The moderating effects of age and gender on the relationship between culture and uncertainty avoidance

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The moderating effects of age and gender on the relationship between culture and uncertainty avoidance: evidence from Europe and Asia

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This study investigates uncertainty avoidance of ethnic groups differentiated by age and gender. A total of 5,126 respondents, including 11 different ethnic groups (from Europe and Asia), participated in an online survey. The findings support that women were more uncertainty avoidant than men in five ethnic groups, namely, Bulgarian, French, Dutch, Japanese, and Chinese. The opposite was seen for the Spanish and Vietnamese ethnic groups in which the women were more uncertainty tolerant. These gender differences were independent of age. The study points out the importance of self-categorization as an indicator of ethnic groups. This type of ethnic identification is related to the commonly used cultural dimension of uncertainty avoidance.

Keywords: uncertainty avoidance, ethnic group, age, gender, culture dimension, cross-cultural

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Introduction

In a world that is becoming more and more globalized thorough insights on cultural differences in societies have become increasingly necessary. Cultural common beliefs and attitudes disperse and reinforce, with varying effects on the behavior of individual group members. To understand the dynamism of this cultural fluidity, it is imperative to unravel cultural diversity in a restricted and convenient set of cultural values (or dimensions). The complexity of unraveling cultural reality is reflected in the meta-analysis conducted by Taras et al. (2009). Their study established 121 different instruments (or values) to unravel cultural variation. The most used dimensionalization of culture was initiated by Hofstede (2001). In his framework, culture is "the collective mental programming of the human mind, which distinguishes one group of people from another". Different cultures can be distinguished by studying what the members value. For example, some cultures value hierarchy (positions of authority imply more power), whereas other cultures value equality (the relative importance of the individual's interests versus those of the group). Hofstede (2001) identified a set of six dimensions covering cultural differences, namely power/distance, individualism/collectivism, masculinity/femininity, long-term/short-term orientation,

indulgence, and uncertainty avoidance. These dimensions illuminate a major conceptualization of cultural differences developed over decades (see Sent & Kroese 2020 for an overview). They were empirically developed from several large surveys conducted since the late 60s. Initiated by Hofstede, studies by House et al. (2004), Inglehart (1997), and Schwartz (2004) compared large-scale datasets covering a wide range of national cultures of countries. The empirical findings of these comparisons showed that Hofstede's cultural dimensions were more or less replicated, reflected a positive correlation between themselves, and gave rise to new cultural dimensions. Several studies endeavored to systematize the most used sets of cultural dimensions, for example, studies by Nardon and Steers (2009), Beugelsdijk and Welzel (2018), Maleki and de Jong (2014), and most recently, Fog (2021). Specifically, Hofstede's dimensionalization of national culture has been prevalent for a long time and is still widely accepted and appreciated, most likely because of its simplicity and high level of generalization. Most cultural dimensions showed high stability over time (Jackson 2020).

Remarkably, one dimension of Hofstede's cultural values framework, uncertainty avoidance, was a sitting duck. It was relatively less validated in replication studies (see, for instance, Messner 2016, Schmitz & Weber 2014). The perceived level of uncertainty avoidance of national culture was found to be especially susceptible to socio-economic societal changes over time (Minkov 2018, Tarabar 2019). In this respect, this cultural characteristic is appropriate for exploring the cultural variation in the increasingly complex globalizing reality. Elaborating on this, in cultural value-oriented studies, culture mostly refers to the most dominant culture within a nation or country. So, national culture can be studied using aggregate-level data with corresponding generalization across groups. In contrast, the present study explores an individual aggregation level because that is where cultural fluidity occurs.

The purpose of the present investigation is to further explore cultural variation caused by common individual preferences in uncertainty avoidance. The perspective and findings of this study reflect a double-edged significancy. First, empirically cultural variation cannot be explored independently from individual-level demographic individual-level characteristics, such as gender and age. Second, conceptionally, in this study, the constructed culture refers to the ethnic self-identification of individual group members. This paper is structured as follows. First, a description of the cultural uncertainty dimension is given, and a brief comparison is made with related constructs in the most influential cross-cultural dimension studies. Further, some investigations are discussed to show the relevance of the demographic factors age and gender in exploring uncertainty avoidance differentiated by culture. Then, the operationalization through the national culture of countries is compared with alternative categorization criteria of cultural and ethnic groups. This is followed by a description of a cross-cultural project investigating ethnic uncertainty avoidance. To this end, the findings of a comparison of 11 different ethnic groups across Asia, Eastern Europe, and Western Europe are presented.

The Conceptual Model

The conceptual model of the present study, with the position of the three premises, is given in Figure 1.
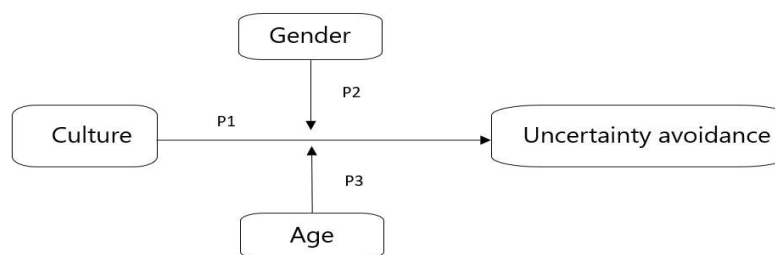

Figure 1. Conceptual Model
Source: the author

In the conceptual model, the cultural background (ethnicity) of the respondents was the predictor, and uncertainty avoidance was the dependent variable. Gender and age were assumed to influence the relationship between culture and the degree of uncertainty avoidance. The education level was controlled as a covariate in the analyses. The research question of this study is formulated as follows: what is the effect of culture on certainty avoidance, and to what extent is this effect influenced by gender and age differences?

Uncertainty Avoidance

Unpredictability is inherent to human experience, expectations, and human behavior. In Hofstede's cultural dimension theory, differences in uncertainty avoidance refer to "the extent to which the members of institutions and organizations within a society feel threatened by uncertain, unknown, ambiguous, or unstructured situations" (Hofstede 2001). Inclination and resilience toward ambiguity and change vary from society to society. Therefore, a more certain and predictable social order is agreed upon with rules and structures to shape the behavior of its members. The levels of predictability and rule orientation reflect the level of ambiguity stress.

Hofstede (2022) expressed the cultural dimensions for national cultures of countries in an index on a 0—100 scale. In the international Values Survey Module 2013 (Hofstede & Minkov 2013), the index for uncertainty avoidance was based on four questions. These questions asked about:

- Perception of tension ("How often do you feel nervous or tense? "Always/Never");
- Health state ("All in all, how would you describe your state of health these days? "Very good/poor");
- Perception of rules ("A company or organization's rules should not be broken—not even when the employee thinks breaking the rule would be in the organization's best interest." "Strongly agree/disagree), and
- Manager-subordinate relationships ("One can be a good manager without having a precise answer to every question that a subordinate may raise about his or her work." "Strongly agree/disagree").

The calculated cultural dimension indexes were conveniently made accessible online (at www.hofstede-insights.com). With these indexes, several studies did cross-comparisons of national cultures of a large variety of countries (Minkov & Hofstede 2014). Overall, there were mixed replication findings for Hofstede's uncertainty avoidance dimension. Several reasons were identified for these validation conflicts. First, several studies incorrectly included risk avoidance in the dimension of uncertainty avoidance (Alipour 2019). Second, studies used the same label but different operationalization of uncertainty avoidance, which was confusing. For example, the large-scale GLOBE study of 59 countries by House et al. (2004) referred to "collective seeking structure" without a facet of tension, such as in Hofstede's uncertainty avoidance (Venaik & Brewer 2010). Third, nascent empirical investigations by Minkov and Kaasa (2021) and Minkov (2018) suggested a reconceptualization of Hofstede's uncertainty avoidance dimension. Within the uncertainty avoidance of a national culture, rule-structured preferences are not associated with the degree of tension (anxiety and stress) (Minkov & Kaasa 2021). They suggested splitting up cultural uncertainty avoidance into a nation's rule-orientation level and a nation's ambiguity-stress level. Elaborating on this, Kaasa (2021) tried to bring together sets of cultural values of major influential specifications of cultural diversity in one single system. Her synthesis isolated Hofstede's rule orientation facet of uncertainty avoidance. Interestingly, this enabled the pinpointing of the conceptual overlap between Hofstede's dimension of uncertainty acceptance vs. avoidance, Schwartz's (2004) distinction between conservatism vs. affective autonomy (reflecting values such as social order, obedience, exciting life) and partly, Inglehart's (1997) distinction between self-expression vs. survival (reflecting values such (in)tolerance and (in)security).

Differences in the uncertainty avoidance of national cultures were very useful to understand specific problems in a variety of domains. For example, in the domain of online trust and privacy, Bellman et al. (2004) did a global survey among internet users from 38 countries. They found that differences in

information privacy concerns could indeed be explained by some of the cultural dimensions indicated by Hofstede (2001). More specifically, individualistic, low uncertainty avoidant cultures were comfortable with disclosing private information of higher levels than collectivistic high uncertainty avoidant cultures. In the domain of public health, Wallace et al. (2019), who analyzed data for 87 countries over 25 years, and Tekeş et al. (2019) noted that high BMI and obesity were associated with relatively high uncertainty avoidant national cultures. Recently, Messner and Payson (2021) explored panic buying in consumer behavior during the COVID-19 outbreak (data collected from February to March 2020). The dataset consisted of Google mobility reports of individuals from 131 countries. They found that country-level individualism and uncertainty avoidance enforced the degree of panic buying, that is, the number and duration of visits to grocery and pharmacy stores.

Building on these empirical surveys and qualitative syntheses, the assumption made is that the uncertainty avoidance dimension is a useful characteristic of cultural variation, especially because it is more sensitive to societal change (Premise 1).

Gender and Age
Taken as a whole, cultural value-oriented studies focussed on group facets in a society with marginal attention for distinctive individual characteristics such as education, age, and gender. Hofstede (2001) argued that in the collective mental programming like nationality, gender is an unconscious involuntary characteristic of a cultural group member. He identified the masculinity/femininity cultural dimension, which reflected that men have been programmed with tougher values and women with more tender values, which varies across different national cultures of countries. Note that this dimension is related to but not the same as gender differences. Several extant studies used Hofstede's dimension indexes as anchor points for their country's comparisons of age and gender.

Regarding the association between gender and uncertainty avoidance, Naghavi et al. (2021) investigated the corporate decision-making process of company boards. Their dataset covered a 10-year-period for 255 companies based in 46 countries. They found that the degree of uncertainty avoidance (identified for a national culture) enforced a positive effect on company board diversity, that is, more women on the board of directors increased the performance of a firm. In a similar vein, Murphy et al.'s (2021) investigations, based on 85 countries, found that gender differences in personality are different per culture. Specifically, in individualistic countries, men on average, tend to score higher on measures of emotional stability than women.

Regarding the association between age and uncertainty avoidance, Lawrie et al. (2020) researched 43 countries for the subjective well-being of their individuals. In countries with higher uncertainty avoidance, higher the age, lower the perception of well-being older age was associated with lower perceived well-being. This was not found for countries with lower uncertainty avoidance. Recently, during the COVID-19 period, Koch and Park (2022) investigated whether psychological distress could be predicted from individual-level demographic characteristics. Data from 27 countries (collected from June to August 2020) showed that country health systems with containment and closure policies caused more psychological distress in women and older individuals than in men and younger individuals. In a similar vein, Ackerman and Chopik (2021) investigated cultural variation in subjective age. National cultures of 68 different countries with Hofstede's dimension scores were compared. In countries with higher uncertainty avoidance, there was a smaller perceived subjective age discrepancy compared to countries with lower uncertainty avoidance. Specifically, women and older adults reported a larger gap between their chronological age and the age they felt.

Against this background, it is evident that the degree of uncertainty avoidance is influenced by the individual-level characteristics of gender (Premise 2) and age (Premise 3).

Indicators of Culture
The flourishing culture dimensions perspective initiated many productive dialogues dealing with the polarisation of cultural differences, assumptions of national uniformity, and individual variations within and between countries (Beugelsdijk et al. 2015, Inglehart 2018, Schwartz 2014, Smith & Bond 2019, Tarabar 2019). A recurring theme is the equation of culture with country and nationality. Taras et al. (2016) questioned the appropriateness of the use of the country as a proxy for culture. Their meta-analysis included 558 studies covering 32 countries. Oftentimes, it is justified to refer to the culture of a country, but cross-country cultural differences will increasingly converge. They contend that cross-cultural investigations should not focus exclusively on cultures of countries and should consider specific socio-economic classes, professions, age cohorts, etc., with commonalities in the degree of wealth, (in)stability, or globalization). Recently, Akaliyiski et al. (2021) went into the "nationology" of culture. Their study supported the significance of investigating and comparing national cultures, evidenced with empirical data from the World Values Survey. Additionally, they argue for a distinctive conceptualization of national culture. As a political entity, "the nation" has a cultural gravity center with concentric circles of individual-level cultural values. These circles are clusters that contain, for instance, diverse ethnolinguistic and socio-demographic categories (including education, age, and gender) of individuals.

Specifically, within Hofstede's cultural value theory, national culture referred to the most dominant culture within a nation or country. Specific groups were identified through the questions "What is your nationality?" and "What was your nationality at birth (if different)?" (Hofstede & Minkov 2013). There are several other options for indicators that can be used as metrics of culture. Broeder and Extra (1999) noted that groups in a multicultural society can be defined and identified in terms of different criteria, namely nationality, birth-country, self-categorization, and the language spoken at home. These criteria have several advantages and disadvantages when used for the classification of cultural groups. The first identification criterion, nationality, likely coincides with the categorization that underlies the "passport" approach in cross-cultural values studies (Taras et al. 2016). Strictly speaking, nationality is a juridical criterium, that is, the passport of a person. The second identification, birth-country of a person, can be combined with the parents' country of birth to indicate a person's country of origin. The latter is the official categorization that is often applied in official (census) population statistics. Information about the nationality and birth-country is objective and relatively easy to establish. However, it becomes less valid over time because of intergenerational erosion, that is, naturalization and births within the countries of residence. In addition, this information is not always indicative of ethnicity and identity. It is determined that the dynamics in society are not considered.

Given the decreasing significance of the nationality and birth-country criteria, collecting reliable information about the composition of the ethnic population groups was a challenging task the demographers in Europe faced (Extra & Yağmur 2004). Complementary or alternative criteria have been suggested in various countries with a longer immigration history, and, for this reason, with a history of collecting census data on multicultural population groups. In countries such as Australia, Canada, and the US, census questions have been phrased in terms of self-categorization and language use at home. Ethnic identification through self-categorisation ("To what ethnic group do you belong?"), touches the heart of the cultural matter. It is emancipatory because it takes into account the person's own conception of ethnicity and identity (Broeder & Extra 1999).

Against this background, it is anticipated that the ethnic self-identification of individuals is an appropriate way for distinguishing cultural groups, or more precisely, ethnic groups.

Methodology

We researched factors that influenced the behavioral intentions of consumers online. In these investigations, the dimension uncertainty avoidance was used to understand cultural differences in online

behavior. Cross-cultural comparisons were made for a variety of factors in consumer behavior, such as trust and privacy (Broeder 2020), color (Broeder & Van Doremalen 2021), and celebrity endorsement (Broeder & Goorden 2019). In all these investigations (including 11 groups), the scale given by Jung and Kellaris (2004) was used to measure uncertainty avoidance. In the present study, the values of this scale are combined and analyzed further for the demographic factors of gender and age. Before we go into the details of the method and empirical findings of this synthesis in the present study, Figure 2 indicates the differences in the uncertainty avoidance for these 11 groups according to Hofstede's international Values Survey Module 2013 (Hofstede & Minkov 2013).
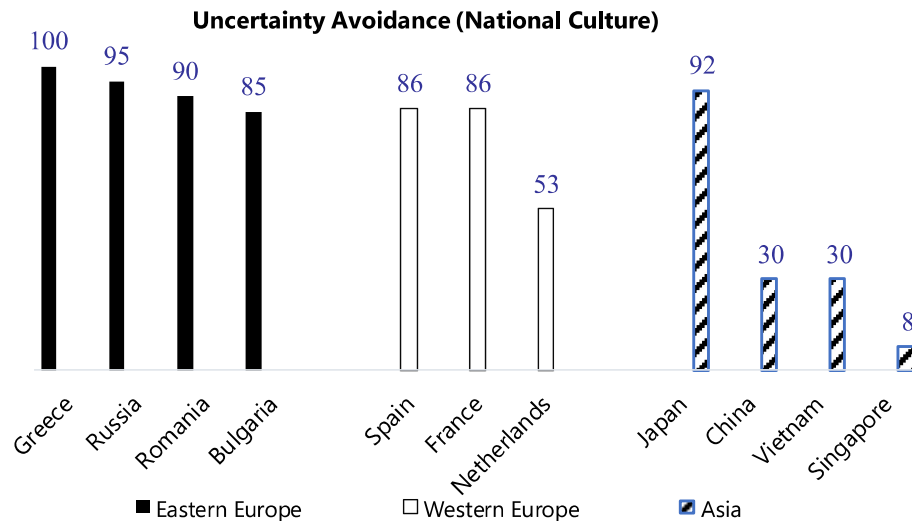

Figure 2. Hofstede's (2022) Uncertainty Avoidance of National Culture ("What is your nationality?). Max.=100 for Strong Avoidant Country

Figure 2 shows that Greece, Russia, and Japan have national cultures with the highest uncertainty avoidance. The highest uncertainty tolerant countries are China, Vietnam, and Singapore, the last of which is remarkably low on the scale. The Eastern European countries seem to be relatively high in uncertainty avoidance, compared to Western European and Asian countries. The levels of uncertainty avoidance of the national culture of the Netherlands in Western Europe, Japan, and Singapore in Asia are remarkable outliers.

Data Collection

In the 2017–2019 period, a total of 5,126 members of 11 groups participated in a series of cross-cultural investigations. An online questionnaire was filled in by 5,126 persons, including 11 different cultural groups from Eastern Europe, Western Europe, and Asia. The groups were distinguished based on ethnic self-identification. Henceforth, we will refer to them as ethnic groups. The final sample used in the analyses consisted of 4,888 participants. Data were not analyzed from 238 persons. The mismatch between birth-country and ethnic self-identification was included in the exclusion criteria. For example, Dutch born in Belgium, Chinese born in Singapore, or Romanians born in the Netherlands were not included. In addition, outliers for age were not included, that is, respondents younger than 18 or older than 57 years. There were 2,016 (41%) male and 2,872 (59%) female respondents. The mean age was 26 years (age range 18–57 years) and the reported education level of most participants was higher education or university. Table 1 gives an overview of the gender and age distribution per ethnic group.

Table 1. Gender and Average Age with Standard Deviation (SD) per Ethnic Group

Region	Group	Total	Male	Female	Age (*SD*)
Eastern Europe	Greek	419	180	239	29.14 (6.68)
	Russian	192	81	111	24.37 (5.71)
	Romanian	133	72	61	26.41 (6.51)
	Bulgarian	126	58	68	24.87 (4.35)
Western Europe	Spanish	276	69	207	25.80 (6.24)
	French	310	136	174	23.22 (4.98)
	Dutch	2,507	1,048	1,459	25.34 (7.05)
Asia	Japanese	206	94	112	28.09 (8.94)
	Chinese	416	158	258	23.47 (4.51)
	Vietnamese	140	57	83	24.18 (4.88)
	Singaporean	163	63	100	32.19 (8.35)
	N total	4,888	2,016	2,872	25.72 (6.92)

Procedure and Measures

Participants gave their informed consent and answered an online questionnaire (Qualtrics) covering the following background information: age, gender, and education level ("What is the highest education level that you have completed?"). In addition, culture-related information referred to the birth-country ("What country were you born in?"), country of residence ("In what country do you live at the moment?"), and ethnic self-identification ("To what ethnic group do you belong?"). Uncertainty avoidance of the respondents was measured using a scale developed by Jung and Kellaris (2004) based on Hofstede's dimension. The items addressed the following information:

- The degree of rule orientation: "I prefer structured situations to unstructured situations", "I prefer specific instructions to broad guidelines", and "I believe that rules should not be broken for mere, pragmatic reasons".
- The degree of tension: "I tend to get anxious easily when I don't know an outcome", "I feel stressed when I cannot predict consequences", and "I don't like ambiguous situations".

One item of the original scale of Jung and Kellaris (2004) was not considered. This item addressed risk avoidance ("I would not take risks when an outcome cannot be predicted") and was not included because it did not fall under Hofstede's dimension of uncertainty avoidance (see Alipour 2019 for a discussion of the incorrect inclusion of risk-avoidance under uncertainty avoidance). Answers were given on a five-point Likert-type scale ranging from "Strongly disagree" (=1) to "Strongly agree" (=5). A reliability analysis was carried out on the uncertainty avoidance scale comprising six items. Cronbach's alpha showed that in this study, the scale reached acceptable reliability, $\alpha=.75$. All six items appeared to be worthy of retention, resulting in a decrease in the alpha if deleted (with $\alpha=.56$ for the set of rule-oriented items and $\alpha=.73$ for the set of tension-related items).

Results

For the ethnic groups in the present study the degree of uncertainty avoidance, measured with the adapted Jung & Kellaris (2004) scale, is presented in Figure 3. Interestingly, the emerging pattern is different than the one emerging from Hofstede' operationalisation of uncertainty avoidance, shown in Figure 2. The ethnic groups with the highest uncertainty avoidance are Romanian, Japanese and, Singaporean. Also differently, the highest uncertainty tolerant countries are now: Russian, Bulgarian, Chinese, and Dutch. The last ethnic group, from the Netherlands, is again remarkable low on this uncertainty avoidance scale.
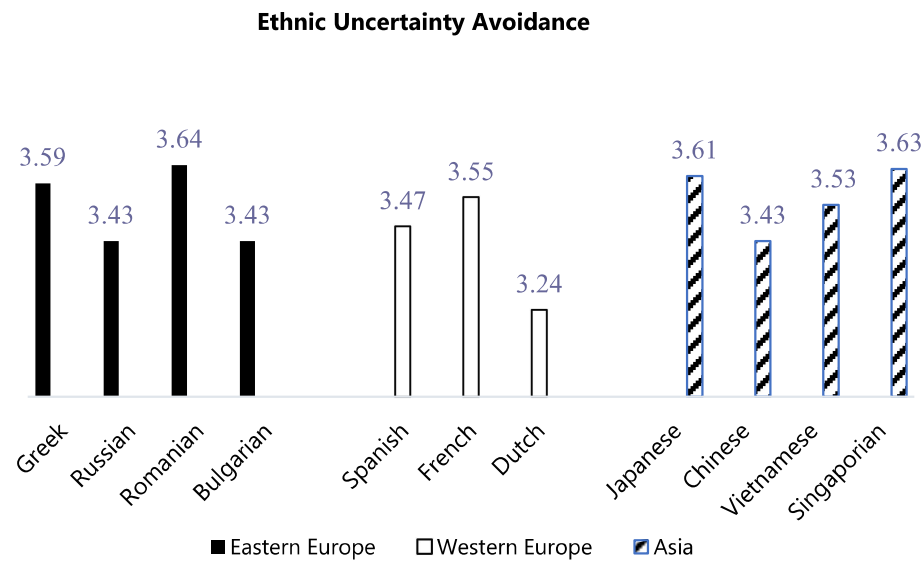
Ethnic Uncertainty Avoidance

Figure 3. Uncertainty Avoidance of Ethnic groups ("To what ethnic group do you belong?). Mean Scores on a 5-point-scale: Min.=1 for Tolerant and Max.=5 for Strong Avoidant

For each ethnic group separate simple moderation analyses were performed with Hayes' (2018) procedures (model 1). Gender was entered as the independent variable. Uncertainty avoidance was the dependent variable. The variable age was entered as the moderator. Education level was entered as a co-variate. For all statistical tests an alpha level of .05 was applied. The significance of the effects was tested with bias-corrected and accelerated (BCa) confidence intervals (CI) based on 5000 bootstrap samples. The confidence intervals should be entirely above or below zero.

Eastern Europe
The average uncertainty avoidance values in decreasing order for the Eastern European groups were as follows: Romanian (*M*=3.64, *SD*=.65), Greek (*M*=3.59, *SD*=.58), Russian (*M*=3.43, *SD*=.62), and Bulgarian (*M*=3.43, *SD*=.66). Figure 4 shows the differences between the male and the female participants for the Eastern European groups.

The mean values in Figure 4 show that for all groups the women were more uncertainty avoidant than the men. The Romanian women had the highest level of uncertainty avoidance (*M*=3.77, *SD*=.57), whereas the Bulgarian men had the lowest level of uncertainty avoidance (*M*=3.26, *SD*=.66). However, for the Greek, Russian, and Romanian group no statistically significant effects of gender and age were found.

For the Bulgarian group the overall regression model was nearly significant (R^2=.07, $F(4, 121)$=2.22, *p*=.07) with a significant main effect for gender (*b*=.31, *p*=.01, 95% BCa CI [.07, .54]). There was no significant main effect for age (*b*=-.02, *p*=.31, 95% BCa CI [-.05, .01]). This means that the Bulgarian women were more uncertainty avoidant than the Bulgarian men. This concerns the younger as well as the older Bulgarians.
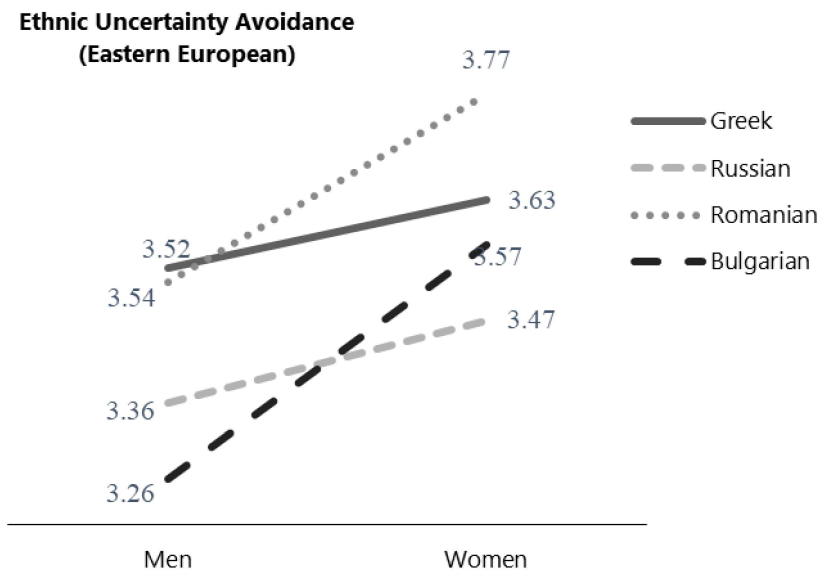
**Ethnic Uncertainty Avoidance
(Eastern European)**

Figure 4. Gender and Uncertainty Avoidance of the Eastern European Ethnic Groups. Mean Scores on a 5-point-scale: Min.=1 for Tolerant and Max.=5 for Strong Avoidant

Western Europe
The average uncertainty avoidance values in decreasing order for the Western European groups were as follows: French (M=3.55, SD=.62), Spanish (M=3.47, SD=.61), and Dutch (M=3.24, SD=.63). Figure 5 gives an overview of the male and the female participants in the Western European groups.

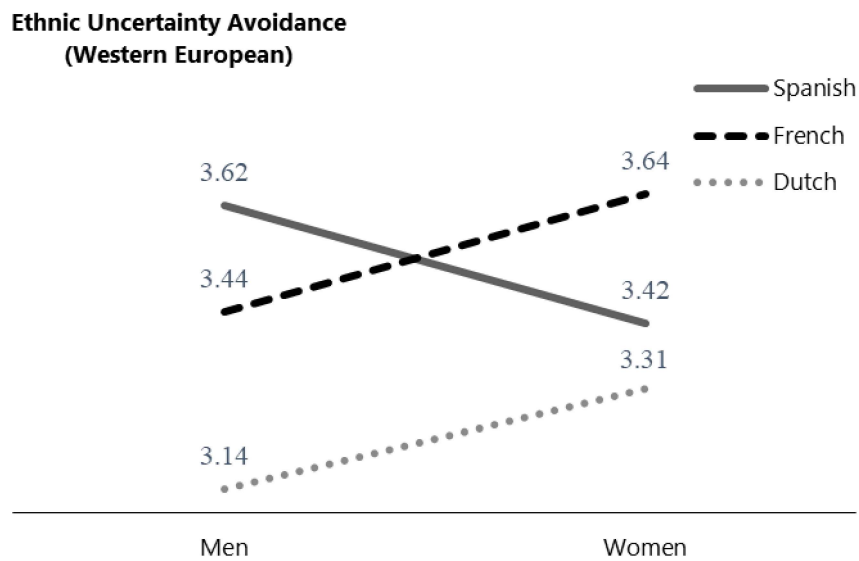**Ethnic Uncertainty Avoidance
(Western European)**

Figure 5. Gender and Uncertainty Avoidance of the Western European Ethnic Groups. Mean Scores on a 5-point-scale: Min.=1 for Tolerant and Max.= 5 for Strong Avoidant

The mean values in Figure 5 show that for the French group and the Dutch group the women were more uncertainty avoidant than the men. In contrast, the Spanish men were more uncertainty avoidant than the Spanish women. The French women had the highest level of uncertainty avoidance ($M=3.64$, $SD=.62$), whereas the Dutch men had the lowest level of uncertainty avoidance ($M=3.14$, $SD=.64$).

For the Spanish group no statistically significant effects of gender and age emerged in the regression analysis.

In contrast, for the French group the overall regression model was nearly significant ($R^2=.03$, $F(4, 305)=2.33$, $p=.05$) with a significant main effect for gender ($b=.18$, $p=.02$, 95% BCa CI [.40, .32]). There was no significant main effect for age ($b=-.01$, $p=.54$, 95% BCa CI [-.02, .01]). This means that the French women were more uncertainty avoidant than the French men. This concerned the younger as well as the older French.

The Dutch group in this study was relatively large with 2507 members (see Table 1). For the Dutch group the overall regression model was significant ($R^2=.02$, $F(4, 2502)=12.226$, $p<.00$) with a significant main effect for gender ($b=.16$, $p<.00$, 95% BCa CI [.11, .21]). There was no significant main effect for age.

Asia

The average uncertainty avoidance values in decreasing order for the Asian were as follows: Singaporean, ($M=3.63$, $SD=.63$), Japanese ($M=3.61$, $SD=.61$), Vietnamese ($M=3.53$, $SD=.53$), and Chinese ($M=3.43$, $SD=.64$). The average uncertainty avoidance for the male and the female participants in the Asian groups are shown in Figure 6.
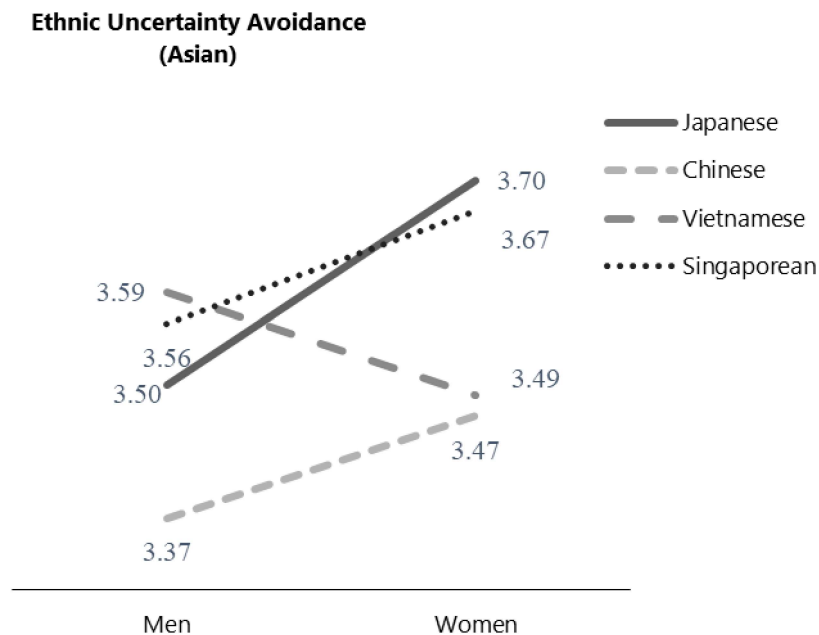

Ethnic Uncertainty Avoidance (Asian)

Figure 6. Gender and Uncertainty Avoidance of the Asian Ethnic groups. Mean Scores on a 5-point-scale: Min.=1 for Tolerant and Max.=5 for Strong Avoidant

On average in three Asian groups (Japanese, Singaporean, and Chinese) the women were more uncertainty avoidant than the men. In contrast, in the Vietnamese group the men were more uncertainty

avoidant than the women. The Japanese women had the highest level of uncertainty avoidance (M=3.70, SD=.52), whereas the Chinese men had the lowest level of uncertainty avoidance (M=3.37, SD=.64).

In the regression analysis for the Chinese and Vietnamese groups no statistically significant gender and age effects were found. So there was no difference in uncertainty avoidance between the Chinese men and women, as well as between the Vietnamese men and women.

For the Japanese group the overall regression model was not significant (R^2=.03, F(4, 201)=1.40, p=.23), but with a significant main effect for gender (b=.19, p=.00, 95% BCa CI [.03, .35]). There was no significant main effect for age (b=.00, p=.66, 95% BCa CI [-.01, .02]). This means that the Japanese women were more uncertainty avoidance than the Japanese men. This concerned the younger as well as the older Japanese.

Finally, for the Singaporean group the overall regression model was significant (R^2=.07, F(4, 158)=3.03, p=.02) with no significant main effect for gender (b=.15, p=.13, 95% BCa CI [-.06, .35]). However, there was a significant main effect for age (b=.02, p=.01, 95% BCa CI [.01, .03]). This means that the older Singaporean men and women were more uncertainty avoidant than the younger Singaporean.

Discussion and Implications

This is one of the first known studies exploring uncertainty avoidance of ethnically self-identified (cultural) groups differentiated by age and gender.

With respect to ethnic differentiation, a substantial variation in the levels of uncertainty avoidance was observed across the different ethnic groups (Premise 1). The most uncertainty avoidant ethnic groups were Asian (Singaporean and Japanese) and Eastern European (Romanian and Greek). The most uncertainty tolerant ethnic groups were Western European (Dutch), two Eastern European (Bulgarian and Russian), and an Asian ethnic group. These groups showed the same level of uncertainty tolerance. The relative uncertainty avoidance order differentiated by ethnic self-identification is very different from the uncertainty avoidance ranking of national cultures (Hofstede 2022).

With reference to gender, the assumption was made that uncertainty avoidance is related to gender (Premise 2). Indeed, the findings of this study provide empirical evidence that on average, women are more uncertainty avoidant than men. The gender difference was statistically significant for five ethnic groups, namely Bulgarian, French, Dutch, Japanese, and Chinese. The opposite was found for the Spanish and Vietnamese ethnic groups: their women were more uncertainty tolerant. No statistically significant differences emerged between men and women in the Greek, Russian, Romanian, and Singaporean ethnic groups.

Relating to age, it was also assumed that older people are more uncertainty avoidant than younger ones (Premise 3). However, this assumption was not supported. There was no empirical basis for the ethnic group samples in this study. The effect of age was only evidenced with statistical significancy for one ethnic group, the Singaporean.

In terms of cultural diversity in the dynamics within and between societies, there is no single, straightforward road to a solution for the cultural identification problem. In the backdrop of cultural diversity, different criteria may complement and strengthen each other. Nascent studies make congent arguments, with empirical support that for distinguishing groups in cross-cultural comparisons, the usage of country (Taras et al. 2016) and nationality (Alkaliyski et al. 2021) are still germane, and oftentimes effective.

In this study, ethnic groups were distinguished by profiles based on birth-country and self-identification criteria. These multiple identification criteria have proven to be highly valid for defining cultural groups in Asia (Broeder & Stokmans 2013), Europe (Extra & Yagmur 2004), and South Africa (Plüddemann et al. 2004). Ethnic identification through self-categorization touches the heart of the cultural matter (Broeder & Extra 1999). Additionally, in these demolinguistic studies, cultural identification

through (home) language use is a significant criterion of ethnicity in communication processes. Language data are the cornerstones of government policies in areas such as public information or education. Further, language is often a core value of ethnicity and identity (Plüddemann et al. 2004).

Limitations and Further Investigations

This study has some limitations that provide points for further investigations. The first limitation is due to the operationalization of uncertainty avoidance. In this research, a measurement scale developed by Jung and Kellaris (2004) was adapted. This scale consisted of a different set of questions than the one suggested by Hofstede's international Values Survey Module 2013 (Hofstede & Minkov 2013). To further elaborate on the previous limitation, the questionnaire in this research was created and distributed solely in English, whereas translations in several languages are available for Hofstede's questions (Hofstede & Minkov 2013). Second, the investigation of the present study was based on self-reported data from only 5,126 individuals covering only 11 different groups. Indeed, a very small data set, with a view to the cultural value-oriented studies that can be characterized as empirical approaches with a strong fascination for very large data sampling. Third, the ecological fallacy (Messner 2016, Winzar 2015) to keep in mind is that ethnically self-identified cultural identification criteria generalize between groups. The explanation of observable behavior patterns should accept variation among individual group members as well as the relative importance of competing cultural values in country-specific and nation-specific contexts. Finally, increasing processes of globalization and migration imply the increasing trend towards naturalization and births within the countries of residence. Nationality and birth-country will become less valid over time as criteria for identifying group memberships. Therefore, the combined criterion of ethnic self-categorization and (home) language use is a potentially promising long-term alternative in cross-cultural investigations.

Conclusion

Distinguishing groups and memberships through self-categorization can be a valuable method for disentangling the continuous complexity of cultural diversity. On a whole, this study's ethnic group profiles suggest that women are more uncertainty avoidant than men, regardless of their age. The study points to the importance of self-categorization as an indicator of ethnic groups. This type of ethnic identification is related to the commonly used cultural value of uncertainty avoidance. The perceived difference in uncertainty avoidance across ethnic groups is believed to be inherent in the human experience and expectations as well as in predicting human behavior.

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