Loneliness and the Hofstede Dimensions, comparing Mean Loneliness among Adolescents: A Meta-Analysis

Visual of mean loneliness among countries. The darker the country, the higher the mean loneliness score

Name: Anne Mooij

Student number: 6729045

Master: Youth Studies

Date: 17-06-2021

Supervisor: Marlies Maes

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Utrecht University

LONELINESS AND THE HOFSTEDE DIMENSIONS, COMPARING MEAN
LONELINSS AMONG ADOLESCENTS.

Abstract

Loneliness is the subjective feeling of having unsatisfactory relationships, and loneliness can
negatively influence adolescents' wellbeing. This analysis examines differences in mean
loneliness among adolescents between different countries based on the six Hofstede
Dimensions: Restrained, Power-Distance, Long-Term Orientation, Individualism,
Masculinity, and Uncertainty-Avoidance with loneliness. Mean loneliness scores from the
MASLO-dataset are compared with countries and the Hofstede Dimensions. The Hofstede
Dimensions are retrieved from https://www.hofstede-insights.com. I included 459 studies
concerning adolescents and loneliness from 38 countries. Two different analyses were
performed, the first analysis examined the Dimensions separately and a second analysis
examined the Dimensions altogether. First, I found a difference in mean loneliness among
adolescents between countries. We found no relation between Power-Distance, Restrained
and loneliness. Additionally, we found a positive relation between Masculinity and
Collectivism, suggesting people in more Masculine and more Collectivistic countries are
more likely to report higher mean loneliness. Final, we found a negative relation between
Uncertainty-Avoidance and Short-Term Orientation, implying that people in Low
Uncertainty-Avoidance and Short-Term Orientation countries were more likely to report
higher loneliness. Concluding, cultural differences are associated with differences in
loneliness, where Masculinity, Collectivism, Uncertainty-Avoidance and Short-Term
Orientation seem the most important.

Keywords: Loneliness, Adolescents, Hofstede Dimensions

Onbevredigende relaties kunnen leiden tot een gevoel van eenzaamheid, wat negatieve
gevolgen kan hebben voor het welzijn van adolescenten. Dit onderzoek kijkt naar verschil in
gemiddelde eenzaamheidsscores onder jongeren in verschillende landen. Daarnaast wordt
gekeken of cultuurkenmerken een invloed hebben op eenzaamheid aan de hand van de zes
Hofstede Dimensies: Terughoudendheid, Machtsafstand, Langetermijnvisie, Individualisme,
Masculiniteit en Onzekerheidsvermijding. Gemiddelde eenzaamheidsscores uit de MASLO-
dataset zijn vergeleken met de scores van de Hofstede Dimensies, verkregen van
https://www.hofstede-insights. Er zijn 459 onderzoeken opgenomen over adolescenten en
eenzaamheid uit 38 landen. Met deze data zijn twee analyses uitgevoerd: Eén met alle

dimensies apart en één met alle dimensies tegelijk. Er is geen relatie gevonden tussen
Machtsafstand, Terughoudendheid en eenzaamheid. Tussen Masculiniteit en Collectivisme is
er een positieve relatie gevonden, wat suggereert dat adolescenten in meer masculiene en
meer collectivistische landen een grotere kans hebben op eenzaamheid. Daarnaast is er een
negatieve relatie gevonden tussen Langetermijnvisie en Onzekerheidsvermijding, wat
suggereerst dat adolescenten in meer Kortetermijnvisie en lagere Onzekerheidsvermijding een
grotere kans hebben op eenzaamheid. Concluderend, culturele verschillen zijn gerelateerd aan
verschillen in eenzaamheid. Daarbij lijken Masculiniteit, Collectivisme,
Onzekerheidsvermijding en Langetermijnvisie de belangrijkste factoren.

Kernwoorden: Eenzaamheid, Adolescenten, Hofstede Dimensies

Loneliness and the Hofstede Dimension, comparing Mean Loneliness among Adolescents: A Meta-Analysis

Loneliness is the subjective feeling of having unsatisfactory relationships (Cacioppo & Hawkley, 2010). Lonely people live in an emotionally unpleasant state, perceiving a lack of desired interpersonal relationships (Stickley et al., 2016). Nevertheless, the need to belong and to feel socially connected is a fundamental aspect of human development and wellbeing (Steinberg, 2020). Although loneliness is often associated with the elderly, 70% of the 18-year-olds experience loneliness, dropping to 39% for older adults (Goosby, et al 2013). Considering those numbers, loneliness seems to be a problem among adolescents. In addition, adolescents are most vulnerable to loneliness, as it may hinder developmental tasks (Peltzer & Pengpid, 2017).

Considering the developmental changes during adolescence, such as spending time with peers over spending time with family, adolescents urge to have intimate relationships with their peers (Steinberg, 2020). Not meeting the need for social contact can negatively influence adolescents' mental and physical wellbeing during their whole life (Goosby et al, 2013; Cicogani et al., 2014). In addition, loneliness is associated with several health issues, such as depression, anxiety, and premature mortality (Goosby et al., 2013; Vancampfort et al., 2019). Hence, loneliness can affect the whole life course and may have long-lasting effects after adolescence (Goosby, 2013; Peltzer et al, 2017; Steinberg, 2020).

Although loneliness is a universal feeling, the value of relationships can differ in cultures (Maes et al., 2016). Cultures are collective ideas and values which binds groups of people (Hofstede, 2011); Thus, societal values can influence individual experiences of loneliness (Maes, 2016; Yang, 2019). Loneliness is a subjective feeling shaped by people's attitudes and, how pe ople look at relationships or being alone is shaped by values people learn from their environment. For example, the extent to which a culture is collectivistic or individualistic plays a role. Collectivistic cultures are more group-oriented, shaping how people look at relationships (Maes, 2016). Concluding, societal factors might influence how people experience loneliness.

Although loneliness is often studied, there is a gap in the literature for understanding the relation between loneliness and cultural differences. Current literature often examines a limited number of countries, don't consider cultural differences, or only focus on one cultural aspect.

Giving that loneliness is a universal feeling raises the question of what causes differences between countries. Considering cultural differences between countries in relation

to loneliness provides more insight into how societal factors influence individual experiences: 'Some social phenomena can only be understood if you stand back and take a look at 'the forests' rather than 'the trees. (Yung, 2019, p. 164)'

Cultural Differences

During this analysis, I use the Hofstede Model to compare countries based on their cultural characteristics (Hofstede, 2011). The Hofstede Model is a framework with six dimensions, where each dimension is a spectrum of cultural characteristics. Below, I will go deeper into the different spectrum. Figure 1 shows the Hofstede framework.

Because the Hofstede Model gives every dimension a score on a scale from $0 - 100$, it is easy to compare country characteristics on these scales. Furthermore, Hofstedes Insights collected data from many countries, which aligns with this analysis.

Restrained vs Indulgence

Restrained vs Indulgence is the dimension of how society perceives and regulates strict social norms (Hofstede, 2011). In restrained countries, people are more controlled by stringent social standards, and people feel like they have little autonomy of their own lives (Hofstede, 2011; Yang, 2019). There are less strict social norms in indulgenced countries and people experience more freedom (Hofstede, 2011).

In the context of loneliness and restrained, the feeling of autonomy is critical. Autonomy is often described as a basic human need, and might affects people's experience in relationships (Yang 2019). autonomy seems to be a crucial factor, where more autonomy leads to less prevalence of loneliness (Yang, 2019), but this relation is not total clear. Whereas some studies describe that people with a high sense of autonomy are less lonely (Yang, 2019), other studies find that adolescents with a heightened sense of autonomy are more likely to feel lonely (Teppers et al. 2013).

Continuing on the aforementioned perspective, people in more indulgenced countries are often more liberal, whereas restrained countries are often more traditional (Yang, 2019). In more liberal countries, people are often more allowed to establish social relationships without worrying about future consequences, which can help people to gain more supportive relationships. (Yang, 2019). As aforementioned, supportive relationships can help people experience less loneliness (Buehler & Cavanaugh, 2016).

High Power-Distance vs Low Power-Distance

Power-Distance relates to how countries view the different solutions to human inequality (Hofstede, 2011). Countries with High Power-Distance see power as a basic fact of society and see inequality as insurmountable. Therefore, income is often unevenly distributed

(Hofstede, 2011). Moreover, High Power-Distance is often characterised by more hierarchy, more authority and thus, more authoritarian parenting styles. In Low Power-Distance countries, relationships between people are more equal and income differences are minor (Hofstede, 2011). In the context of Power-Distance and loneliness, the factors inequality and authoritarian parenting styles seem critical.

In High Power-Distance countries, parents are more likely to use authoritarian parenting styles and more likely to teach their children to be obedient because of the value attributed to the hierarchy in families (Hofstede, 2011). Children who experience authoritative parenting styles are more likely to experience low self-esteem and less social skills, causing less emotional knowledge and feelings of loneliness (Heinze et al., 2014; Kawabata, 2011;).

Societal differences also seem to influence loneliness. Characteristic for High Power-Distance countries are societal differences between people. Yang (2019) describes a positive relation between Power-Distance and loneliness. Thus, when people are more tolerant towards these differences, such as in High Power-Distance countries, people are more likely to feel lonely (Yang, 2019).

Short-Term Orientation vs Long-Term Orientation.

Short-Term vs Long-Term Orientation is the spectrum of how people look at societal changes and traditions. Short-Term Orientation countries are more tradition-focused than Long-Term Orientation, which are more pragmatic. Moreover, Short-Term Orientated countries are focused on stability and attribute success and failure to luck (Hofstede, 2011). Long-Term Orientated countries attribute success or failure to effort the absence of effort and have a more growth mindset (Hofstede, 2011). Like the Restrained vs Indulgence dimension, people in Short-Term Orientated countries are more likely to feel lonely, caused by strict social norms.

A relation between loneliness and Short-Term Orientation in the current literature is not often found. Yang (2019) examined an association between loneliness and Short-Term Orientation, but no relation was found. There has not been much research into this relationship, so it isn't easy to make statements about it.

Individualism vs Collectivism

Individualism is the extent to which individuals belong to groups (Hofstede, 2011). Individualistic countries stress independence, and people are integrated into smaller groups. In collectivistic cultures, people are more likely to live in strong, cohesive groups or social systems (Hofstede, 2011).

While often studied, the relation between Individualism, collectivism and loneliness is not completely clear. Some studies find a positive relation between Individualism and loneliness, meaning that people living in individualistic countries are more likely to feel lonely (Barreto, et al., 2020; Beller & Wagner, 2020). Individualism causes people to be more self-reliant and less able to rely on their network during problems (Beller & Wagner, 2020). Therefore, individualistic countries experience more loneliness issues because people feel more responsible for their well-being (Beller & Wagner, 2020).

In contrast, other studies also find a positive relation between collectivism and loneliness, meaning that people in collectivistic countries are more likely to feel lonelier. Although adolescents are more bound to social groups and receive more support, people also have higher expectations of their social network and a higher chance of experiencing discrepancies in their social needs (Leykes & Kemmelmeier, 2014; Heu et al., 2019). This discrepancy can lead to a higher feeling of loneliness for people in collectivistic countries.

Masculinity vs Femininity

Masculinity vs Femininity refers to how a culture looks at gender bound values and gender roles (Hofstede, 2011). In masculine cultures, people are assigned strong gender roles, while gender roles are less binding (Hofstede, 2011). Considering gender bound values, in masculine countries are masculine values often more appreciated than more feminine values (Hofstede, 2011).

Research shows a positive association between loneliness and internalising masculine values and gender roles (Blazina et al., 2007; Cramer et al., 1998; Ilhan, 2012). Research among individuals showed that men who assign strong masculine gender roles towards themselves are more likely to feel lonely (Blazina et al., 2007; Cramer et al., 1998; Ilhan, 2012). Although most research examines individual experiences, gender roles are often caused by expectations from social networks. Especially for men, these gender roles can avoid intimacy in relationships (Blazina et al., 2007; Cramer et al., 1998). The emotional distancing by avoiding intimacy can lead to less fulfilling relationships (Buehler & Cavanaugh, 2016).

High Uncertainty-Avoidance vs Low Uncertainty-Avoidance

Uncertainty-Avoidance reflects how people behave in an uncertain and ambiguous situation (Nath et al., 2018). People in Low Uncertainty-Avoidance countries are often more focused on stability and tend to be more anxious and stressed, especially in new situations (Hofstede, 2011; Nath et al., 2018). People in Low Uncertainty-Avoidance countries are often open-minded and, overall, less stressed or anxious (Hofstede, 2011). Finally, people in High Uncertainty-Avoidance countries are more traditional-focused, whereas people in Low

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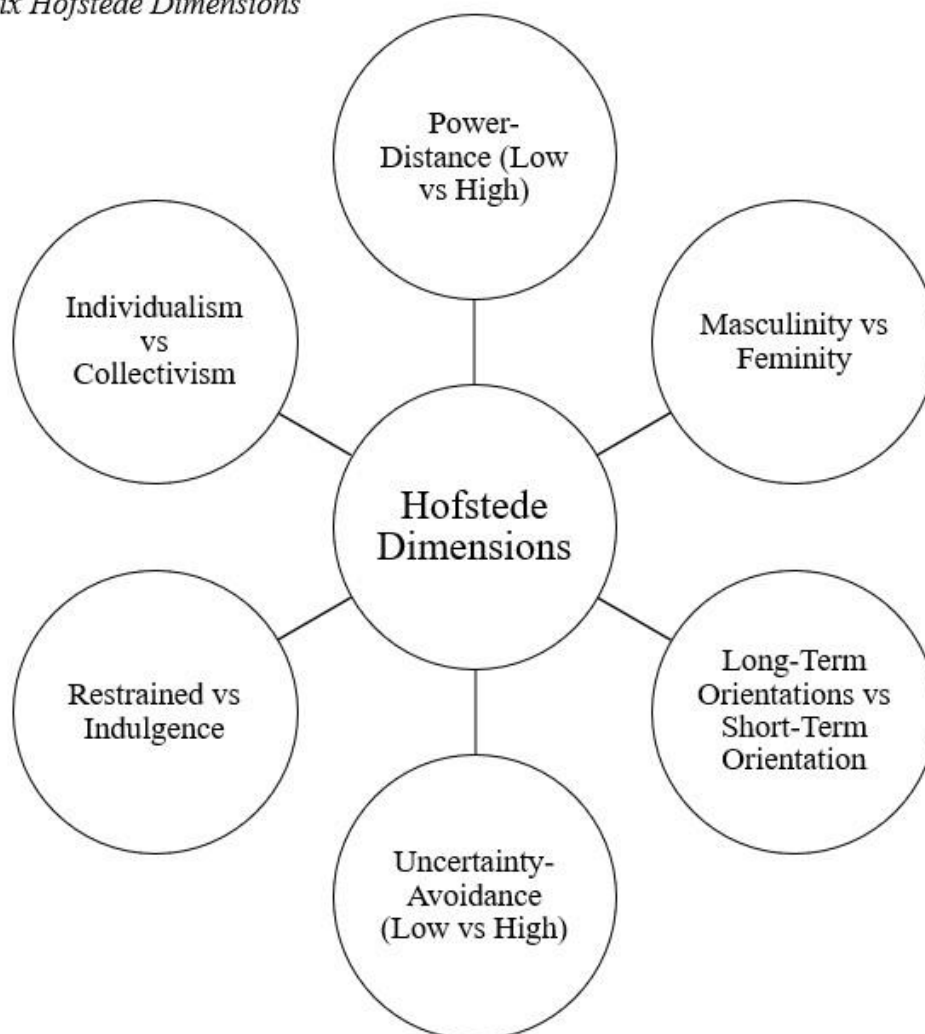LONELINSS AMONG ADOLESCENTS.

Uncertainty-Avoidance countries are more liberal, which overlaps with the Restrained
dimension (Hofstede, 2011).

A study among elderly shows that people without satisfactory relationships are more
likely to feel stressed (Campagne, 2014). The same relation is found for adolescents, where
lonely adolescents are more likely to feel stressed (Lee et al., 2015). Social relationships are
often a buffer for stress. Thus people who feel more lonely are less likely to feel a social
buffer (Lee et al., 2015). This lack of social support can make people feel lonelier.

There is a comparative mechanism between loneliness and anxiety. Lonely people are
more likely to experience anxiety (Buehler & Cavanaugh, 2016). Therefore, people who
perceive more social support are less likely to feel lonely (Buehler & Cavanaugh, 2016).
Since people in High Uncertainty-Avoidance countries are more anxious, it can be assumed
that they experience less social support, but this relation is not completely clear.

Figure 1

The six Hofstede Dimensions

Current Study

This study compares country differences in mean loneliness scores of adolescents.
Thus, this study aims to answer the two research questions: "*Are there differences in mean
loneliness scores among adolescents and can this be associated with the six Hofstede
Dimensions?*"

Figure 2 shows the theoretical model. Each factor consists of one side of the Hofstede
Model spectrum. This study examines seven hypotheses:

Hypothesis 1: There are differences in mean loneliness scores among adolescents.

Hypothesis 2: Adolescents in more Restrained countries report higher mean loneliness scores
than adolescents in more Indulgenced countries.

Hypothesis 3: Adolescents in more High Power-Distance countries report higher mean
loneliness than adolescents in more Low Power-Distance countries.

Hypothesis 4: Adolescents in more Short-Term Orientation countries report higher mean
loneliness than adolescents in more Long-Term Orientation countries.

Hypothesis 5: Adolescents in more Individualistic countries report higher mean loneliness
than adolescents in more Collectivistic countries.

Hypothesis 6: Adolescents in more Masculine countries report higher mean loneliness than
adolescents in more Feminine countries.

Hypothesis 7: Adolescents in more High Uncertainty-Avoidance report higher mean
loneliness than adolescents in more Low Uncertainty-Avoidance countries.

Figure 2

Theoretical Model Consisting the six Hofstede Model Dimensions and the Independent Variable.
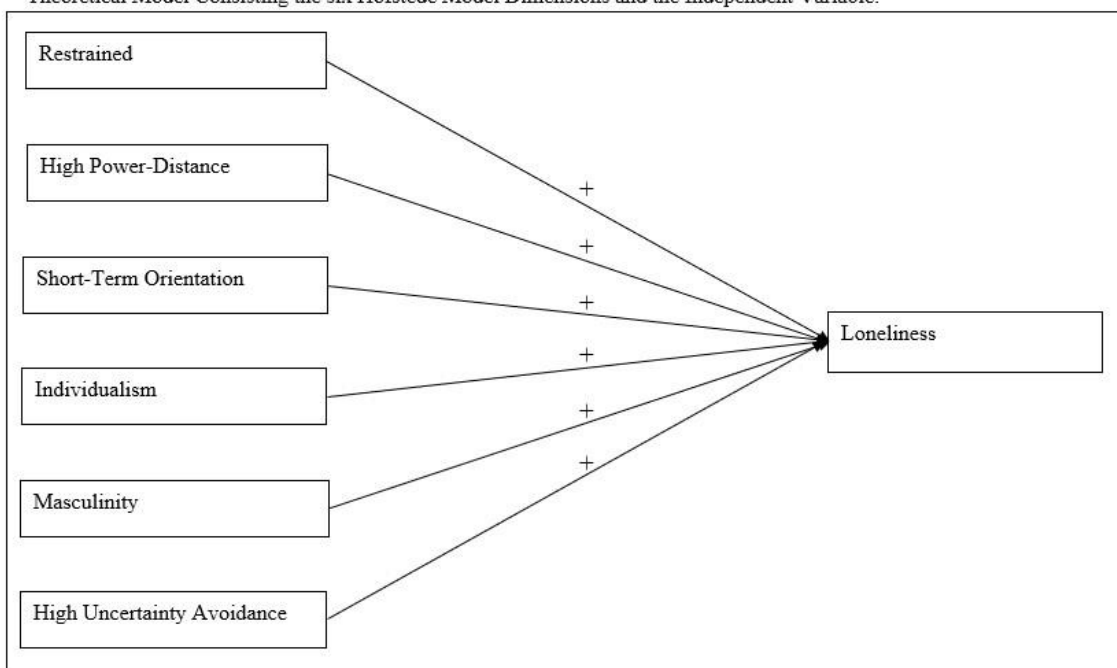
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Method

Literature Search

The current study is part of the Meta-Analytic Study of Loneliness project (MASLO), collecting data from studies concerning loneliness. The database includes articles that contained standardised loneliness questionnaires. The literature search was conducted in online databases: PsychInfo, ERIC, PubMed, and Web of Science, using key terms related to the names of the loneliness measures (Maes et el., 2019). More information about the literature search can be found in Maes et al. (2019).

The Hofstede scores are retrieved from the website https://www.hofstede-insights.nl and added to the data file. Finally, the Hofstede Dimensions are combined with the MASLO data.

Selection of Studies

The MASLO project has a big database with studies concerning loneliness ($n = 3029$), but not all studies are used for the current analysis. Below, I describe the selection process of the studies in the MASLO project. A visual display of this study is shown in Figure …

First, I excluded other questionnaires than the UCLA Loneliness Scale ($n = 1758$). The UCLA is a widely used and has a high internal consistency (Russel et al., 1980). It measures loneliness on a broad spectrum, with a high validity (Russel et al., 1980). Furthermore, UCLA is often used for adolescents and therefore we used UCLA in the current analysis. After this first selection, I continued with selecting studies. In the next step, only studies using adolescents in the age range 12 – 24.9 years were selected.

Next, a selection was made based on the data in the study. For example, this study examines mean loneliness scores between countries. Therefore, only studies with a mean loneliness score were selected, followed by studies with a minimum and maximum range in the database. This data was necessary for analysing the data further in the process and therefore I excluded studies without these ranges or mean scores.

After this, I examined Hofstede scores and double countries. Two countries had no Hofstede scores (Zimbabwe and Cyprus) and were therefore excluded. Some studies were conducted in multiple countries, so the Hofstede studies could not be attached to these studies. Therefore, these studies were also excluded.
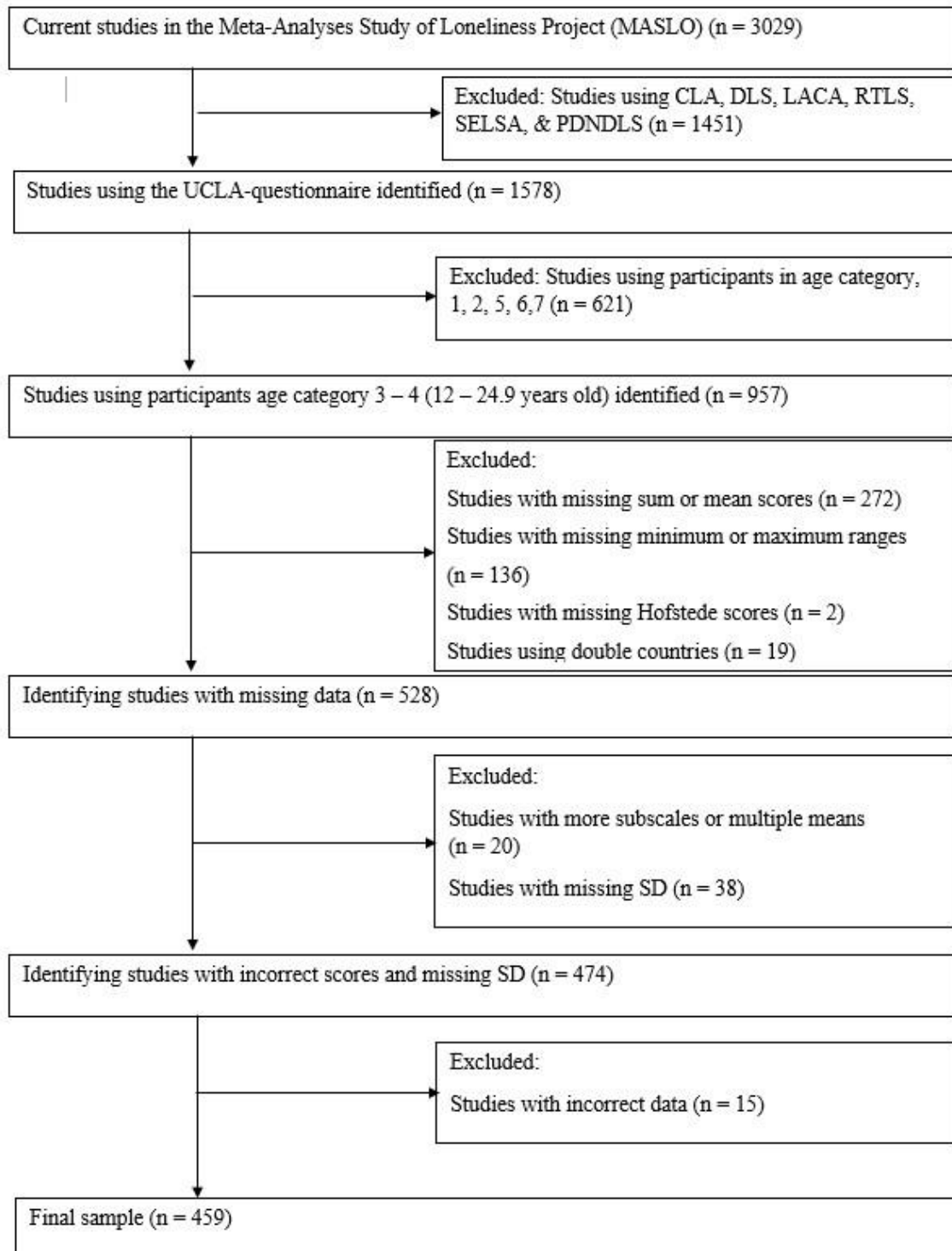
Following, I recalculated studies with multiple means or multiple subscales. Some studies consisted multiple means, created by multiple subscales. I recalculated the mean and included the recalculated means. In this selection, I also excluded studies with a missing SD.

In the final check, I examined the dataset for unexpected or impossible scores. For example, some scores showed incorrect notations in SD, where the SD was a standard error. This impossible score is caused by wrong notation in the dataset. I checked the dataset and the studies, but the study was excluded if the mistake cannot be found.

Figure 3

The Selection Process

Current studies in the Meta-Analyses Study of Loneliness Project (MASLO) (n = 3029)

Excluded: Studies using CLA, DLS, LACA, RTLS, SELSA, & PDNDLS (n = 1451)

Studies using the UCLA-questionnaire identified (n = 1578)

Excluded: Studies using participants in age category, 1, 2, 5, 6,7 (n = 621)

Studies using participants age category 3 – 4 (12 – 24.9 years old) identified (n = 957)

Excluded:
Studies with missing sum or mean scores (n = 272)
Studies with missing minimum or maximum ranges (n = 136)
Studies with missing Hofstede scores (n = 2)
Studies using double countries (n = 19)

Identifying studies with missing data (n = 528)

Excluded:
Studies with more subscales or multiple means (n = 20)
Studies with missing SD (n = 38)

Identifying studies with incorrect scores and missing SD (n = 474)

Excluded:
Studies with incorrect data (n = 15)

Final sample (n = 459)

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Study Coding

The data is coded by undergraduate students, using a coding manual. During the coding process, study characteristics are collected. These characteristics are, for example, publication characteristics (e.g., country and year of publication), sample information (e.g., participants, number of males/females, socio-economic status, age), and questionnaire information (e.g. information about the questionnaire, mean loneliness score, range of items).

Statistical Analyses

The current study conducts multiple analyses to test the hypotheses: One analysis to test the possible difference in mean loneliness scores, separate analyses with each Hofstede dimension and one model where all the six dimensions are examined together. In this paragraph, I will explain the different analyses and how I conducted them. I performed the analyses in the statistical program JASP.

During this analysis, I used a random-effect model. In a random-effects model, there is the general assumption that the true effect size can be similar to the found effect size, but not identical (Borenstein et al., 2009). For example, studies can differ in sample size and participants characteristics. Thus, there is the possibility that there are different effect sizes underlying different studies. In a random-effects model, study weights are more balanced compared with the fixed-effect model (Borenstein et al., 2009). Therefore, I used a random-effect model.

The first analysis examines the possible difference in loneliness between countries. This is a basic meta-analysis, only focusing on differences in mean loneliness scores.

The second analyses examines each Hofstede dimension separately. Analysing each dimension separately shows how the dimension and loneliness are associated and gives an insight in the direction of this relation.

The third analysis examines the Hofstede dimensions together. By analysing the variables simultaneously, the overlap between the dimensions is corrected.

Effect Size Calculation

In order to perform the analyses, the mean loneliness scores are converted to POMPscores. In the MASLO database, mean loneliness scores can be described in two ways: mean scores and sum scores. Because mean scores and sum scores have different ranges, it is impossible to examine the scores without converting the data to POMPscores. For example, a study has five questions about loneliness with 5-point Lickert Scale, from $0 - 5$. This hypothetical person scores five times 3 on this Lickert Scale. When using a mean score, this person has a score of 3, but when using sum scores, this person scores 15. While the

questionnaire in both scenarios's the same, the outcome is different. Converting these scores
can be done with POMPscores (Judd & Reis, 2000). Another advantage is that the results are
transformed to a more interpretable. All scores are converted to a score on a scale from 0 –
100, whereas values close to 0 are low and close to 100 are high (Judd & Reis, 2000). The
scores are converted with the formula:

$$Mpomp = \frac{M - minimum\ possible\ score}{maximum\ possible\ score - minimum\ possible\ score}\ x\ 100$$

In this formula, *M* is the observed mean in the data. The SDPomp is also converted because I
needed to calculate the standard error of the SDpomp. The SDPomp is transformed with the
following formula:

$$SDpomp = \frac{SD}{Maximum\ possible\ score - Minimum\ possible\ socre}\ x\ 100$$

Finally, the standard error was calculated. The standard error is used in JASP as Effect
Size Standard Error. Because of the converting to POMPscores, the Effect Size Standard
Error needed to be calculated. The standard error is examined with the formula:

$$Standard\ Error = SDPomp/\sqrt{Sample\ Size}$$

Publication Bias

In the current analysis, a test is performed to examine the risk of publication bias.
When conducting a meta-analysis, there is a risk on publication bias. Publication bias tends
only to publish research that has significant or groundbreaking results (Siddaway, Wood &
Hedges, 2019). When conducting a meta-analysis, already published data is used.
Consequently, if studies are not published because of not significant results, this may distort
the available information.

To examine if there's publication bias, a funnel plot and Eggers' Test are used. If a
funnel plots shows an asymmetrical figure and Eggers's Test is significant, this could be a
sign of publication bias.

Consequently, Figure 4 shows a symmetrical figure, suggesting no publication bias.
But despite this symmetrical figure, Eggers' Test gave a significant result ($p = .039$). This
result might indicate a higher risk of publication bias.

Nevertheless, publication bias is, in this study, not necessarily problematic. Often,
studies with insignificant effect sizes have a more considerable change on not being

published. This study works with mean loneliness scores, which is not an effect size, but a

mean score. Mean scores are generally always reported and have little influence on whether

the results are published or not. Missing data based on not-published studies is therefore not

very likely.

Figure 4

The Funnel Plot
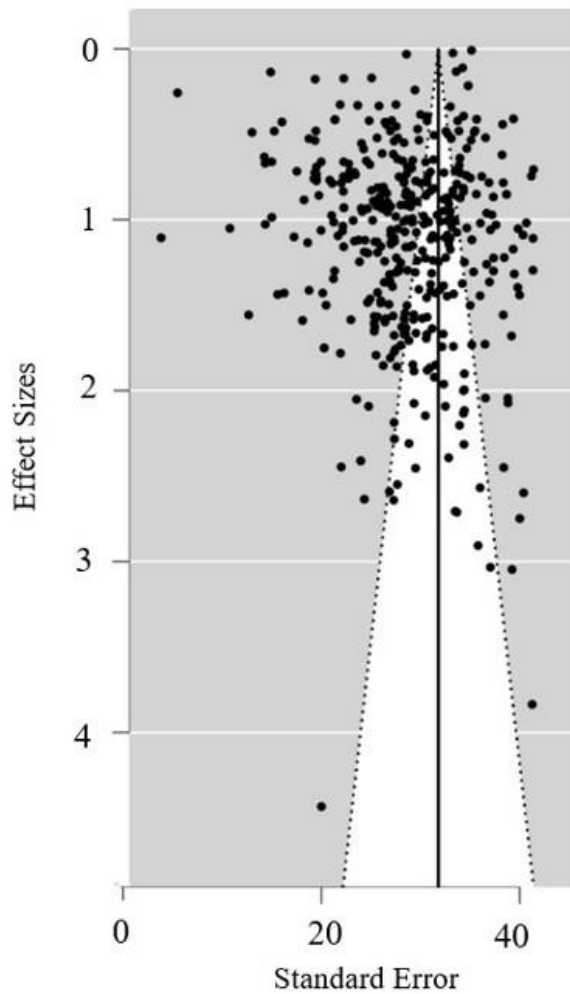
Results

Descriptive Statistics

In the final sample, 459 studies are included, conducted in 38 countries. The
participants in the used sample are between 12 and 24.9 years old ($M.=.14.93$, $SD = 8.74$).
The mean loneliness score of the sample is 31.81 ($SD.=.10.85$) on a scale from 0 –100. Table
1 displays all mean scores of each dimension and the mean loneliness score. Appendix 1
shows an overview of all the used countries.

Table 1

Descriptive Statistics

Dimension	Mean	SD	n	Range	
				Minimum	Maximum
Loneliness	31.81	10.85	459	3.83	38.89
Restrained	60.57	13.57	451	0	97.32
Power-Distance	45.33	14.74	459	11.00	100
Short-Term Orientation	39.47	21.40	459	13.00	100
Individualism	73.76	15.34	459	14	91
Masculinity	73.79	24.71	459	5	95
High Uncertainty Avoidance	53.14	17.11	459	8	100

Loneliness Model

A significant difference was found in mean loneliness scores ($Q = 3933.82$, $p < .001$),
suggesting countries differ in how lonely their adolescent population feels. Moreover, I found
a significant heterogeneity test ($p < .001$) among the effect sizes, supported by I^2 of 99.92.
Thus, it is likely that the differences in studies are not related to change.

Separate Analyses

Next, I examined each dimension and mean loneliness scores separately. The results of
the separate analyses are displayed in Table 2.

First, the Restrained analysis was significant ($Q.=.5.46$, $p = .019$), and I found a
negative relation with a small effect. This relation implies that adolescents living in more
Restrained countries are more likely to report higher mean loneliness scores.

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Second, the Power-Distance analysis was significant ($Q = 8.63$, $p = .003$), and I found a positive relation with a small effect. This relation implies that adolescents living in countries higher Power-Distance countries are more likely to report a higher mean loneliness.

Third, the Short-Term Orientation analysis was not significant ($Q = 0.83$, $p = .362$), implying no difference in mean loneliness scores between adolescents in high or low Short-Term Orientation countries.

Fourth, the Individualism analysis was significant ($Q = 6.26$, $p = .012$), and we found a negative relation. The effect size suggests a small result and implies that adolescents in more Collectivistic countries are more likely to report higher mean loneliness scores than adolescents in more Individualistic countries.

Fifth, the Masculinity analysis found a positive relation ($Q = 22.24$, $p < .001$). This analysis found a small effect size, implying that adolescents living in Masculine countries are more likely to report higher mean loneliness scores than adolescents living in more Feminine countries.

Lastly, the Uncertainty-Avoidance analysis was not significant ($Q = 2.317$, $p. = ..128$). The analysis found no association between Uncertainty-Avoidance and mean loneliness scores, and this result implies no different mean loneliness scores between adolescents in High or Low Uncertainty-Avoidance countries.

Table 2

Results of the Separate Analyses

Predictor	Intercept	B	SE_b	p	95% Confidence Interval	
					Lower	Upper
Indulgence	36.88	-0.08	0.037	.19	-0.15	-0.01
Power Distance	27.25	0.10	0.034	.003	0.03	0.16
Short-Term Orientation	32.65	-0.02	0.024	.362	-0.06	0.02
Individualism	35.54	-0.05	0.020	.012	-0.09	0.01
Masculinity	23.39	0.15	0.032	<.001	0.08	0.21
Uncertainty Avoidance	34.18	-0.04	0.030	.128	-0.10	0.01

Note: The performed analyses are Walt Tests.

Six Dimensions Model

In the six dimensions model, all the dimensions are analysed altogether, so the dimensions with overlap will control eachother. The six dimensions analysis was significant ($Q = 60.91$, $p < .001$, $df = 6$), yet the analysis gave different outcomes for the dimensions

compared to the separate analysis. Table 3 shows the results of the six dimensions model, and below we describe the different outcomes.

In contrast to the separate analysis, Dimensions Power-Distance ($p = .407$) and Restrained ($p = .648$) were not significant. These outcomes imply no relation between these dimensions and the mean loneliness. Therefore, based on these outcomes, there is no difference in mean loneliness and adolescents living in more high or low Power-Distance countries and no difference in mean loneliness between adolescents living in more Restrained or more Indulgenced countries.

In contrast with the separate analyses, the dimensions Uncertainty-Avoidance ($p = .006$) and Short-Term Orientation ($p = .002$) are significant in the six dimensions model. We found a negative relation between Uncertainty-Avoidance and mean loneliness scores, suggesting that adolescents living in more low Uncertainty-Avoidance countries are more likely to score higher on mean loneliness. The Short-Term Orientation dimension showed a negative relation. Because in this dimension, a high score is more Long-Term Orientated. This implies that adolescents living in more Short-Term Orientated countries are more likely to report higher mean loneliness.

Finally, the dimensions of Individualism ($p = .015$) and Masculinity ($p.<.001$) were both significant in the separate analysis and the six dimensions model. Individualism and Masculinity are both showing positive relations, similar to the separate analyses. This outcome implies that adolescents living in more Masculine countries and more Individualistic countries are more likely to report higher mean loneliness.

Table 3

Variables in six Dimensions Model

Predictor	B	SE_b	p	95% Confidence Interval	
				Lower	Upper
Intercept	39.55	7.11	<.00	25.60	53.50
Indulgence	-0.03	0.07	.64	-0.17	0.10
Power Distance	0.04	0.05	.40	-0.06	0.16
Short-Term Orientation	-0.10	0.03	<.05	-0.16	-0.03
Individualism	-0.11	0.04	0.1	-0.21	-0.02
Masculinity	0.16	0.03	<.00	0.09	0.22
Uncertainty Avoidance	-0.08	0.03	<.00	-0.14	-0.02

Discussion

We found a difference in mean loneliness scores among adolescents, and these differences can be associated with Short-Term Orientation, Individualism, Masculinity, and Uncertainty-Avoidance. We examined the results of 459 studies among adolescents in 38 countries to examine this relation.

I performed two analyses: Separate analyses and the six dimensions model, resulting in different outcomes. For example, while Uncertainty-Avoidance was not significant in the separate analysis, it was significant in the six dimensions model. We decided to focus on the results of the six dimensions model, because cultures are dynamic eco-systems, making it hard to distinguish a hard line between cultural dimensions. The dimensions influence each-other and we decided to focus on the results of the six dimensions model since this model corrects for possible overlap between dimensions.

In contrast to our hypothesis, we found no relation between Restrained countries and mean loneliness scores. We expected that adolescents in Restrained countries were more likely to report higher mean loneliness scores than adolescents in more Indulgenced countries. Still, the results imply that there are no considerable differences based on this dimension. Due to autonomy and loneliness, we expected that Restrained countries were more likely to feel lonely (Yang., 2019). However, the Restrained dimension overlaps with Long-Term Orientation and Uncertainty-Avoidance with the values tradition and autonomy (Yang,.2019). Both Long-Term Orientation and Uncertainty-Avoidance were significant, so it is possible that the factors causing higher mean loneliness are not found within Restrained, but in the other two dimensions. The other factors that distinguish Restrained are more leisure time, causing no differences in mean loneliness (Hofstede, 2011).

In contrast to my expectations, I found no relation between Power-Distance and loneliness, implying that Power-Distance doesn't affects mean loneliness. I expected that adolescents in high Power-Distance were more likely to report higher mean loneliness because of parenting styles and societal differences (Yang,.2019). However, I found no evidence to support this statement. Current literature can be also critical towards this statement, as described in a study about cultural influences at school (Cortina et al.,.2017). Since Power-Distance also reflects the closeness to institutes, and not personal relationships, it might not be such a significant predictor of loneliness (Cortina et al.,.2017).

In line with the hypothesis, I found a negative relation between Short-Term Orientation and mean loneliness, implying that adolescents in more Short-Term Orientated countries are more likely to report higher mean loneliness. People in Short-Term Orientated

countries are more tradition focused, which could lead to more strict social norms. As Yang (2019) described, people in countries that are more focused on autonomy are less likely to experience loneliness than people in less strict countries. Another explanation could be the relation between loneliness and growth or fixed mindset. People in Short-Term Countries are often associated with a more fixed mindset than people in a Long-Term Country. Research shows that adolescents with a growth mindset are less likely to experience loneliness because they are more resilient than adolescents with a fixed mindset (Monsanya, 2020). Although this study was conducted during Covid-19 and only examines individual experiences, there may be a similar mechanism between people in different countries.

In contrast to the hypothesis, I found a negative relation between Individualism and mean loneliness, suggesting that adolescents in collectivistic countries are more likely to report higher mean loneliness. Literature shows that loneliness is often higher among people who live alone than in more Individualistic countries (Wee et al., 2019; Heu et al., 2018). However, people in collectivistic countries have higher expectations of social relationships, and when these expectations are not met, it can lead to a higher feeling of loneliness (Heu, et al., 2019; Leykes & Kemmelmeier, 2014). This discrepancy in outcomes could explain the found relation.

In line with the hypothesis, I found a positive relation between Masculinity and mean loneliness, implying that adolescents in more Masculine countries are more likely to report higher mean loneliness. The current literature describes that people who endorse more masculine gender roles by themselves are more likely to experience loneliness (Blazina et al., 2007; Cramer et al., 1998, Ilhan, 2012). As societal expectations often shape gender roles, it could be that more masculine countries stresses more masculine values on adolescents. As the current literature describes, men who assign strong masculine gender roles are more likely to feel lonely (Blazina et al., 2007; Cramer et al., 1998; Ilhan, 2012).

In contrast with the hypothesis, I found a negative relation between Uncertainty-Avoidance, suggesting that adolescents in Low Uncertainty-Avoidance countries are more likely to report higher mean loneliness. Loneliness can lead to stress and anxiety, and one of the country characteristics of Uncertainty Avoidance is that adolescents in High Uncertainty Avoidance countries are more likely to feel lonely (Buehler et al., 2016). Nevertheless, this is not the relation I found, and this is quite unexpected. All the characteristics of high Uncertainty Avoidance are in line with risk factors for loneliness, like more stress, more traditions and more strict social norms. An explanation could be the role of religion. Low Uncertainty-Avoidance countries are more religion-focused (Hofstede, 2011) and reseach

shows that more religious people are less likely to experience loneliness (Kirkpatrick et al., 1999).

Strengths and Limitations

Because of the meta-analytic perspective and the Hofstede Dimensions this analysis adds a broad, new perspective on the feeling of loneliness. This broad perspective adds new information to the debate about loneliness, because of the new found directions

First, A limitation of this study is the distribution of studies in different countries. For example, this study consists of 459 studies, of which 237 in the United States (US). Because in the analysis, I compared the studies. This means that studies in the US are also compared with studies from the US and this could influence the results.

Second, this study cannot say anything about individual experiences. Although culture can influence personal experiences, there could be a difference between countries. For example, although people in collectivistic in countries are more likely to report higher mean loneliness, this study does not say anything about more individualistic people living in collectivistic cultures. However, due to the innovative nature of this study, I was able to show a broad overview of loneliness among adolescents.

Recommendation for Further Research

As aforementioned, the current sample consists of many studies from the US, while other countries are underrepresented. Therefore, I recommend extending research to underrepresented countries, for example, in Africa or South America. As seen in this analysis, cultural differences are associated with loneliness due to the lack of literature. New research can provide more insights into these effects.

Furthermore, the current analyses show some results cannot be entirely explained by contemporary literature. For example, no relation was found between Restrained, Power-Distance and loneliness, although the link is found in other research. To understand why this relation is not found, new research can provide more insights in the factors influencing loneliness.

Practical Implications And Conclusion

Current literature often sees loneliness as an individual issue, but this analysis shows that loneliness is a societal problem. Furthermore, country characteristics can increase the change of feeling lonely and therefore adds new knowledge to the loneliness debate.

Concluding, there is a difference in mean loneliness among adolescents between countries and these differences are associated with the Hofstede Dimensions. The most critical Dimensions associated with loneliness are Masculinity, Individualism, Uncertainty-

Avoidance, and Short-Term Orientation. In contrast, Restrained and Power-Distance are not
associated with higher mean loneliness among adolescents.

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LONELINESS AND THE HOFSTEDE DIMENSIONS, COMPARING MEAN
LONELINSS AMONG ADOLESCENTS.

Appendix 1: Table with Countries part of this study

Table 4

The Distribution of the countries participating in this study.

Country	n
Austria	4
Australia	13
Belgium	7
Canada	19
China	20
Germany	10
Denmark	3
Spain	9
Finland	4
France	2
Greece	2
Croatia	1
Ireland	3
Israel	7
India	2
Iran	4
Italy	3
Jordan	1
Japan	6
Korea	4
Mexico	1
Myanmar	4
Nigeria	1
Netherlands	21
Norway	9
Nepal	1
Philippines	1
Pakistan	1
Portugal	5
Sweden	1
Singapore	3
Thailand	1
Turkey	29
Taiwan	7
United Kingdom	12
United States	237
South-Africa	1
Total	**459**