, older people, less educated people, and people with longer residencies show higher levels of place attachment or identification (Fleury-Bahi et al., 2008; Rollero & De Piccoli, 2010; for a review, see Lewicka, 2011). However, only three studies have considered *social psychological* predictors of place identification and attachment (Droseltis & Vignoles, 2010; Knez, 2005; Twigger-Ross & Uzzell, 1996). This research has been limited to a consideration of needs and motives. It has found that place identification and/or attachment are predicted by self-esteem, continuity, distinctiveness, efficacy, belonging, meaning, security, control, and aesthetic pleasure. Droseltis and Vignoles (2010) also found that several social anthropological variables operate as predictors (e.g., narrative, spiritual significance, and genealogical links). However, no prior research has considered *sociocultural* variables as predictors of place identification and attachment. Unlike more basic social psychological variables, sociocultural variables are inextricably embedded in culture and, consequently, tend to vary as a function of culture. The consideration of sociocultural predictors may be useful in the context of place identification and attachment because places and their inhabitants often differ in their sociocultural characteristics.

One of the most well-studied sociocultural variables is *collectivism* (e.g., Green, Deschamps, & Paez, 2005; Oyserman, Coon, & Kemmelmeier, 2002). Collectivism and its counterpart *individualism* are sociocultural orientations towards construing the self and others as group members or as individuals. People from nonWestern (nonEnglish-speaking) cultures tend to be more collectivist and less individualistic than people from Western cultures (for a review, see Oyserman et al., 2002). Nonetheless, there are also large individual differences in

individualism and collectivism within cultures (e.g., Kashima et al., 1995; Realo, Koido, Ceulemans, & Allik, 2002).

In the present article, we focus on collectivism, rather than individualism, as a predictor of city identification and evaluation for two reasons: First, the theoretical relation between collectivism and city identification is clearer than that between individualism and city identification. Unlike individualism, collectivism refers to thinking and behaving in relation to *social groups* (Roccas, Sagiv, Schwartz, Halevy, & Eidelson, 2008). Consequently, people who are more collectivist in their outlook should have a higher propensity to identify with their social groups, including the cities in which they live. Second, although we included measures of individualism in our research, our preliminary analyses showed that they did not yield reliable relations with city identification. Hence, for the sake of brevity, we do not focus on these results here. However, full details about the individualism results are available from the first author on request.

To our knowledge, no prior research has investigated the relation between collectivism and any form of place identification or attachment. However, one study has considered the relation between collectivism and city evaluation. Rubin and Morrison (2014) asked 148 Australian undergraduate students to take a virtual walk through one of four 17th and 19th century utopian cities (e.g., Campanella's, 1968/1602, City of the Sun). Specifically, participants watched a 2.5-minute narrated slideshow of a walk through an uninhabited city from a first-person perspective. Participants then completed several measures of individualism, collectivism, and city evaluation. The results showed that collectivism was positively and significantly related to participants' perceived environmental quality of the virtual city they had seen. However, Rubin and Morrison did not consider city identification as a potential mediator of the relation between collectivism and city evaluation. Given that collectivism shapes how people identify with social groups (Roccas et al., 2008), and cities are social groups (Twigger-Ross & Uzzell, 1996), it is possible that collectivism predicts people's evaluations of their cities by determining the extent to which they identify with their cities. In other words, city identification may mediate (statistically explain) the relation between collectivism and city evaluation.

1.4. Overview of the present research

Rubin and Morrison (2014) have shown that collectivism predicts city evaluation. However, as Rubin and Morrison conceded, a key limitation of their research is "that it lacked ecological validity because it involved nonresidents evaluating novel, historical, virtual, and unpopulated cities" (p. 366). The present research overcame this limitation by asking residents to evaluate their own real cities.

The present research also extended Rubin and Morrison's (2014) research by including a measure of city identification. This allowed us to test the following four hypotheses:
1. Collectivism should be positively associated with city evaluation (Rubin & Morrison, 2014).
2. Collectivism should be positively associated with city identification.
3. City identification should be positively associated with city evaluation (Bernardo & Palma-Oliveira, 2016; Martiny & Rubin, 2016; Ramkissoon & Mavondo, 2015; Rollero & De Piccoli, 2010)
4. City identification should mediate the relation between collectivism and city evaluation.

2. Method

2.1. Cities

Research participants were sampled from four cities that were located in three different countries: Newcastle, Australia; Sydney, Australia; Paris, France; and Istanbul, Turkey. These cities were selected on the basis of convenience of data collection: At least one member of the research team was located in each of these cities.

Information about each city is provided in Table 1. Notably, the four cities varied in their population size, density, diversity, and cost of living, some which have the potential to affect city identification (Bernardo & Palma-Oliveira, 2016; for a review, see Lewicka, 2011). This variability allowed us to provide a relatively strong test of the generality of our effects across a diverse range of cities.

Table 1
City Information and Participant Demographics

	Newcastle	Sydney	Paris	Istanbul	Combined sample
Country	Australia	Australia	France	Turkey	N/A
Population size	325,000	4,070,000	10,870,000	13,520,000	N/A
Population density (/km^2)	1,100	1,900	3,700	9,900	N/A
Cost of living	77.71	86.80	85.33	49.91	74.94
Sample size	402	378	441	439	1,660
Male participants	104 (25.87%)	107 (28.31%)	117 (26.53%)	145 (33.03%)	473 (28.49%)
Female participants	298 (74.13%)	269 (71.16%)	324 (73.47%)	292 (66.51%)	1,183 (71.27%)
Mean age of participants (SD)	21.96 (5.75)	24.87 (10.91)	27.01 (13.19)	23.50 (7.03)	24.40 (9.92)
Age range of participants	17 – 49	17 - 71	17 - 85	17 - 66	17 – 85
Ethnicity of participants	Caucasian: 332 (82.59%) Other: 62 (15.42%)	Caucasian: 196 (51.85%) Other: 173 (45.77%)	French: 401 (90.93%) Other: 40 (9.07%)	Turkish: 354 (80.64%) Other: 68 (15.56%)	Majority group: 1,283 (77.29%) Minority groups: 343 (20.66%)
Length of residency (SD)	9.60 (9.57)	19.19 (9.68)	13.05 (12.53)	18.20 (8.89)	15.01 (10.98)

Note. Population estimates and densities are sourced from Demographia World Urban Areas (2016). Cost of living data is sourced from Numbeo (2016) and represents an indicator of consumer goods price (groceries, restaurants, transportation and utilities) relative to New York. For example, a value of 70 means Numbeo estimates it is 30% less expensive than New York (excluding rent). Missing data accounts for values that do not sum to expected amounts. Note that it is not permitted to ask research participants for their ethnicity in France.

2.2. Participants

In general, participants were undergraduate students at universities that were located in the four cities. However, 74 participants from the Sydney sample and 155 participants from the Istanbul sample were recruited via websites and social media sites that were relevant to a broader range of residents (e.g., LinkedIn groups, Facebook, Twitter).

In total, we collected data from 1,778 participants. Of these, 32 participants did not respond to an informed consent item that was located near the end of the survey. A further 67 participants completed the survey but actively declined their consent. In addition, 12 participants indicated that they were aged 16 years or younger and were therefore judged to be of insufficient maturity to consent to participate in the research. Analysis of participant identification codes also revealed that four participants had completed the survey twice. The second completion was deleted for each of these participants. Finally, three participants from the Newcastle study indicated that had completed a similar study in the previous year. The data from these 118 participants were deleted, leaving a total of 1,660 participants. Table 1 provides participants' age, gender, ethnicity, and length of residency in each city sample and across the combined samples.

2.3. Measures

2.3.1. Individualism and collectivism. We included several measures of individualism and collectivism in our survey. These included the self-responsibility subscale from Realo et al.'s (2002) Three-Component Individualism scale, the assertiveness and collectivism subscales from Kashima et al.'s (1995) Collectivism scale, the Auckland Individualism and Collectivism Scale (Shulruf et al., 2011), and Gabriel and Gardner's (1999) Collective-Interdependent Self-Construal Scale (CISC). A preliminary analysis revealed that only the CISC showed replicable relations with city identification and city evaluation across the sample and within all four cities. Consequently, we focus on this measure as a specific measure of collectivism in the current article. However, information about the results for the other measures is available from the first author on request.

The CISC consists of 10 items that assess the extent to which social groups form an important part of people's self-concepts. Example items are "when I think of myself, I often think of the groups I belong to as well," and "when I join a group, I usually develop a strong sense of identification with that group." Participants responded to the CISC items using a 7-point scale anchored *strongly disagree* (1) and *strongly agree* (7).

2.3.2. City identification. City identification was assessed using a measure that was designed by ourselves. It consists of six face-valid items that are similar to items used in broader measures of social identification (e.g., Milanov, Rubin, & Paolini, 2014a; for reviews, see Milanov, Rubin, & Paolini, 2014b; Roccas et al., 2008) as well as items used in measures of place identification and attachment (Bernardo & Palma-Oliveira, 2016; Droseltis & Vignoles, 2010; Ramkissoon & Mavondo, 2015). Consistent with our definition of city identification, the items assess identification with, and attachment to, other residents and the city as a whole. In particular, the items assess participants' identification with other residents, their sense of belonging and connection with their city, and the importance of their residency in their self-image. The specific items are as follows: "I identify with other people living in [city name];" "I feel a sense of belonging to [city name];" "living in [city name] is an important part of my self-image;" "I feel connected to the other people living in [city name];" "I don't feel like I'm part of the [city name] community" (reverse-scored); and "I don't feel a strong bond with other people living in [city name]" (reverse-scored). Participants responded to these items using a 7-point scale anchored

strongly disagree (1) and *strongly agree* (7). We concede that this scale does not capture all of the various aspects of place identification and attachment that have been proposed in the literature (for a review, see Lewicka, 2011). Nonetheless, it has the potential to provide a basic assessment of people's identification and attachment with their city and its residents.

2.3.3. City evaluation. Participants also rated how their city performed on 43 city-related dimensions using a 7-point scale anchored *extremely poorly* (-3) through *neutral* (0) to *extremely good* (3). Example dimensions are as follows: buildings and architecture; character and local culture; cost of living; entertainment (theatres, cinemas, sports stadiums, etc.); housing (quality, size, cost, rent, mortgages, etc.); local people (friendly, helpful, etc.); night life (pubs, nightclubs, etc.); parks and nature; shops, supermarkets, etc. (quantity, quality, diversity, etc.); weather and local climate. Please see the online supplementary information for the full list of dimensions. Past measures of place evaluation have employed similar dimensions (e.g., Fleury-Bhai et al., 2008). However, our measure provided a more comprehensive assessment of the various aspects of a city.

A key problem with past research in this area is that it has assumed that the evaluation dimensions that researchers use in their research studies are, in fact, relevant and important to their research participants. However, different people value different aspects of places. For example, young mothers are likely to be more concerned about the quality of a city's facilities for children (childcare centers, playgrounds, etc.), and elderly men are likely to be more concerned about the quality of facilities for the elderly (wheelchair access, etc.). To our knowledge, the personal importance of place dimensions has never been taken into account when assessing place evaluation, and yet it is likely to represent an important source of variance in people's evaluative appraisals (e.g., Tesser & Campbell, 1982). To address this issue in the current research, we asked participants to indicate how important each of the 43 dimensions were to them when considering cities *in general*. Participants responded using a 7-point scale anchored *totally unimportant* (1) and *extremely important* (7).

We computed a measure of weighted city evaluation by multiplying each participant's evaluation rating by their importance rating for each of the 43 dimensions. This procedure weighted participants' evaluations by the degree of personal importance that they attached to the dimension on which they were making their rating. Scores could range from -21 to 21, with more extreme positive and negative scores indicating that participants evaluated the city positively or negatively on dimensions that they considered to be relatively important and more moderate scores indicating that they evaluated the city poorly or mediocre on dimensions that they considered to be unimportant or only moderately important.

2.3.4. Control variables. Previous research in this area has found that participants' age, gender, and length of residency relate to place identification and attachment (e.g., Fleury-Bahi et al., 2008; Ramkissoon & Mavondo, 2015; for a review, see Lewicka, 2011). Hence, we measured these variables as control variables. Given that our survey was presented in three different languages (English, French, & Turkish), we also measured participants' self-reported understanding of the survey. Finally, to assess the potential influence of demand characteristics in our research, we included a 4-item measure of participants' perceived awareness of the research hypothesis (Rubin, Paolini, & Crisp, 2010).

The survey also included a number of additional measures. A summary of these measures can be found in the online supplementary information.

2.4. Procedure

The survey was translated into French and Turkish for implementation in Paris and Istanbul respectively. The questionnaire was translated into French by the second and fourth authors and into Turkish by the last author. An English-French bilingual speaker checked the French translation, and an English-Turkish bilingual speaker checked the Turkish translation. For the French version of the survey, a random selection of items were back-translated into English in order to confirm the validity of the original translation. The French version was also trialled by a few French speakers in order to check its comprehension before it was used for data collection purposes.

The research protocol received primary ethical approval from an Australian university human research ethics committee. The data was collected between August 2014 and May 2016. The survey was advertised to undergraduate students via university-based research participation pool schemes. In some cases, undergraduate students were offered course credit in exchange for their participation. The Sydney and Istanbul surveys were also advertised on websites and social media sites that were relevant to nonundergraduate Sydney and Istanbul residents.

The survey was introduced to participants as investigating people's evaluations of the city in which they lived. Participants were eligible to participate if they lived in the city of interest or its specified suburbs. Participation was voluntary and anonymous.

Participants rated the personal importance of each city dimension first. They then completed the measures of city identification and city satisfaction, followed by their evaluation of their city on each city dimension. They then completed the measures of individualism and collectivism, including the CISC. The order of items within each measure was randomised for each participant.

Note that the approach of positioning the measures of individualism and collectivism *after* the city-related measures allowed us to obtain relatively "clean" city-based ratings that were unaffected by self-reflections about individualism and collectivism (Rubin & Morrison, 2014). Given that collectivism is a relatively stable disposition (e.g., Realo et al., 2002), this presentation order did not invalidate our approach of treating collectivism as a potential predictor variable in our analyses (Rubin & Morrison, 2014).

Finally, participants responded to demographic items and completed the perceived awareness of the research hypothesis scale. After experiencing the full survey, participants then indicated their informed consent for their data to be included in the analyses. At the end of the survey, participants were asked to email two or more other city residents that they knew in order to ask them to complete the survey (i.e., a snowballing recruitment technique). It was explained that participants were not obliged to contact other people if they did not want to. To facilitate this recruitment process, we prepared a short email template that participants could copy and send as an email if they wished. The template contained a weblink for the survey.

2.5. Design and analyses

The research used a cross-sectional correlational design. Exploratory factor analyses were used to investigate the factor structures of the measures of CISC, city identification, and city evaluation. Correlation analyses were then conducted to explore the associations between these three variables. Finally, mediation analyses were conducted to investigate city identification as a potential mediator of the association between CISC and city evaluation.

We performed our analyses across the combined city samples and within each city sample. The tests on the combined city samples were the most powerful and global tests. The tests within each city sample allowed us to investigate the generalisability and replicability of our effects.

3. Results
3.1. Exploratory factor analyses
3.1.1. CISC. We conducted a principal axis factor analysis on the 10 CISC items. Two eigenvalues were greater than 1.0. However, the scree test showed a clear single factor solution, and a parallel analysis (Horn, 1965) using Watkins' (2000) Monte Carlo simulation indicated that only one factor had an eigenvalue greater than the simulated eigenvalues. Hence, we extracted a single factor. In most cases, items loaded with values ≥ .47 on the single factor both across the combined samples and within each city sample. The exception was for the single reverse-scored item ("overall, the groups I belong to are unimportant to my sense of what kind of person I am."), which had a loading of .28 in the Sydney sample and .07 in the Paris sample. Consequently, we excluded this item from the final scale for all samples. Note that it is important to compare the factor structure of scales between different samples in order to investigate whether factor configurations are equivalent (e.g., Green, Deschamps, & Paez, 2005). Nonequivalent factor structures in different samples would indicate that the same scale is measuring different constructs in different samples.

As can be seen in Table 2, the Cronbach's alpha values for the CISC scale across and within samples were all ≥ .83. Consequently, we computed an overall score of CISC by averaging across the nine items. Overall scores had a theoretical range from 1 to 7.

3.1.2. City identification. We also conducted a principal axis factor analysis on the six city identification items. Only one eigenvalue was greater than 1.0, the scree test showed a clear single factor solution, and a parallel analysis indicated that only one factor had an eigenvalue greater than the simulated eigenvalues. Hence, we extracted a single factor. Five of the six items loaded on this factor with values greater than or equal to the conventional threshold value of .40 both across the combined samples and within each city sample. The item "I don't feel a strong bond with other people living in [city name]" loaded ≥ .50 in all cities samples apart from Istanbul, where it had a value of .37. Given that this value was close to the threshold value of .40, we decided to retain this item in the final scale.

As can be seen in Table 2, the Cronbach's alpha values for the city identification scale across and within samples were all ≥ .72. Consequently, we computed an overall score of city identification by averaging across the six items. Overall scores had a theoretical range from 1 to 7.

3.1.3. City evaluation. We conducted a principal axis factor analysis on the 43 importance-weighted city evaluation items. Seven eigenvalues were greater than 1.0, the scree test showed a two- or three- solution, and a parallel analysis indicated a four-factor solution. However, subsequent analyses found that the number and nature of the factors varied considerably between each of the four city samples. This variation is not unexpected given the specific nature of the items in the scale and the differences that exist between the cities (e.g., commuting time in a large city like Paris might have a different relevance and/or evaluation to commuting time in a smaller city like Newcastle). Given these discrepancies, we investigated the possibility of a simple, single-factor solution for the city evaluation items. All items loaded ≥ .40 on this single factor both across and within samples apart from 11 items that referred to car parking, closeness to other cities, commuting time, population diversity, having family nearby, geographical size of the city,

nightlife, population density, local tourist attractions, weather and climate, and places of worship. These 11 items were excluded from the final measure of city evaluation.

Table 2
Descriptive Statistics and Zero-Order Correlation Coefficients

Measure	N	M	SD	Min	Max	α	1	2
Combined samples								
1. CISC	1,657	4.55	1.00	1.00	7.00	.87	-	-
2. City identification	1,657	4.20	1.22	1.00	7.00	.82	.31**	-
3. City evaluation	1,660	4.81	5.86	-17.91	20.81	.96	.16**	.17**
Newcastle								
1. CISC	402	4.58	1.01	1.40	6.80	.90	-	-
2. City identification	402	4.37	1.11	1.17	6.67	.86	.39**	-
3. City evaluation	402	4.52	3.67	-7.53	17.88	.94	.34**	.57**
Sydney								
1. CISC	378	4.56	1.00	1.00	7.00	.89	-	-
2. City identification	378	4.73	1.11	1.00	7.00	.83	.44**	-
3. City evaluation	378	5.19	4.68	-16.56	20.81	.95	.44**	.54**
Paris								
1. CISC	441	4.30	1.00	1.20	6.90	.87	-	-
2. City identification	441	3.55	1.24	1.00	7.00	.80	.14**	-
3. City evaluation	441	9.29	5.16	-4.81	19.97	.95	.18**	.10*
Istanbul								
1. CISC	436	4.76	.93	1.60	7.00	.83	-	-
2. City identification	436	4.24	1.12	1.00	7.00	.72	.27**	-
3. City evaluation	436	0.23	5.55	-17.91	19.03	.94	.31**	.41**

Note. All scales had a theoretical range from 1 to 7 apart from city evaluation, which had a theoretical range of -21 to 21, with a score of 0 indicating a neutral evaluation.
* $p < .05$. ** $p < .001$.

As can be seen in Table 2, the Cronbach's alpha values for the city evaluation scale across and within samples were all $\geq .94$. Consequently, we computed an overall score of city evaluation by averaging across the 32 items. Overall scores had a theoretical range from -21 to 21.

3.2. Zero-order correlations

Table 2 provides the zero-order correlation coefficients for the relations between CISC, city identification, and city evaluation computed across the combined samples and within each city sample. Looking at Table 2, it can be seen that there was a medium-sized positive correlation between CISC and city identification ($r = .31$, $p < .001$), indicating that the more participants tended to consider social groups to be important aspects of their self-concept, the more they identified with their city. This effect replicated in all four city samples (rs ranged from .14 to .44, ps $\leq .004$).

Consistent with Rubin and Morrison's (2014) virtual city study, there was also a small positive correlation between CISC and city evaluation ($r = .16$, $p < .001$), indicating that the greater participants' collective interdependent self-construal, the more positively they evaluated their city. Again, this effect replicated in all four city samples (rs ranged from .18 to .44, ps $\leq .001$).

Finally, consistent with prior research, there was a small positive correlation between city identification and city evaluation ($r = .17$, $p < .001$), indicating that the more participants' identified with their city and its residents, the more positively they evaluated their city. Once again, this effect replicated in all four city samples (rs ranged from .10 to .57, ps $\leq .05$).

3.3. Mediation analyses

The correlation analyses showed that CISC was positively related to city identification and city evaluation, and that city identification was positively related to city evaluation. This pattern of results opened up the possibility of a theoretically-informative mediation effect in which individual differences in city identification explain the positive relation between collective interdependent self-construal and city evaluation. In other words, city identification may *mediate* the association between CISC and city evaluation.

We tested this mediation model both across the combined sample and within each city sample using Hayes' (2013) PROCESS software. This software uses a path analytical framework and bootstrapping to provide powerful estimates of indirect (mediation) effects. In these tests, CISC was the predictor variable, city identification was the mediator variable, and city evaluation was the outcome variable. Table 3 shows the results of these tests.

As can be seen in Table 3, across the combined samples, the total effect of CISC on city evaluation was significant ($b = 0.91$). The total effect is equivalent to the zero-order correlation effects reported in Table 2 except that, following Hayes' (2013) recommendation, it is reported as an unstandardized beta coefficient. Across the combined samples, there was also a direct effect of CISC on city evaluation when controlling for variance associated with city identification ($b = 0.67$). Importantly, the size of this direct effect was smaller than the total effect. Hence, controlling for city identification reduced the size of the association between CISC and city evaluation, which suggests that at least part of this association can be accounted for in terms of variations in city identification. The indirect effect tests whether the difference in the size of the total and direct effects is statistically significant. As can be seen in Table 3, the 99% confidence intervals for this indirect effect did not contain zero, which indicates that the effect is significant ($p < .01$). In other words, city identification operated as a significant mediator of the relation between CISC and city evaluation. Table 3 also shows that this pattern of results replicated within each city sample apart from Paris. In the Paris sample, the indirect effect was not significant. However, it was approaching the conventional threshold for significance ($p < .10$).

We also tested an alternative reverse mediation model in which CISC mediated the association between city identification and city evaluation. The indirect effect for this model was significant across the combined samples and within each city sample (ps $< .01$). However, the completely standardized indirect effect size (Preacher & Kelley, 2011) tended to be smaller for this reverse mediation effect than for the original mediation effect in which city identification was the mediator, indicating that original mediation effect was more operative.

Table 3
Results of Mediation Tests in which CISC is the Predictor, City Evaluation is the Mediator, and City Evaluation is the Outcome

	Effect type	*b*	*SE*	*T*	*df*	*p*	99% CIs
Combined samples							
	Total effect	0.91	0.14	6.61	1,650	< .001	0.56, 1.26
	Direct effect	0.67	0.14	4.67	1,650	< .001	0.30, 1.04
	Indirect effect	0.24	0.06	-	1,650	< .01	0.11, 0.40
Newcastle							
	Total effect	1.23	0.17	7.23	400	< .001	0.79, 1.67
	Direct effect	0.50	0.16	3.13	400	.002	0.09, 0.91
	Indirect effect	0.73	0.11	-	400	< .01	0.48, 1.03
Sydney							
	Total effect	1.94	0.21	9.36	376	< .001	1.40, 2.48
	Direct effect	1.08	0.21	5.17	376	< .001	0.54, 1.62
	Indirect effect	0.86	0.14	-	376	< .01	0.54, 1.28
Paris							
	Total effect	0.87	0.22	3.90	439	< .001	0.29, 1.45
	Direct effect	0.83	0.23	3.66	439	< .001	0.24, 1.41
	Indirect effect	0.46	0.04	-	439	> .05	-0.03, 0.19
Istanbul							
	Total effect	1.80	0.27	6.64	429	< .001	1.10, 2.50
	Direct effect	1.23	0.26	4.66	429	< .001	0.54, 1.91
	Indirect effect	0.57	0.13	-	429	< .01	0.28, 0.95

Note. All beta values are unstandardized coefficients. *SE* = standard error. 99% CIs = the upper and lower 99% confidence intervals. *SE*s and CIs for indirect effects are bootstrapped. If CIs are both positive or negative, then the indirect effect is significant at *p* < .01. The indirect effect for the Paris sample is only approaching the conventional threshold for significance (*p* < .10).

3.4. Sensitivity analyses

The correlation and mediation analyses for the combined samples were reconducted excluding outliers, which were defined as being greater than or less than three standard deviations from the mean. The effect sizes and pattern of significant and nonsignificant relations remained the same.

The correlation and mediation analyses were also reconducted controlling for participants' age, gender, and length of residency (Fleury-Bahi et al., 2008; Ramkissoon & Mavondo, 2015; Rollero & De Piccoli, 2010). Additional covariates included participants' understanding of the survey and perceived awareness of the research hypothesis. Again, the results remained substantively the same when these variables were controlled.

A further concern was that the observed results might be restricted to the undergraduate student populations from which we sampled. To investigate this issue, we restricted our analyses to the 74 Sydney participants who were recruited from the general Sydney population. The mean age of these participants was 40.56 years (SD = 15.12), confirming that, although some of these participants may have been university students, the sample was more representative of the general population. Using this sample, we obtained the same significant correlations between CISC, city

identification, and city evaluation that we had found in the other samples (rs ≥ .45, ps < .001) and the same mediation effect, b = 0.83, bootstrapped SE = 0.35, 95% CIs (0.30, 1.68). We also reconducted our analyses on the 155 Istanbul participants who were recruited from the general Istanbul population. The mean age of these participants was 27.65 years (SD = 10.18). Again, we obtained the same significant correlations between CISC, city identification, and city evaluation that we had found in the other samples (rs ≥ .27, ps ≤ .001) and the same mediation effect, b = 0.62, bootstrapped SE = 0.21, 95% CIs (0.25, 1.10).

4. Discussion

Collectivism is a sociocultural variable that predicts how people relate to social groups. Given that cities are also social groups, collectivism should predict how people relate to cities. To test this hypothesis, we asked residents of four cities to complete an online survey that contained measures of collectivism, city identification, and city evaluation. We found four key results.

First, a specific type of collectivism called collective interdependent self-construal was positively related to city evaluation. Hence, the more people tended to value social groups as part of their self-concept, the more positively they rated their city on specific city-based dimensions that were personally important to them. This result is consistent with Rubin and Morrison's (2014) finding that collectivism (Kashima et al.'s, 1995, Collectivism subscale) was positively related to the perceived environmental quality of virtual cities. However, the present research adds to Rubin and Morrison's observations by demonstrating that the relation between certain forms of collectivism (CISC) and city evaluation generalizes from nonresidents' evaluations of novel, virtual, historical, uninhabited, Utopian cities to residents' evaluations of their own real, modern, inhabited cities. Hence, the present research provides much-needed ecological validity to this line of work.

Second, CISC was positively related to city identification. Research on the antecedents of city identification is in its formative stages, and although researchers have considered a number of potential personality-based predictors (Zenker & Petersen, 2014), they have not considered sociocultural predictors such as collectivism. More generally, demographic variables and psychological motives have been shown to predict place identification and attachment (e.g., Droseltis & Vignoles, 2010; Fleury-Bahi et al., 2008; for a review, see Lewicka, 2011). Again, however, prior research has not considered sociocultural variables such as collectivism as potential predictors. The present research demonstrated that the propensity to construe social groups as important parts of one's self-concept (CISC) is a significant positive predictor of city identification. In retrospect, it is not surprising that CISC showed the strongest and most reliable association with city identification among the various measures of collectivism that we included in our study. Unlike the items in the other collectivism scales, the items in the CISC scale refer directly to the importance of social groups to people's identity (e.g., "The groups I belong to are an important reflection of who I am"). People who agree strongly with these types of items are likely to identify strongly with the social groups to which they belong, including their cities. From a theoretical perspective, the positive association between CISC and city identification supports prior suggestions that city identification is a form of social identification (Bernardo & Palma-Oliveira, 2016; Twigger-Ross & Uzzell, 1996) and that, as such, it is predicted by a general tendency to identify with social groups (Roccas et al., 2008).

Third, city identification was positively related to city evaluation. Hence, general feelings of identification with one's city and its residents were associated with positive evaluations of specific aspects of that city on personally-important dimensions. This result is consistent with

Zenker and Petersen's (2014) previously-untested resident-city identification model. It is also consistent with broader research showing a positive relation between place identification and evaluation (e.g., Bernardo & Palma-Oliveira, 2016; Rollero & De Piccoli, 2010; for a review, see Ramkissoon & Mavondo, 2015). Again, this result supports the social psychological view that city identification is positively associated with evaluations of one's ingroup, including one's city.

Finally, we found that city identification operated as a significant mediator of the relation between CISC and city evaluation. In other words, part of the association between CISC and city evaluation was due to the associations between (a) CISC and city identification and (b) city identification and city evaluation. This novel finding makes sense from a theoretical perspective: A person's propensity to identify with groups in general is likely to affect their evaluation of their city via their identification with that city. However, it also helps to explain the intriguing finding that collectivism predicts city evaluation (Rubin & Morrison, 2014).

The above findings appeared to be relatively generalizable, replicable, and robust. With the exception of the mediation effect in the Paris sample (which was approaching the conventional threshold for statistical significance), the above effects replicated in participant samples from four cities that differed on numerous dimensions, including their population sizes, densities, countries, and languages. Furthermore, sensitivity analyses confirmed that the effects occurred independent of outliers and after controlling for participants' age, gender, length of residency, understanding of the survey, and perceived awareness of the research hypotheses. Finally, analyses with samples of Sydney and Istanbul residents who were more representative of the general population, at least in terms of their age, confirmed that the observed results were not limited to student populations. Having said this, it remains important for future research to test the generalizability of our results to nonstudent populations.

Like the prior research in this area (for a review, see Lewicka, 2011), a key limitation of the present research is that it employed a cross-sectional correlational design. This approach prevented us from drawing clear conclusions about the causal direction of the relations that we observed. In particular, the causal relation between city identification and city evaluation needs further exploration: It is possible that (a) greater city identification causes greater city evaluation, (b) greater city evaluation causes greater city identification, or (c) both casual relations operate simultaneously (see also Ramkissoon & Mavondo, 2015). Future research should employ a longitudinal research design in order to provide clearer conclusions regarding these potential causal pathways.

A further limitation of our work relates to our operationalisation of city identification. Our measure focused on people's identification with other residents, their sense of belonging and connection with their city, and the importance of their residency in their self-image. An exploratory factor analysis found that the items that assessed these aspects of city identification all loaded $\geq .37$ on a single factor in all four city samples. Hence, we can be relatively confident about the generality of the factor structure of our novel measure. Nonetheless, researchers have identified several different dimensions of place identification and attachment (e.g., Droseltis & Vignoles, 2010), and future research in this area should consider employing multidimensional measures of city identification in order to provide a more nuanced understanding about which specific aspects of identification relate to CISC and city evaluation.

Future research should also investigate the longer term effects of city identification on personal autobiographical memories about cities (Knez, 2014). In particular, it would be informative to identify the conditions under which the process of city identification leads to cities becoming more integral parts of identity. Factors that influence this process may include whether

or not people are born in their city and whether or not they chose to move to their city because of the city itself rather than other motivations (e.g., employment).

In summary, the present research builds on the work of Rubin and Morrison (2014) by demonstrating that CISC predicts the evaluation of real inhabited cities rather than virtual uninhabited cities. It also builds on research in the area of city identification (e.g., Zenker & Petersen, 2014) by demonstrating that (a) CISC positively predicts city identification, (b) city identification positively predicts city evaluation, and (c) city identification mediates the relation between CISC and city evaluation.

A practical implication of the present research results is that researchers who wish to obtain more objective assessments of residents' evaluations of specific aspects of a city (e.g., its parking or shopping) independent of residents' social psychological connection with their city may wish to measure and control for collectivism and city identification. This approach should reveal people's feelings towards the specific aspects of the city independent from the positive evaluation of the city that is associated with their identification with the city.

On a more theoretical note, the present research results imply that the social psychological group processes that are responsible for people's identification with and evaluation of social groups based on gender, ethnicity, nationality, and a host of other social categorizations also seem to apply to cities (Bernardo & Palma-Oliveira, 2016; Twigger-Ross & Uzzell, 1996). In particular, chronic individual differences in the propensity to identify with social groups in general predict the extent to which people identify with, and evaluate, the cities in which they live. Returning to our opening quote, it is likely that Hubert Gregg loved London not only because he was a Londoner, but also because he had a natural predisposition to identify with the city in which he lived.

Funding

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