Preferred interpersonal distance: a global comparative analysis

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Preferred Interpersonal Distances: A Global Comparison

Abstract

Human spatial behavior has been the focus of hundreds of previous research studies. However, the conclusions and generalizability of previous studies on interpersonal distance preferences were limited by some important methodological and sampling issues. The objective of the present study was to compare preferred interpersonal distances across the world and to overcome the problems observed in previous studies. We present an extensive analysis of interpersonal distances over a large data set (N = 8,943 participants from 42 countries). We attempted to relate the preferred social, personal and intimate distances observed in each country to a set of individual characteristics of the participants, and some attributes of their cultures. Our study indicates that individual characteristics (age and gender) influence interpersonal space preferences and that some variation in results can be explained by temperature in a given region. We also present objective values of preferred interpersonal distances in different regions, which might be used as a reference datapoint in future studies.

Keywords: interpersonal distance; spatial behavior; culture; cultural psychology

Introduction

Interpersonal space, or interpersonal distance, is an essential feature of individuals' social behavior in relation to their physical environment and social interactions (Hall, 1966; Hayduk, 1983). It is a distance we maintain in interpersonal interactions, or in other words, "breathing space", an abstract area that surrounds each individual (Hall, 1966; Madanipour, 2003; Sommer, 1969); comparable to either a shell, a soap bubble, or aura (Sommer, 1969). According to Hall (1966), this space helps regulate intimacy in social situations by controlling sensory exposure. The possibility of increased visual, tactile, auditory, and olfactory stimulation is enhanced at closer distances, and people may feel intruded and react negatively when others adopt and maintain too close of an interpersonal distance (Felipe & Sommer, 1966; Hall, 1966; Mazur, 1977; Sawada, 2003; Smith, 1981; Sommer, 1969).

Classifying social distance

The classical proxemic theory (Hall, 1966) classifies interpersonal distance into four categories, each of which reflects a different relationship between individuals (Baldassare & Feller, 1975). These four types of distance are (1) *public distance* (above 210 cm; in this distance voice shifts to higher volumes, and eye contact is minimized); (2) *social distance*, maintained during more formal interactions (122-210 cm, this distance precludes all but visual and auditory stimuli); (3) *personal distance,* maintained during interactions with friends (about 46 to 122 cm, vision is no longer blurred, vocalizations increase), and (4) *intimate distance*, maintained in close relationships (from 0 to 46 cm, this distance is characterized by poor and blurred vision, and increased perception of heat and olfactory stimuli) (Hall, 1966).

Based on Hall's theory (1966), the interpersonal distance people choose while interacting with others depends on the personal attitude towards another person, but also on certain characteristics of dyads, like their gender or age, and the social environment where the interaction takes place. Indeed, studies confirm that the preferred interpersonal distance might

be influenced by gender (Aiello, 1987; Horenstein & Downey 2003; Ozdemir, 2008; Patterson & Edinger, 1987; Smith, 1981; Vranic, 2003). Furthermore, age seems to be an important factor for predicting dyad distances (Aiello, 1987; Burgess, 1983; Gérin-Lajoie, Richards, & McFadyen, 2006; Ozdemir, 2008; Rapp & Gutzmann, 2000; Webb & Weber, 2003); younger people generally prefer closer interpersonal distances than older individuals.

According to Hall's theory (1966), *cultural norms* are the most important factors to describe the preferred social distance. Hall (1966) stated that what is intimate in one culture may be personal or social in another, and suggested that there are specific customs regarding the spatial behavior. He grouped the cultures into two different classes: *contact* and *noncontact* cultures. *Contact* cultures use closer interpersonal distances and engage in more touching, whereas people *noncontact* cultures exhibit opposite preferences and behaviors (Hall, 1966). The general rule of grouping suggested by Hall (1966) was the geographic location, with Southern European, Latin American, and Arabian countries being the so-called *contact* cultures, and North America, Northern Europe and Asian populations – the *noncontact* cultures (Hall, 1966). Although Hall's theory was frequently supported just by anecdotal evidence (see: Baldassare & Feller, 1975), this notion constituted a basis for classical research on the cultural effects on human spatial behaviors. Below, we present a short overview of the previous findings and conclude with proposing some variables that could possibly account for previously observed variability.

Cultural Differences

Early cross-cultural research on spatial behaviors indicates that *contact* and *noncontact* groups differ significantly in preferred social distance. Studies show that Mediterranean societies prefer closer interactive distances than northern European and northern American societies (Evans & Howard, 1973; Ford & Graves, 1977; Hayduk, 1983; Little, 1968; Triandis & Triandis, 1967; Watson & Graves, 1966). Notably, many of these early cross-cultural studies

were performed in the USA with foreign and native students as participants (Baldassare & Feller, 1975). Although some results were later confirmed (Beaulieu, 2004; Evans, Lepore, & Allen, 2000; Remland, Jones, & Brinkman, 1995; Sommer, 2002), other empirical findings do not fully support the notion that interpersonal distances are closer in Southern European, Latin American, and Arab countries than in North America, Northern Europe and Asian populations (Forston & Larson, 1968; Mazur, 1977; Remland, Jones, & Brinkman, 1995). The original classification of Asian societies as predominantly *noncontact* is also problematic given the mixed results of previous studies (Beaulieu, 2004; Sussman & Rosenfeld, 1982; Watson, 1970). Further, the spacing preferences in African countries have never been examined.

While showing variability of interpersonal distancing across cultures, previous results lack explanations as to why this variability occurs. It is an open question if the division of cultures onto *contact*/*noncontact* based on geographical location is a detailed enough grouping rule for all populations across the globe, especially given that contact norms can vary widely across countries within the same continent even though they share cultural similarities (Shuter, 1976). It is likely that what has been explained in terms of vaguely defined cultural norms is underpinned by some psychological and ecological variables. Thus, we consider here several new variables that could be enumerated as distinguishing the countries that were previously found to be *contact* and *noncontact – environmental factors* (temperature of the inhabited region, parasite stress in a given country, and population growth rate) and *socio-psychological factors* (collectivism/individualism level, and wealth of the society, defined as Human Development Index). We briefly justify our choices below.

Environmental factors. In the group of environmental factors, *temperature* may likely be related to the differences in cultural patterns of social proximity, as it was found to influence social distances during shorter interactions (IJzerman & Semin, 2010; Williams & Bargh, 2008; Zhong & Leonardelli, 2008). Hotter climate affects emotional intensity

(Sorokowski et al., 2013), which is likely related to intense and closer interpersonal contacts. Importantly, the hypothesized relationship of distance preferences and temperature might be associated with Hall's theory (1966), as countries classified previously as *contact* cultures were also at the same time rather warm (see: Sommer, 2002).

However, increased temperatures result in increased *parasite stress*. This relationship offers an alternative, competing hypothesis on temperature-distance association that would include the indirect effect temperature has on interpersonal distance. Many diseases can spread by a simple touch (Schweon, Edmonds, Kirk, Rowland, & Acosta, 2013), and a recent study showed that people were able to detect some infection cues in the body odor of others – this early innate immune response altered the pleasantness of body odor samples (Olsson et al., 2014). Reduction of interpersonal contacts or increasing the interpersonal distance has for centuries been a part of behavioral adaptation against epidemics (Fenichel, 2013), and in regions that have historically suffered from high levels of infectious diseases, people are indeed less extraverted and open (Schaller & Murray, 2008). Interpersonal distancing pattern might be thus another important factor in pathogen avoidance, since maintaining farther distance can decrease potential contamination risk. As regions of higher temperature typically suffer from higher parasite stress than regions of lower temperature, the increased parasite stress might indirectly lead to higher interpersonal distances in cultures of warmer climate.

Further, maintaining too close interpersonal distance may result in increased arousal (Epstein & Karlin, 1975) and various forms of aggression and violence (see: Regoeczi, 2008, for a review). It is therefore not surprising that social crowding produces avoidant response – this might be a way of avoiding conflicts (Worchel & Teddlie, 1976). Therefore, people from countries of rapidly *increasing number of inhabitants* might be more likely to prefer farther interpersonal distances, thus reducing the risk for potential conflicts. Withdrawal response in

such situations might be of particular importance in regions of higher temperature, since heat might increase aggression (Anderson, 1987) and social unrest (Yeeles, 2015).

Socio-psychological factors. In the group of social-psychological factors, regions characterized by closer interpersonal distances were rather poorer than regions characterized by farther preferred distances. The putative relationship of this variable to interpersonal distance is further suggested by the recent finding that the *Human Development Index* (HDI) was related to the level of social trust in a country (Özcan & Bjørnskov, 2011). We tested this observation by including HDI as one of the grouping variables in our study. Also, interpersonal distance might increase when interacting dyads differ in social status (Aiello & Jones, 1971; Dean, Willis & Hewitt, 1975; Little, 1968). Possibly, in countries characterized with higher social inequality (i.e., lower HDI) the preferred distances might be greater.

Further, the *Individualism-Collectivism* dimension (IC), first defined by Hofstede (1981), is one of the most important constructs used for the classification of cultures. People from collectivistic cultures rely to a considerable degree on close intra-group relationships, whereas people from individualistic cultures are highly independent and have strong feelings of autonomy within the group (Hofstede, 2001). In the present study, a 178-nation index of collectivism called ingroup favoritism from Van de Vliert (2011) study was utilized. Contrary to Hofstede's (2001) index, Van de Vliert index includes data on almost all countries around the world, which enabled us to analyze all the regions participating in our research.

Conclusions

In all, there is compelling evidence of cross-cultural variations in proxemic behaviors. Such differences might be underpinned by cultural norms, but at the same time these norms could be associated with certain psychological and ecological variables. To replace previous speculations with solid empirical evidence, in the present study we examined interpersonal distance preferences of 8,943 people inhabiting 53 study sites (42 countries) across the globe

and across different social contexts. Given the exploratory nature of our empirical investigation, we are aware that at this stage of research we cannot yet explain the exact mechanisms of influence of these variables on interpersonal distance preferences (although in the Discussion section we speculate about the nature of relationship between the distance preferences and their significant predictors).

Hypotheses

Based on the prior assumption that people from different cultures differ in interpersonal distance preferences in different social contexts (social, personal and intimate; Hall, 1966), we hypothesize significant variability in preferred interpersonal distances across countries when approaching a stranger (i.e., social distance), an acquaintance (i.e., personal distance) or a close person (i.e., intimate distance). Second, consistent with numerous previous studies, we hypothesize that certain characteristics of interacting individuals, like gender or age, influence the preferences they have for interpersonal distance, with women and younger people maintaining closer interpersonal distances. Third, we assume that cultural differences in interpersonal distancing are to some degree universally related to environmental and socio-psychological factors. Based on earlier research and our assumptions, we hypothesize that some environmental and psychological factors could predict variability of interpersonal distance across countries. Lower population growth rate, higher ingroup favoritism and higher HDI should be associated with closer interpersonal distance preferences. Further, closer interpersonal distances should be observed in cultures of higher temperature, but it needs to be remembered that higher temperature increments parasite stress. Thus, two competing hypotheses might be presented regarding the temperature and distance preferences. If the effect of temperature on personal distance preferences is direct, closer interpersonal distances should be observed in cultures of higher annual average temperature. If the effect of temperature is indirect, we expect the opposite association.

Materials and methods

Participants

Our study was comprised of 8,943 participants (4,013 men, 4,887 women and 43 unidentifieds) inhabiting 53 study sites in 42 countries. All participants provided informed consent prior to their inclusion in the study. In every country, authors recruited the participants personally. We intended to conduct our study among community members, and not students, with as diverse a sample of inhabitants as possible for each study site. Therefore, participants were recruited through advertisements, personal contacts, in shopping malls, etc.; the recruitment methods were very similar across all study sites. All participants were specifically recruited for this study, and the study was conducted during the same time across all locations. The participants were ensured anonymity of their responses. Demographic characteristics of the samples, as well as a list of all study sites, are presented in Table 1.

[Table 1]

Procedure

Participants completed a questionnaire consisting of demographic questions (age, sex) and three graphic questions concerning their preferred interpersonal distance. Based on the classical Halls's theory (1966), we measured three separate categories of preferred interpersonal distances – distance to (1) a stranger, (2) an acquaintance and (3) a close person. These measures reflected the previously defined categories of interpersonal distance: (1) social distance; (2) personal distance; and (3) intimate distance (Hall, 1966), respectively.

In order to conduct cross-cultural comparisons, the questions asked needed to be easily understood by participants all over the world (the task could not be demanding or ambiguous). Thus, we decided to use a simple, graphic task, because it was mostly language independent (see Fig. 1). Answers were given on a distance (0-220 cm) scale anchored by two human-like figures, labelled A for the left one and B for the right one (Fig. 1). Participants were asked to

imagine that he/she is Person A. The participant was asked to rate how close a Person B could approach, so that he/she would feel comfortable in a conversation with Person B. The participants marked the distance at which Person B should stop on the scale below the figures. Details on the applied method can be found in Supplementary File 1. In every country, the participants completed paper-and-pencil questionnaires individually.

[Figure 1]

In addition to participants' report on gender and age, we analyzed country specific environmental and socio-psychological factors: Zoontic and nonzoontic parasite stress in a given region (Fincher & Thornhill, 2012), population growth rate (United Nations report), ingroup favoritism (Van de Vliert, 2011), average, yearly temperature in a given study site (provided by coauthors from given study sites), and the Human Development Index (HDI; Human Development Report 2013; http://hdr.undp.org).

Statistical Analyses

Our hypotheses focused on the general assumption that people across different cultures universally vary in the distances they prefer when interacting with others. The presented analyses aimed to explain the cultural similarities and variability. In the current sample, participants were nested within countries and, therefore, we used multilevel modeling (Raudenbush & Bryk, 2002). In order to test the first hypothesis about variability in interpersonal distance across cultures, we used a stepwise approach. First, we computed three null models for social, personal, and intimate interpersonal distance, respectively (see supplementary File 1 for details of the models). To test significant differences of interpersonal distance across countries, we used a graphical method developed by Goldstein and Healy (1995), which allows comparing large groups of means simultaneously (see supplementary

File 1 for details of the method). Significant difference is suggested when the confidence intervals of two countries do not overlap.

To test our second hypothesis of predicting the variability in interpersonal distance across countries, we computed three models (for social distance, personal distance, and intimate distance) including all predictors discussed in the Introduction in the three multilevel models (see supplementary File 1 for details of the models).

We used SPSS 19 for descriptive statistics. For multilevel modeling, we used the lme4 package (Bates, Maechler, Bolker, & Walker, 2014) in R Version 3.0.2 (R Core Team, 2014). To find the best fitting model, we followed Zuur and colleagues (Zuur et al., 2009) suggestion to compare the inclusion of different random and fixed effects by deviance tests.

Results

Supplementary Table S1 shows means and standard deviations of each type of interpersonal distance for each sample. Overall, average interpersonal distance differed across various types of distance (social distance, personal distance, intimate distance; M_{social} = 135.1 cm; M_{personal} = 91.7 cm; M_{intimate} = 31.9 cm), supporting prior findings.

Variability of Interpersonal Distance across Countries

We hypothesized that people differ in their preferred interpersonal distance across countries. Figure 2 shows the results of the graphical mean comparison across all 42 countries for interpersonal distance with strangers, acquaintances, and partner (i.e., social distance, personal distance, intimate distance). Inspecting the mean comparions in Figure 2 shows significant variability in interpersonal distance across countries for different social interactions, supporting Hypothesis 1. In addition, as means for social distance are rank ordered, the order for personal and intimate distances provides insights in distance preferences pattern in relation to distance with strangers. The order for preferred personal distance

indicates that the variability of this distance is in similar rank, whereas the social distance in a country is less predictive for the preferred intimate distance. This result is additionally confirmed by the inter-correlations between certain distance types. Pearsons *r* correlations showed high correlations of social and personal distance ($r = .69$) and personal and intimate distance ($r = .70$); the correlation between social and intimate distance was significant as well ($r = .38$), but not equally high as in the other cases.

[Figure 2]

Factors Predicting Variability in Interpersonal Distance across Countries

We assumed certain environmental and psychological predictors of interpersonal distance across countries. Results of the three multilevel models are shown in Table 2.

[Table 2]

We found that the variability of social distance across cultures was predicted by temperature ($\beta_1 = -.82$; $p = .01$) and gender ($\beta_8 = 3.67$; $p = .04$). The higher the annual temperature of a country was, the closer was the preferred distance to strangers. Further, women on average preferred to maintain greater distance with strangers. The result for personal distance show that age ($\beta_7 = .08$; $p = .01$) and gender ($\beta_8 = 2.65$; $p = .03$) predicted the variability, suggesting that older people preferred greater distance and, again, women preferred greater distance with acquaintances. Finally, the results show that the intimate distance is predicted by age ($\beta_7 = .08$; $p = .02$) and temperature ($\beta_1 = 1.27$; $p < .001$). This indicates that older people preferred greater physical distance to people they considered close, whereas the effect of temperature was reversed in comparison with interpersonal distance with strangers – the higher the annual temperature of a country, the greater was the preferred

personal distance to a close person. Figure 3 illustrates the three types of preferred distances with regard to participants' gender and age.

[Figure 3]

Discussion

Owing to the quality and quantity of the data collected so far on the topic of cultural differences in proxemic behaviors, it was necessary and desirable to update the questionnaires and variables measured in order to erase the bias observed in previous studies. We present here an analysis of interpersonal distance preferences over a large data set (8,943 participants from 42 countries). As hypothesized, we observed significant variability in social, personal and intimate distances across countries. Variability in preferred social distance was predicted by participants' gender and county's average temperature, indicating that women and people in colder countries prefer greater distance toward strangers. Furthermore, the variability of preferred personal distance was predicted by participants' age and gender; older people and women prefer greater distance to an acquaintance. Finally, variability of intimate distance was explained by age and temperature, indicating that older people and people in warmer countries prefer greater distance with people they consider close.

Compared with previous studies, the present design had six distinctive features: (a) our study involved a large-scale analysis among thousands of people; (b) all the participants answered the same questionnaire illustrated with graphic representation of interpersonal distance; (c) all the participants took part in the study in the same year (2013); (d) samples of populations were heterogenous in terms of age, sex and professions; (e) we considered five different regions of the world, also Africa, which was not included from previous analyses; (f) and we examined several environmental and socio-psychological variables that possibly could explain the variability in social distance. We also present up-to-date values of three categories

of preferred interpersonal distances in different regions, which might be used as a reference datapoint in future studies. This dataset is especially important given that cross-cultural comparison studies are becoming more popular in social sciences.

Cultural differences in proxemic behaviors

Among *environmental factors*, our results regarding temperature are consistent with findings showing that climatic demands interact with wealth resources in influencing a variety of cultural tendencies (Fischer & Van de Vliert, 2011; Van de Vliert, 2013, Van de Vliert et al., 1999). However, we observed a meaningful association between distance preferences and mean temperature, without distinguishing between demanding winter cold and demanding summer heat. Thus, our results and previous research (Van de Vliert et al., 1999) suggest that the unipolar, mean temperature might be a reasonable predictor of some psychological variables that could be used instead, or in addition to, the climatic demand variable (Fischer & Van de Vliert, 2011; Van de Vliert, 2013), depending on the hypotheses and study aims.

It is worth noticing that in our study the direction of temperature effect differed for social and intimate distance. In warmer countries, people preferred to maintain closer distances towards strangers – but farther towards the intimate partners. The result regarding closer distance in hotter climates is consistent with the literature. IJzerman and Semin (2010) showed that compared with colder conditions, warmer conditions induced greater social proximity; even within the United States people in warm latitudes were shown to exhibit a closer contact behavior with more touch than their counterparts in colder climates (Andersen, 1988). IJzerman and Semin (2010) explained their findings in the context of Lakoff and Johnson's (1999) embodied realism, i.e., grounding the abstract idea (in this case – warmer feelings) in the physical situation (warmer temperature). Relatedly, other studies showed that social exclusion induces perceptions of lower temperature (Zhong & Leonardelli, 2008), and physical proximity of other people induce perceptions of higher temperature (IJzerman &

Semin, 2010). However, in the case of intimate distance, the result of our study differed from those obtained previously. Perhaps, this outcome resulted from specificity of distancing preferences in colder (and not in hotter) countries. Although both heat and cold are demanding environmental conditions (Fischer & Van de Vliert, 2011), it is possible that some negative effects of colder climate can be alleviated through closer intimate distances. Another explanation could be that although the increased temperatures might directly lead to smaller social distances, augmented parasite prevalence in hotter climates might also indirectly affect distance preferences in close relationships by increased risk of certain infections.

Overall, we found no direct effect of cultural-level parasitic stress (zoontic and nonzoontic parasite stress; Fincher & Thornhill, 2012), which seems particularly interesting, given that evolved disease-avoidance mechanisms and contemporary social cognition are indeed related (Faulkner, Schaller, Park, & Duncan, 2004). Therefore, perhaps other health-related variables would provide a better fit to our model, like e.g., prevalence of different infectious diseases. Also, the parasitic threat could play a more important role in real dyad behavior while being unrelated to preferences. Finally, as discussed above, it is probable that parasitic diseases would be good predictors of interpersonal distances as long as the strong, direct impact of temperatures was excluded. This hypothesis consistent with previous research, showing that interactive impacts of climatic demands and income resources alleviate any effects parasitic stress might have on culture (Van de Vliert & Postmes, 2012).

In the group of *socio-psychological* factors, significant fixed effects revealed gender differences in preferred social and personal distance, with women generally preferring greater distances. However, the random effects showed in more detail that gender effect was especially pronounced in Switzerland, Malaysia, Saudi Arabia, Hong Kong, Brazil, Austria, and India for social distance, and Switzerland, Malaysia, China, Saudi Arabia, Brazil, Poland, and Nigeria for personal distance. As our study is a preliminary exploration of possible, cross-

cultural determinants of preferred distances, it is hard to present any definite explanations of such findings. Generally, enforcing closer proximinity during dyad interactions conveys higher dominance (Burgoon, 1991). Dominance is typically related to male psychological characteristics, and behaviors consistent such stereotype might be especially strong in some cultures. In addition, women in some cultures can be more sensitive to social situations and avoid dominant "invasions" of personal space of people they are not highly familiar with. This explanation would be consistent with the notion that the interpersonal distance people choose depends also on the degree of understanding of a social situation, i.e., familiarity with social norms (Bogardus, 1954). Also, our findings might be partially due to the methodology used in our study – we did not specify the sex of an approaching individual, and it is possible that interaction distances might differ depending on the assumed sex of interlocutor.

Still, it needs to be remembered that higher distances preferred by women are inconsistent with most previous studies (Aiello, 1987; Horenstein & Downey 2003; Ozdemir, 2008; Patterson & Edinger, 1987; Smith, 1981; Vranic, 2003), suggesting that women rather prefer closer interpersonal distances than men (but see Heshka & Nelson, 1972). There are some possible reasons as to why these differences emerged. First, many of the previous studies were conducted many years ago, and maybe the social norms related to dyadic interactions in these times were different than they are now. Further, the differences may reflect the marked increase in globalization and increased internationalization over the last several decades. Finally, it is also unclear whether most previous findings refer to distances between strangers, acquaintances, or close persons (e.g., Gérin-Lajoie, Richards, & McFadyen, 2006; Ozdemir, 2008; Smith, 1981; Webb & Weber, 2003). Perhaps the observed discrepancies result from a simple fact that in our study, the specified context influenced the declarations of participating men and women.

We also observed that age was a significant predictor of personal and intimate distance. As discussed in the introduction, our findings are consistent with previously observed outcomes (Aiello, 1987; Burgess, 1983; Gérin-Lajoie, Richards, & McFadyen, 2006; Rapp & Gutzmann, 2000; Webb & Weber, 2003). Overall, younger people are more likely to engage in physical contact with others (Rands & Levinger, 1979). Possibly, this result could be explained with changes in social norms across generations.

Limitations and future directions

Although the distinction proposed in our study provides a novel alternative for previous, geographic division on *contact* vs *noncontact* cultures, and the presented data might stimulate new research on proxemic behaviors, there exist some limitations of our findings.

First – perhaps, other variables, not analyzed in the current study, could also explain the interpersonal distance preferences. To create better and more exact models, future studies should include more predicting variables of various categories, including different individual-level variables, like e.g., height of interacting individuals, or their disease susceptibility.

Second, we concentrated on preferences for interpersonal distance, and not on real choices. These two might be different, as shown for example by studies regarding mate preferences and mate choices (Sorokowski, Sabiniewicz, & Sorokowska, 2015; Todd, Penke, Fasolo, & Lenton, 2007). On the other hand, some of our findings are consistent with results of experimental studies regarding real dyadic interactions (Borisova & Butovskaya, 2004). Nevertheless, further studies should experimentally test the findings of our research.

Third, in our study, we measured distance preferences across three predefined categories of interpersonal distance (stranger, acquaintance and a close person). It needs to be mentioned that descriptors of these categories (“a close relationship”) could evoke some spatial associations (“close distance”). Also, simultaneous assessment of three types of distance could result in responses being slightly interdependent. Researchers in future works

could control this factor by separating answer sheets for distance categories by some unrelated tasks, or by using a between-subject design, with each participant in each country assessing his/her preferences for one type of distance only.

Finally and ideally, in future studies it could be tested how reliably the sample like ours represents the interpersonal distancing phenomena on a global level. Such an approach would allow researchers to be more precise in estimating generalizability of the findings. Still, in the case of our research, the participating sample represents many nations and the observed findings should be a close proxy of global preferences for interpersonal distances.

Figure captions

Figure 1. Graphic of distance shown to participants.

Figure 2. Mean values (cm) of social, personal and intimate distance across all nations. Non-overlap of the confidence intervals between any two countries indicates significant mean differences. Means for interpersonal distance with strangers are rank ordered.

Figure 3. Mean values (cm) of social (grey), personal (light grey), and intimate distance (dark grey) for men and women in different age groups summed for all nations.

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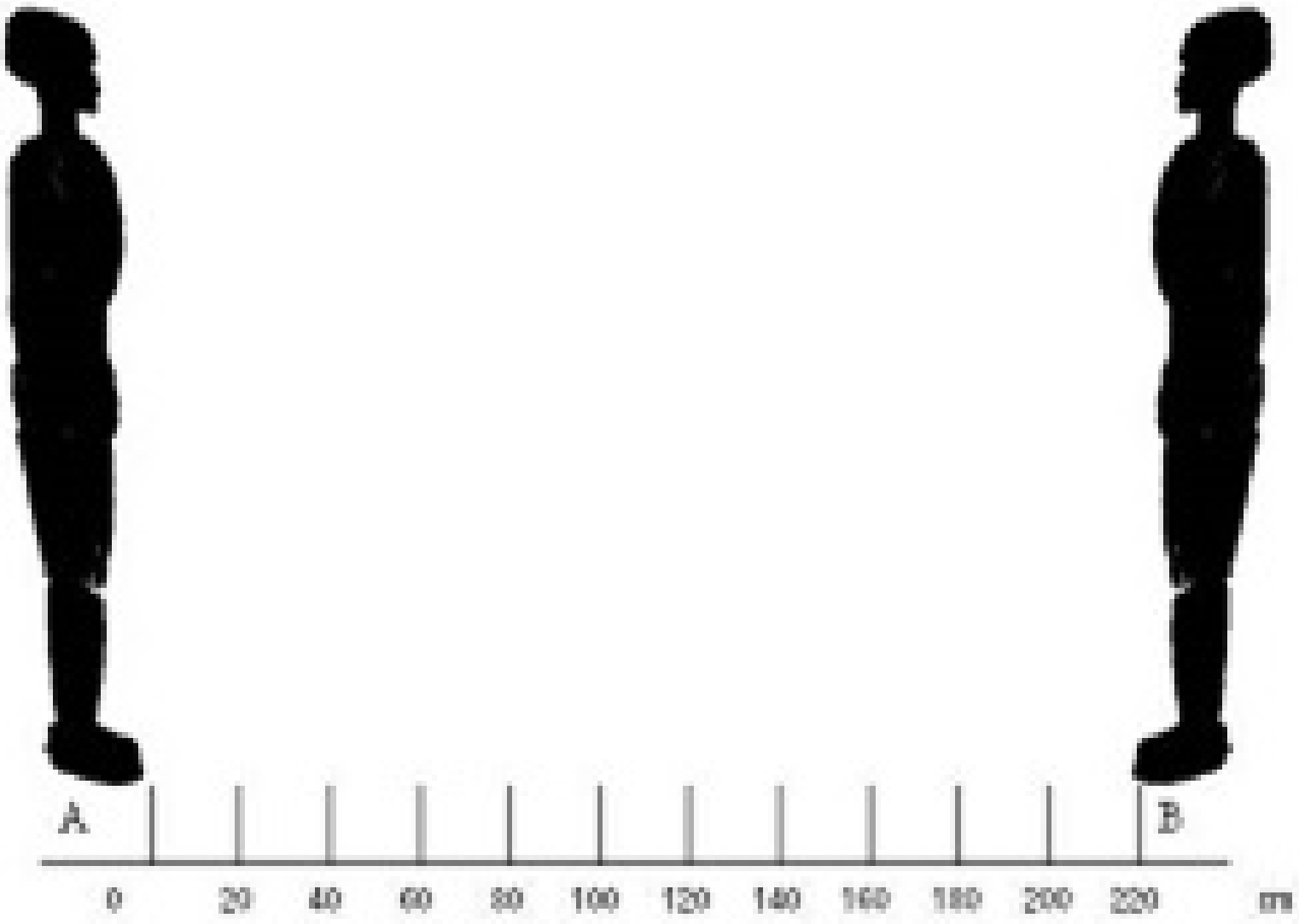
Table 1. Demographic characteristics for each of the 42 countries included in the study.

	Sample size			Age	
Country	Total	Men	Women	*M* (*SD*)	Range
Argentina	201	71	130	32.31 (11.16)	18-72
Austria	200	115	85	26.59 (9.73)	17-65
Brazil	480	300	180	36.51 (10.35)	19-70
Bulgaria	102	63	39	38.35 (8.95)	21-59
Canada	68	25	43	38.43 (10.15)	24-62
China	119	47	72	33.09 (6.41)	22-58
Colombia	100	41	59	41.10 (11.81)	21-74
Croatia	614	301	313	44.75 (11.65)	19-83
Czech Republic	167	80	87	36.48 (15.93)	18-79
Estonia	149	50	96	42.93 (12.30)	20-74
Germany	154	62	92	31.59 (13.39)	18-74
Ghana	103	52	51	40.42 (9.53)	23-65
Greece	94	42	49	38.77 (9.07)	20-71
Hong Kong	100	54	40	47.09 (9.98)	20-72
Hungary	237	76	161	37.80 (9.56)	19-62
India	299	135	164	34.10 (7.99)	20-73
Indonesia	92	25	67	41.74 (9.90)	23-66
Iran	607	261	345	38.80 (10.87)	18-88
Italy	322	127	195	48.39 (11.06)	20-86
Kazakhstan	120	60	60	37.03 (8.18)	21-61
Kenya	94	47	47	32.30 (7.26)	20-50
Malaysia	99	49	50	40.03 (8.92)	26-62
Mexico	158	77	80	38.81 (11.24)	19-77
Nigeria	603	299	297	39.00 (9.06)	18-70
Norway	100	72	28	41.29 (13.51)	22-77
Pakistan	125	55	66	36.17 (10.33)	20-69
Peru	102	49	53	31.66 (10.49)	20-58
Poland	428	161	254	40.07 (11.66)	20-87
Portugal	293	99	181	46.04 (11.17)	18-81
Romania	56	8	48	34.98 (6.68)	25-51
Russia	224	120	104	38.61 (13.86)	19-87
Saudi Arabia	198	87	111	36.16 (8.31)	22-70
Serbia	105	19	86	24.96 (7.01)	20-56
Slovakia	233	76	157	42.76 (11.74)	22-72
South Korea	100	50	50	41.76 (7.74)	27-59
Spain	199	93	106	47.10 (9.36)	24-67
Switzerland	179	110	69	48.77 (12.87)	21-75
Turkey	391	238	153	42.70 (13.59)	20-83
United Kingdom	100	42	58	45.04 (11.57)	20-78
Uganda	93	56	35	34.89 (10.55)	17-72
Ukraine	311	66	245	29.20 (8.73)	18-61
USA	424	153	271	41.74 (15.62)	18-83
Total	**8943**	**4013**	**4887**	**39.26 (12.25)**	**17-88**

Table 2. Parameter Estimates for Multilevel Model.

	Preferred Interpersonal distance											
	Social distance (stranger)				Personal distance (acquaintance)				Intimate distance (close person)			
Fixed Effects (intercept, slope)	Estimate	(*SE*)	*t*	*p*	Estimate	(*SE*)	*t*	*p*	Estimate	(*SE*)	*t*	*p*
Intercept	**135.14**	26.96	5.0	.000	**91.72**	21.43	4.28	.000	31.85	24.66	1.29	.205
Slopes												
Age	0.03	0.04	0.81	.418	**0.08**	0.03	2.55	**.011**	**0.08**	0.03	2.39	**.017**
Gender	**3.67**	1.69	2.17	**.037**	**2.65**	1.19	2.23	**.034**	0.11	0.82	0.13	.895
Ingroup favoritism	0.26	4.20	0.06	.952	-1.22	3.33	-0.37	.716	-0.84	3.84	-0.22	.827
HDI	-34.13	32.37	-1.05	.299	-27.96	25.71	-1.09	.284	0.36	29.75	0.01	.999
Nonzoonotic	1.07	2.48	0.43	.669	-0.98	1.99	-0.45	.653	-3.26	2.25	-1.45	.156
Zoonotic	-3.86	3.28	-1.18	.248	-1.69	2.61	-0.64	.527	0.44	2.99	0.15	.884
Temperature	**-0.82**	0.33	-2.46	**.015**	0.08	0.28	0.29	.773	**1.27**	0.29	4.37	**.000**
Population growth	5.18	4.15	1.25	.220	3.73	3.30	1.13	.265	2.25	3.80	0.59	.558

Note. Significant estimates are in bold (p-values are two-tailed). N = 8,943.


A
B
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20
40
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120
140
160
180
200
220
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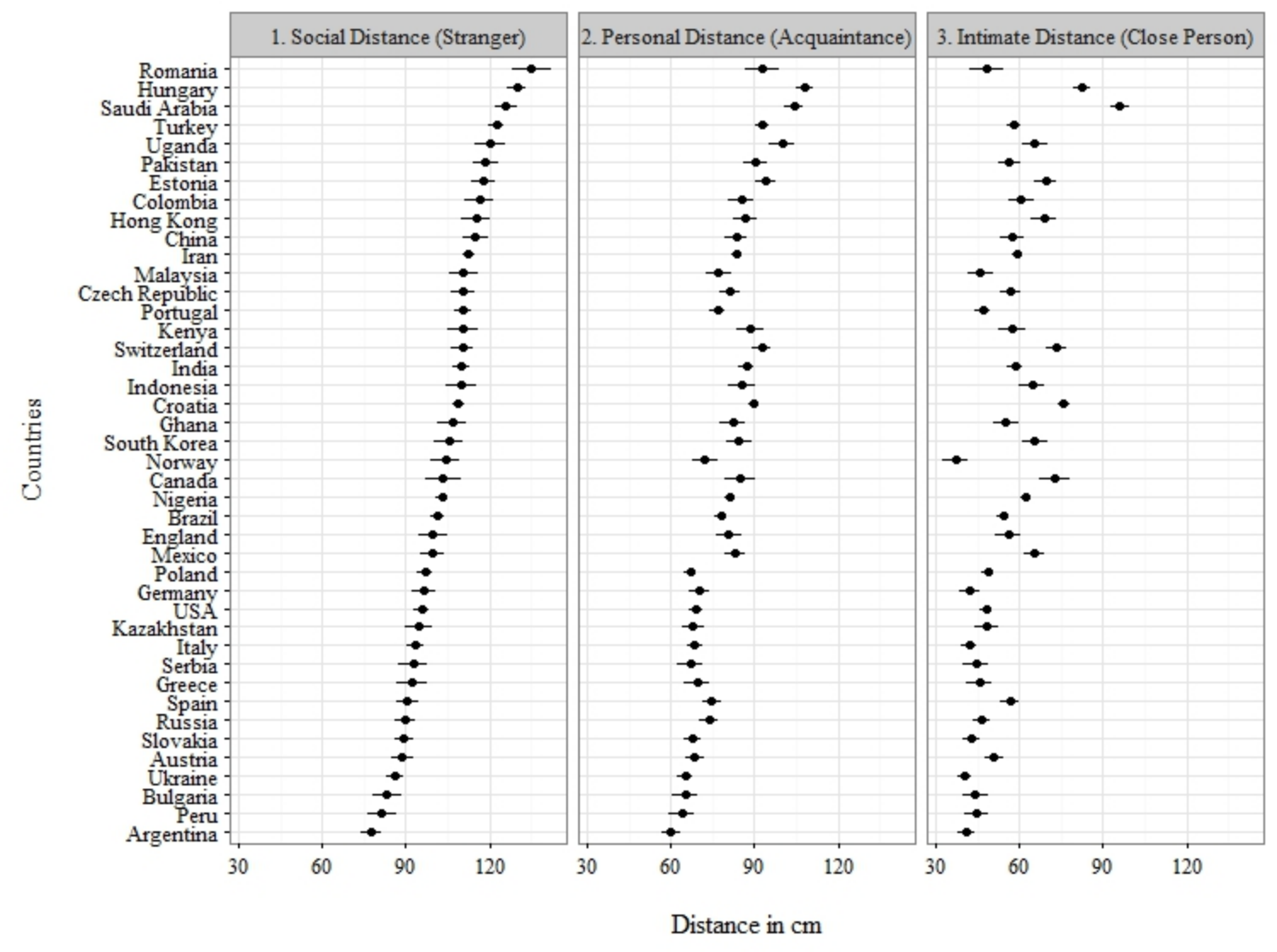
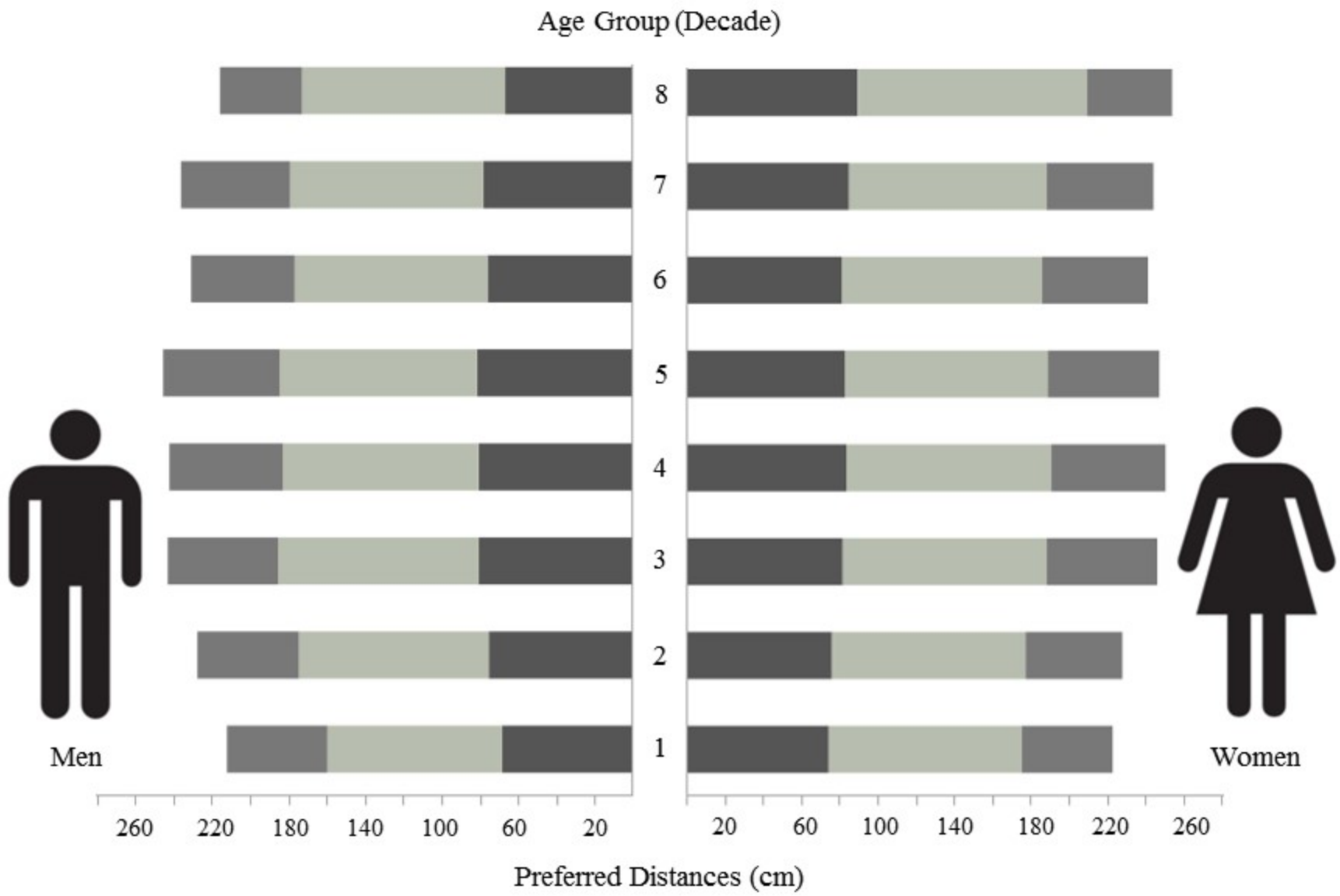

1. Social Distance (Stranger)
2. Personal Distance (Acquaintance)
3. Intimate Distance (Close Person)
Countries
Romania
Hungary
Saudi Arabia
Turkey
Uganda
Pakistan
Estonia
Colombia
Hong Kong
China
Iran
Malaysia
Czech Republic
Portugal
Kenya
Switzerland
India
Indonesia
Croatia
Ghana
South Korea
Norway
Canada
Nigeria
Brazil
England
Mexico
Poland
Germany
USA
Kazakhstan
Italy
Serbia
Greece
Spain
Russia
Slovakia
Austria
Ukraine
Bulgaria
Peru
Argentina
30
60
90
120
Distance in cm


Age Group (Decade)
8
7
6
5
4
3
2
1
Men
Women
260
220
180
140
100
60
20
20
60
100
140
180
220
260
Preferred Distances (cm)