

Sample Items for Studies 1 and 2.

Study 1	
ULS (from 1 – <i>never</i> to 4 – <i>often</i>)	I lack companionship. There is no one I can turn to.
Descriptive IC (from 1 to 7 with higher numbers indicating higher collectivism)	<p>Most people see themselves as independent from others. vs Most people see themselves as part of their family/their group.</p> <p>Most people enjoy being different from others. vs Most people enjoy being similar to others.</p> <p>When people have a need, they rely on themselves. vs When people have a need, they turn to others for help.</p> <p>If there is a conflict between personal values and the values of a family/group, most people follow their personal values. vs If there is a conflict between personal values and the values of a family/group, most people follow the values of their family/group.</p> <p>Most people do what is enjoyable to them personally. vs Most people carry out their group obligations.</p> <p>Most people follow their personal attitudes. vs Most people follow their family's/group's norms and rules.</p> <p>Most people do their duties only if they think they will benefit from it. vs Most people do their duties, even when they think they will not benefit.</p> <p>Before helping other people, most people consider the costs of helping. vs Most people generally help other people without considering costs.</p> <p>Most people do not hesitate to change established relationships if the relationship is not in their best interest anymore. vs Most people maintain established relationships, even if this is not in their best interest.</p> <p>Most people are mainly concerned with their own personal goals. vs Most people are mainly concerned with the goals of their family/group.</p> <p>In situations of conflict between the goals of their family/group and personal goals, people pursue their own goals. vs In situations of conflict between the goals of their family/group and personal goals, people sacrifice their own goals to achieve the goals of the family/group.</p>

Internalized IC (from 1 to 7 with higher numbers indicating higher collectivism)	I see myself as independent from others. vs I see myself as part of my family/group.			
	I enjoy being different from others. vs I enjoy being similar to others. etc.			
Study 2	IT	PT	SE	NL
ULS (from 1 – <i>I never feel that way</i> to 5 – <i>I always feel that way</i>)	Mi sento isolato/a dagli altri.	Sinto-me isolado/a dos outros.	Jag känner mig isolerad från andra.	Ik voel me geïsoleerd van anderen.
Combined loneliness scale (from 1 to 5, anchors depend on items)	Non c'è nessuno a cui posso rivolgermi. In che misura si è sentito/a solo/a nelle ultime due settimane?	Não existe ninguém a quem eu possa recorrer. Quão sozinho/a se sentiu durante as duas últimas semanas?	Jag har ingen att vända mig till. Hur ensam har du känt dig under de senaste två veckorna?	Er is niemand waar ik terecht kan. Hoe eenzaam voelde u zich gedurende de afgelopen twee weken?
IC as descriptive norms (from 1 to 7 with higher numbers indicating higher collectivism)	La maggior parte delle persone segue le proprie attitudini personali. vs La maggior parte delle persone segue le regole della propria famiglia/gruppo.	A maioria das pessoas segue as suas atitudes pessoais. vs A maioria das pessoas segue as normas e regras da sua família/grupo.	De flesta följer sina personliga åsikter. vs De flesta följer sin familjs/grupps normer och värderingar.	De meeste mensen volgen hun persoonlijke opvattingen. vs De meeste mensen volgen de normen en regels van hun familie/groep.

	In situazioni di conflitto tra gli obiettivi della propria famiglia/gruppo e gli obiettivi personali, le persone perseguono i propri obiettivi.	Em situações de conflito entre os objetivos da família/grupo e os objetivos pessoais, as pessoas seguem os seus próprios objetivos.	Om det uppstår en konflikt mellan ens personliga mål och ens familjs/grupps mål försöker folk att uppnå sina egna mål.	Als iemands persoonlijke doelen en de doelen van de familie/groep botsen, kiezen mensen voor hun eigen doelen.
	vs	vs	vs	vs
	In situazioni di conflitto tra gli obiettivi della propria famiglia/gruppo e gli obiettivi personali, le persone sacrificano i propri obiettivi per perseguire gli obiettivi della propria famiglia/gruppo.	Em situações de conflito entre os objetivos da família/grupo e os objetivos pessoais, as pessoas sacrificam os seus próprios objetivos para atingir os objetivos da sua família/grupo.	Om det uppstår en konflikt mellan ens personliga mål och ens familjs/grupps mål ger folk upp sina egna mål för att familjen/gruppen ska kunna nå sina mål.	Als iemands persoonlijke doelen en de doelen van hun familie/groep botsen, offeren mensen hun eigen doelen op om de doelen van de familie/groep te verwezenlijken.
Internalized IC	Di solito seguo le mie attitudini personali.	Normalmente sigo as minhas attitudes pessoais.	Jag följer vanligtvis mina personliga åsikter.	Over het algemeen, volg ik mijn persoonlijke opvattingen.
(from 1 to 7 with higher numbers indicating higher collectivism)	vs	vs	vs	vs
	Di solito seguo le regole della mia famiglia/gruppo.	Normalmente sigo as normas e as regras da minha família/grupo.	Jag följer vanligtvis min familjs/grupps normer och värderingar.	Over het algemeen, volg ik de normen en regels van mijn familie/groep.

In situazioni di conflitto tra gli obiettivi della mia famiglia/gruppo e i miei obiettivi personali, perseguo i miei obiettivi.	Em situações de conflito entre os objectivos da minha família/grupo e os meus objectivos pessoais, eu sigo os meus próprios objectivos.	Om det uppstår en konflikt mellan mina personliga mål och ens familjs/grupps mål försöker jag att uppnå mina egna mål.	Als de doelen van mijn familie/groep en mijn persoonlijke doelen botsen, kies ik voor mijn eigen doelen.
vs			
In situazioni di conflitto tra gli obiettivi della mia famiglia/gruppo e i miei obiettivi personali, sacrifico i miei obiettivi per perseguire gli obiettivi della mia famiglia/gruppo.	vs Em situações de conflito entre os objectivos da minha família/grupo e os meus objectivos pessoais, eu sacrifico os meus próprios objectivos para atingir os objectivos da minha família/grupo.	vs Om det uppstår en konflikt mellan mina personliga mål och ens familjs/grupps mål ger jag upp mina egna mål för att familjen/gruppen ska kunna nå sina mål.	vs Als de doelen van mijn familie/groep en mijn persoonlijke doelen botsen, offer ik mijn eigen doelen op om de doelen van mijn familie/groep te verwezenlijken.

Note. IC refers to individualism-collectivism. For the modified IC as descriptive norms scale, all selected items are presented.

Preliminary Analysis Study 1

To assess the quality of our data and suitability of the planned statistical analysis, we conducted a missing data analysis, assumption checks, balance tests, and factor analyses for construct validity.

Missing data and attrition. One hundred and sixty-three respondents (40.55%) dropped out at the beginning of or during the survey, six were not currently residing in Austria. As the subject of loneliness was not mentioned in the informed consent, it is unlikely that attrition at this point was related to higher loneliness. Further, a comparison of loneliness (where available) between participants who dropped out and those who completed the survey and met inclusion criteria did not reveal considerable differences, dropout: $n = 37$, $M(SD) = 1.71 (0.57)$, versus complete: $n = 239$, $M(SD) = 1.77 (0.60)$, $t(274) = 0.61$, $p = .545$, $d = 0.11$.¹

Missing data within the questionnaire occurred only for relationship closeness ($n = 6$) and for the number of relationships ($n = 34$) as participants were not forced to answer these questions. Loneliness levels were, however, comparable for participants with missing data on these measures, $M(SD) = 1.79 (0.61)$, and those without, $M(SD) = 1.77 (0.60)$, $t(237) = -0.18$, $p = .860$, $d = .03$.

Normality and outliers. Boxplots of loneliness, internalized, and individualism-collectivism (IC) as descriptive norms were investigated. The distribution of loneliness was positively skewed. Furthermore, an outlier (i.e., a case that deviated more than three standard deviations from the mean) was identified at the upper end of the distribution, but was retained

¹ Those who dropped out described a somewhat higher level of collectivism in their surroundings, $n = 46$, $M(SD) = 4.14 (0.90)$, than those who completed the survey and were included, $n = 239$, $M(SD) = 3.77 (0.93)$. Contrarily, they described a comparable level of internalized IC, dropout: $n = 33$, $M(SD) = 3.93 (1.23)$, compared to complete: $n = 239$, $M(SD) = 3.93 (0.85)$.

due to a lack of other reasons for excluding it.

One participant indicated to have an unreasonably high number of relationships (1000 friends, 245 children). These answers were removed from calculations of the number of relationships.

Factor analyses. With an eye to construct validity, we also conducted exploratory principal axis factor analyses with oblimin rotation to investigate uni-dimensionality for all scales as well as bi-dimensionality for conceptually related scales. Factors were extracted if their eigenvalues were larger than one.

A single factor emerged only for loneliness. Two factors were extracted for IC as descriptive norms and three factors for internalized IC. Note that a multi-factor structure is not surprising as Fischer and colleagues' IC scale (2009) consists of four subscales, whereas a single dimension (IC) only emerged when they conducted a second-order factor analysis. However, present factor solutions did not correspond well to the initial conceptualization: Eight out of 11 items loaded highly on a first extracted factor (for both internalized and IC as descriptive norms), whereas a second factor only summarized two items of the initial rationality versus relatedness subscale. For internalized collectivism, one item additionally loaded highly on a third factor ("When people have a need, they rely on themselves" versus "When people have a need, they turn to others for help"). Results thus need to be interpreted with some caution.

Means and Standard Deviations in Study 1.

Scale	<i>M</i>	<i>SD</i>
Loneliness	1.77	0.60
Internalized IC	3.93	0.85
IC as descriptive norms	3.77	0.93
Number of relationships (<i>n</i> = 205)	19.13	15.71
Average relationship closeness (<i>n</i> = 233)	5.42	0.92
Desired-actual discrepancy	2.44	1.21
Socially expected-actual discrepancy	2.17	1.22
Desired-actual closeness	4.26	1.06
Socially expected-actual closeness	3.86	1.49
Desired-actual number	4.23	1.16
Socially expected-actual number	3.96	1.47

Means and Standard Deviations or Shares for Key Variables, Split by Location of Residence in Study 1.

	City or suburb	Town	Village or isolated house
Loneliness	1.79 (0.58)	1.69 (0.58)	1.79 (0.65)
IC as descriptive norms	3.48 (0.89)	3.86 (0.81)	4.32 (0.86)
Internalized IC	3.86 (0.87)	3.95 (0.73)	4.05 (0.89)
Number of relationships	19.88 (16.55)	19.64 (18.44)	17.20 (11.13)
Average closeness in relationships	5.54 (0.89)	5.46 (0.74)	5.15 (1.05)
Percentage in romantic relationship	67.77%	77.78%	70.00%
Desired - actual discrepancy	2.52 (1.20)	2.20 (1.19)	2.47 (1.24)
Socially expected - actual discrepancy	2.12 (1.18)	2.14 (1.31)	2.29 (1.25)
Desired-actual closeness	4.35 (1.08)	4.04 (0.89)	4.26 (1.13)
Socially expected-actual closeness	3.60 (1.47)	4.02 (1.36)	4.26 (1.54)
Desired-actual number	4.25 (1.20)	4.22 (0.94)	4.18 (1.26)
Socially expected-actual number	3.77 (1.47)	3.92 (1.27)	4.40 (1.54)

Preliminary Analysis Study 2

Similar to Study 1, we assessed the quality of our data and suitability of the planned statistical analysis by conducting a missing data analysis, assumption checks, balance tests, and factor analyses for construct validity and measurement invariance.

Missing data and attrition. Out of the 3314 recorded responses, only 860 both completed the questionnaire and met inclusion criteria (i.e., ‘good completes’). Numbers of excluded cases were somewhat comparable (327 Italian, 265 Portuguese, 412 Swedish, and 399 Dutch cases)², but in Northern European countries, more participants were excluded for low completion times (e.g., 201 Dutch versus 90 Italian cases), or dropping out (e.g., 184 Swedish versus 58 Italian cases), whereas in Southern European countries, participants were mostly excluded due to over-quota sampling (e.g., 172 Italian versus 22 Swedish cases). We compared loneliness between those who met inclusion criteria ($n = 860$) and those who did not if information about loneliness was available ($n = 782$). There was a tendency for higher loneliness among those who were excluded as compared to those who met inclusion criteria in all samples, Italian sample: $M(SD) = 2.48 (0.93)$ versus $M(SD) = 2.35 (0.90)$, Portuguese sample: $M(SD) = 2.45 (0.92)$ versus $M(SD) = 2.29 (0.85)$, Swedish sample: $M(SD) = 2.38 (0.98)$ versus $M(SD) = 2.26 (0.90)$, Dutch sample: $M(SD) = 2.23 (0.88)$ versus $M(SD) = 2.09 (0.90)$. However, differences were not significant.

Additionally, as participants who did not complete the survey were screened out, missing data within the questionnaire was very scarce and occurred completely at random due to computer errors only (e.g., in two out of 860 cases for closeness with closest friend). Apart from this unplanned missingness, the presentation of certain items depended on relationship status and thus resulted in additional planned missing data for certain respondents. In further analyses, these cases were excluded when applicable.

² For 1051 cases, location was not recorded.

Balance tests. In order to investigate the comparability of the four samples on relevant characteristics, we investigated means for each context (see Table below) and performed balance tests. ANOVAs revealed significant differences for age, $F(3, 856) = 14.92, p < .001, \eta^2 = .05$, 95% CI [.02; .08], subjective SES, $F(3, 855) = 4.63, p = .003, \eta^2 = .02$, 95% CI [.00; .03], financial comfort, $F(3, 856) = 4.70, p = .003, \eta^2 = .02$, 95% CI [.00; .03], duration of stay in country, $F(3, 856) = 14.16, p < .001, \eta^2 = .05$, 95% CI [.02; .08], and employment status, $\chi^2(1) = 14.46, p = .002$.

Construct validity. Again, we conducted exploratory principal axis factor analyses with oblimin rotation to investigate construct validity of the combined loneliness scale and IC scales. A single-factor-solution emerged only for the loneliness scale. Similar to results in the Austrian study, the IC scale gave rise to factor structures that were not only inconsistent with past theory and research, but also highly heterogeneous across contexts. For IC as descriptive norms, between two (for the Italian and Portuguese samples) and four factors (for the Swedish sample) could be extracted. A closer investigation of items loading on specific factors revealed that these factors did not map onto the four theoretical subscales described by Fischer and colleagues (2009). This suggests that analyses including IC should be conducted in separate contexts only and that results should be interpreted with some caution.

Measurement invariance. Measurement invariance for the loneliness measures and IC were assessed by multiple group confirmatory analysis, using the measurementInvariance() function of the semTools package in R. As cut-off points for sufficient model fit, we used the criteria of CFI > .90, RMSEA \leq .08, and SRMR < .10 (in line with Vandenberg & Lance, 2000³).

³ Vandenberg, R. J., & Lance, C. E. (2000). A review and synthesis of the measurement invariance literature: Suggestions, practices, and recommendations for organizational

For the combined loneliness scale, we found a lack of configural invariance, $\chi^2(80) = 571.48$, CFI = .892, RMSEA = .169, 90% CI [.156, .182], SRMR = .048. Contrarily, for USL items only, configural invariance seemed to hold, $\chi^2(36) = 68.01$, CFI = .989, RMSEA = .064, 90% CI [.040, .088], SRMR = .021, but model fit was significantly decreased for metric invariance, $\chi^2(51) = 95.33$, CFI = .984, RMSEA = .064, 90% CI [.043, .083], SRMR = .052, $\Delta\chi^2(15) = 27.32$, $p = .026$, $\Delta\text{CFI} = .004$, $\Delta\text{RMSEA} = .001$. Notwithstanding, fit indices were still reasonably good.

As to be expected from exploratory factor analyses, measurement invariance could not be established for IC measures. Even for configural invariance, model fit was unsatisfactory, for internalized IC: $\chi^2(176) = 803.31$, CFI = .771, RMSEA = .129, 90% CI [.120; .138], SRMR = .089; for IC as descriptive norms: $\chi^2(176) = 583.93$, CFI = .774, RMSEA = .104, 90% CI [.095; .113], SRMR = .076.

Based on the questionable comparability of samples and a lack of measurement invariance, we decided to conduct analyses for separate contexts (i.e., countries) only. Further, we chose to retain the measure of IC as in Study 1 and check consistency between results for IC, the injunctive relational norms index, and the family embeddedness index.

Normality and outliers. Boxplots revealed that, just as in Austria, loneliness was positively skewed in all four countries. One outlier (i.e., data points that deviated more than three *SDs* from the country mean) was detected for each the Dutch and Portuguese samples. However, cases did not seem unusual and were thus retained.

Means, Standard Deviations, and Cronbach's as for Most Important Measures (Study 2).

Sample		Italian	Portuguese	Swedish	Dutch
Loneliness		2.35 (0.90)	2.29 (0.85)	2.26 (0.90)	2.09 (0.90)
		$\alpha = .91$	$\alpha = .92$	$\alpha = .91$	$\alpha = .93$
		[.89, .93]	[.90, .93]	[.90, .93]	[.92, .95]
ULS		2.31 (0.87)	2.32 (0.85)	2.24 (0.91)	2.10 (0.89)
		$\alpha = .86$	$\alpha = .90$	$\alpha = .90$	$\alpha = .91$
		[.84, .89]	[.88, .92]	[.88, .92]	[.90, .93]
IC	Descriptive norms	3.82 (0.98)	3.79 (0.96)	3.98 (0.72)	3.82 (0.79)
		$\alpha = .78$	$\alpha = .81$	$\alpha = .63$	$\alpha = .72$
		[.73, .82]	[.78, .84]	[.55, .70]	[.66, .77]
	Internalized	4.26 (1.02)	4.00 (1.04)	3.90 (0.85)	3.84 (0.84)
		$\alpha = .81$	$\alpha = .83$	$\alpha = .71$	$\alpha = .75$
		[.77, .85]	[.80, .86]	[.65, .77]	[.70, .80]
	Injunctive relational norms				
	Family embeddedness	.61 (.13)	.60 (.13)	.49 (.15)	.48 (.12)
			.62 (.17)	.64 (.17)	.52 (.22)
Actual					
Quality		5.14 (1.10)	5.31 (1.04)	5.29 (1.09)	5.16 (1.03)
Contact		9.40 (2.84)	9.56 (2.74)	9.04 (2.78)	8.99 (2.83)
Number		17.83 (16.84)	16.93 (13.18)	16.96 (15.73)	21.42 (19.34)
Ideal					
Quality		5.23 (0.85)	5.48 (0.84)	5.55 (0.83)	5.31 (0.80)
Contact		9.62 (2.30)	10.10 (2.11)	9.28 (2.53)	8.92 (2.45)
Discrepancies					
Ideal-actual quality		0.09 (0.85)	0.17 (0.81)	0.26 (0.78)	0.15 (0.77)
Ideal-actual contact		0.22 (2.02)	0.55(1.89)	0.24 (1.93)	-0.07 (1.66)
Desired - actual discrepancy		4.06 (1.98)	4.33 (1.84)	4.11 (1.86)	3.53 (1.86)
Socially expected - actual discrepancy		4.13 (1.93)	4.14 (1.89)	4.32 (1.86)	3.53 (1.86)
Desired-actual closeness		4.20 (1.37)	3.99 (1.43)	4.29 (1.54)	3.92 (1.38)
Socially expected-actual closeness		3.99 (1.50)	4.09 (1.52)	4.33 (1.58)	3.97 (1.39)
Desired-actual number		4.33 (1.42)	4.09 (1.51)	4.53 (1.43)	4.13 (1.38)
Socially expected-actual number		4.42 (1.52)	4.24 (1.61)	4.66 (1.50)	4.33 (1.44)

Note. ULS refers to the six-item version as described in the Method section.