Neither Eastern nor Western:

Patterns of Independence and Interdependence in Mediterranean Societies

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Abstract

Social science research has highlighted 'honor' as a central value driving social behavior in Mediterranean societies, which requires individuals to develop and protect a sense of their personal self-worth *and* their social reputation, through assertiveness, competitiveness, and retaliation in the face of threats. We predicted that members of Mediterranean societies may exhibit a distinctive combination of independent and interdependent social orientation, self-construal, and cognitive style, compared to more commonly studied East Asian and Anglo-Western cultural groups. We compared participants from eight Mediterranean societies (Spain, Italy, Greece, Turkey, Cyprus [Turkish Cypriot and Greek Cypriot communities], Lebanon, Egypt) to participants from East Asian (Korea, Japan) and Anglo-Western (UK, US) societies, using six implicit social orientation indicators, an eight-dimensional self-construal scale, and four cognitive style indicators. Compared with both East Asian and Anglo-Western samples, samples from Mediterranean societies distinctively emphasized several forms of independence (relative intensity of disengaging [vs. engaging] emotions, happiness based on disengaging [vs. engaging] emotions, dispositional [vs. situational] attribution style, self-construal as different from others, self-directed, self-reliant, self-expressive, and consistent) and interdependence (closeness to ingroup [vs. outgroup] members, self-construal as connected and committed to close others). Our findings extend previous insights into patterns of cultural orientation beyond commonly examined East-West comparisons to an understudied world region.

Keywords: Mediterranean region, cultural logics of face, dignity, honor, social orientation, self-construal, cognitive style, independence, interdependence

Introduction

Over the past 30 years, studies in cultural psychology have documented how numerous features of social relatedness, self-perception, and human cognition that were previously thought to be universal are in fact dependent on characteristics of cultural settings. Researchers theorized that the daily practices and social institutions of different societies in the East Asian and Western regions of the world differentially incentivize *independence* or *interdependence* in how individuals relate to others (social orientation), define themselves (self-construal), and process information (cognitive style). Research findings have generally shown that members of East Asian societies tend to endorse an interdependent social orientation associated with harmony, relatedness, and connection, to construe themselves as interdependent, socially connected, and embedded within the social context, and to process information holistically. In contrast, members of Western societies[1] have been found to endorse an independent social orientation associated with self-direction and autonomy, to construe themselves as independent, defined primarily by internal attributes such as preferences, desires, traits, and goals, and self-expression, and to process information analytically (for reviews see Kitayama & Park, 2007; Kitayama & Uskul, 2011; Nisbett et al., 2001; Varnum et al., 2010).

This body of research has been hugely influential in drawing attention to both the importance and the underrepresentation of cultural diversity within the behavioral sciences (e.g. Henrich et al., 2010). However, most studies to date have still focused on comparing participants from only two world regions - East Asia and the West - prompting calls to move beyond binary

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[1] We use the term 'Western' to refer primarily to western European, north American, and Australasian regions of the world and the term Anglo-Western to refer to the samples we recruited in this research from the western regions of the world.

"West-versus-the-Rest" models of culture and towards developing a more globally representative approach to the behavioral sciences that pays adequate attention to human cultural diversity within and across world regions (e.g., Clancy & Davis, 2019; Ghai, 2021; Kitayama et al., 2022; Krys et al., 2022; Syed & Kathawalla, 2022; Vignoles, 2018). This requires examining the prevailing patterns of cultural orientation in world regions beyond the East-West dichotomy. Hence, we report here what is to the best of our knowledge the first ever comprehensive examination of patterns of independence and interdependence among participants from eight societies in the Mediterranean region, in comparison with four societies in the more commonly studied East Asian and Western regions.

Why Focus on the Mediterranean region?

The Mediterranean region encompasses diverse societies including cultural groups of many different ethnic, religious, and linguistic backgrounds, living under different political systems and facing different societal developments, most of which have been relatively underrepresented in psychological research, and especially in cross-cultural comparisons. Yet, these societies share apparent similarities in known socio-ecological underpinnings of culture (e.g., geographical climate and modes of subsistence), and they have an extensive history of trade, conquest, and cultural interchange extending over several millennia (e.g., Abulafia, 2011; Clement, 2012). Hence, while we do not wish to provide a simplified narrative about a 'Mediterranean identity or cultural area' (for critiques of such an approach, see Albera, 2006; Pina-Cabral, 1989), we believe there is good reason to expect that there would be detectable cultural similarities among the diverse societies in this region, compared with other world regions.

Notably, many commentators have proposed that Mediterranean societies may have a shared emphasis on a cultural logic of honor, which is distinct from the cultural logics of face

and dignity that are respectively thought to prevail in East Asian and Anglo-Western societies and to underlie the respective cultural emphases on interdependence and independence in those regions. Research by anthropologists and social psychologists has demonstrated the important role of honor in social psychological processes among samples studied in the Mediterranean region (for reviews see Gregg, 2005; Uskul et al., 2019; Uskul & Cross, 2019, 2020). As we explain below, theorizing about these cultural logics of face, dignity, and honor suggests that members of Mediterranean societies would be likely to show a combination of independent and interdependent elements in their social orientation, self-construal, and cognitive style, rather than a purely independent or interdependent pattern.

Cultural Logics of Face, Dignity and Honor

Individuals' social orientation, self-construal, and cognitive style are embedded within and shaped by wider socio-ecological and cultural systems, which provide individuals with a 'cultural logic' to effectively engage with the contingencies of their social environment. Using this framework, Leung and Cohen (2011) have characterized cultural groups in the East Asian region as fostering a cultural logic of *face*. In these cultural contexts, the self is evaluated against external sets of standards, and individuals can give face to another, which highlight the strong interdependence between individuals and their social environment. As such, individuals are highly motivated to maintain and not lose face through personal humility and ingroup harmony as well as through strong social norms and social systems that support people to avoid open conflict (also see Boiger et al., 2014; S. J. Heine, 2001; Ho, 1976; Ting-Toomey, 1998).

Cultural groups in Western regions have been characterized as promoting a cultural logic of *dignity.* In these cultural contexts, individuals are assumed to have inherent self-worth, which is acquired at birth and forms the basis of their moral center and identity, thus motivating their behavior more than external standards or control mechanisms (such as social condemnation or

punishment, Ayers, 1984; Stewart, 1994). In these groups, the self is evaluated against internal sets of standards, and a person with dignity is one whose behavior will be guided by these same standards, which highlights the strong independent orientation among individuals (also see Aslani et al., 2016; Kim et al., 2010; Smith et al., 2021).

Cultural logics of face and dignity have been contrasted with a cultural logic of *honor*, which is thought to be particularly prevalent in Mediterranean, Middle Eastern, South Asian and South American societies, acting as a salient driver of social behavior (for reviews see Cross & Uskul, 2022; Uskul et al., 2019; Uskul & Cross, 2019). In these cultural groups, honor has been seen as having both internal and external qualities, reflecting both a person's own self-worth as well as the worth assigned to the person by others in the society (see Cross et al., 2014; Peristiany, 1965). To have honor, individuals must both claim honor *and* be granted honor by others. Honor is also hard to earn, but easy to lose, and so individuals engage in a wide range of behaviors that may earn or maintain the respect of others whilst simultaneously remaining vigilant and vigorously defending themselves against threats to their honor (Stewart, 1994).

Independence and Interdependence in Honor versus Face Logics

The distinction between non-Western societies following a cultural logic of *face* versus *honor* has raised questions as to whether findings on social orientation, self-construal and cognitive style obtained from East Asian societies can be generalized to other non-Western regions that make up the "majority world" (Kagitcibasi, 2011), including to regions where honor is considered to be a salient value. Although some similarities between societies following a cultural logic of face or honor are likely, there is reason to expect variation in the extent to which members of these groups would gravitate towards independence or interdependence and in the culturally shaped strategies used to achieve interdependence.

One shared feature across both cultural logics is the externally determined nature of individual worth, in the sense that a person's face cannot be more than what their social status allows, and that a person's honor is similarly defined by what is granted by others. Yet, members of groups shaped by a cultural logic of face strive to avoid losing this externally assigned worth, whereas individuals in groups shaped by a cultural logic of honor tend to actively claim their worth (e.g., Leung & Cohen, 2011). In addition, empirical studies (Cross et al., 2014) have supported conceptual definitions of honor that emphasize the importance of both a person's own self-worth and the worth assigned to the person by others in the society: Pitt-Rivers (1965) expressed this idea of honor as "... the value of a person in his [sic] own eyes, but also in the eyes of his [sic] society" (p. 21), highlighting both internal and external qualities of the construct (also see Leung & Cohen, 2011). Moreover, honor is heavily implicated by individuals' own actions and status in society, as well as by the social image of the relationships and social groups to which individuals belong, and this is thought to motivate individuals to claim reputation for oneself as well as for ingroups (such as family). These features (e.g., self-enhancing strategies, self-claimed honorability, importance of social groups, internal and external nature of individual worth) underscore the independent *and* interdependent nature of the cultural logic of honor (Uskul et al., 2012) in contrast to the more interdependent focus of the cultural logic of face.

Moreover, in both cultural logics, individuals strive towards fulfilling their social roles, yet in cultures following a cultural logic of face, where social hierarchies tend to be stable (i.e., social status is largely assigned in a largely cooperative social environment) and the maintenance of face primarily depends on the fulfillment of one's role obligations, this is likely to take the form of deference, humility, and duty (Miyamoto et al., 2018). In contrast, in cultures following a cultural logic of honor, where social hierarchies tend to be unstable (i.e., social status needs to be contested in a largely competitive social environment) and where the maintenance of honor is

a competitive resource that is determined in relation to others, this is likely to take the form of assertiveness, retaliation, and competitive behavior (Leung & Cohen, 2011), strategies that have been commonly associated with an independent rather than an interdependent orientation.

Taken together, the above considerations led us to expect that members of societal groups fostering a cultural logic of honor may not follow a monolithic pattern of social orientation, self-construal, and cognitive style (i.e., as largely interdependent *or* independent), but rather that they would show a combination of *both* independent *and* interdependent elements. Two existing studies provide initial support for this expectation, focusing on Middle Eastern societies (where honor logic is thought to be salient). In a systematic large-scale exploration of cultural models of selfhood, Vignoles and colleagues (2016) found that Middle Eastern samples showed a relatively higher emphasis on both self-reliance and consistency (i.e., forms of independence) as well as receptiveness to influence and connection to others (i.e., forms of interdependence) compared to samples from other parts of the world. In contrast, South Asian and East Asian samples showed a relative emphasis on forms of interdependence: similarity, harmony, and variability. In another study, San Martin and colleagues (2018) compared samples from Western (United States), Arab (Lebanon and Saudi Arabia), and East Asian (Japan) regions in terms of their social orientation and cognitive style. They found that Lebanese and Saudi Arabian participants were as interdependent as participants from Japan in some aspects of social orientation and cognitive style, demonstrating comparable levels of holistic (as opposed to analytical) processing of objects and of attribution of behavior to situational (as opposed to dispositional) factors. Yet, the two Arab samples were also more similar to the US sample than they were to the Japanese sample in their levels of self-enhancement and self-assertion. Findings of both studies are in line with the theorized combined focus on assertively claiming respect from others and attending closely to others and their actions in honor cultures (e.g., Gregg, 2005).

Intriguingly, the study by San Martin and colleagues (2018) also revealed that when Arab participants were primed with interdependence, they exhibited greater self-assertion. The authors interpreted these findings as reflecting a self-assertive form of interdependence, in which independent features in this cultural group may serve social and relational functions—thus, in a culture where a cultural logic of honor is prevalent, the presumed opposition between independent and interdependent ways of being may not apply. Nevertheless, an alternative possible explanation for this finding is that Arab participants' display of greater self-assertion could have been a reaction against the interdependence prime (i.e., a backfire effect: Yang & Vignoles, 2020). In the current study, therefore, we extended this initial finding conceptually to explore the possibility that relationships may be predicted by a distinct combined focus on both independent and interdependent dimensions in the Mediterranean region. We did so by examining the association of each indicator of independence-interdependence with a measure of social well-being. If individual forms of independence were associated with more satisfying relationships and community inclusion in these societies, this would provide evidence that these forms of independence were serving relational functions. This idea is in line with previous evidence showing that there are culturally distinct pathways (independent versus interdependent) in achieving positive life outcomes (e.g., Kitayama et al., 2010) and helps us examine what psychological needs particular forms of independence and interdependence may serve in different regions, in addition to inspecting how they compare to each other based on mean levels.

The Present Study

The present research contributes to the emerging literature on the regional variation in patterns of independence and interdependence by expanding the cultural space of previous comparative research to focus on the so far neglected Mediterranean region in comparison with East Asian and Anglo-Western regions and by providing evidence from a large battery of tasks

tapping into social orientation, self-construal, and cognitive style. To this end, we recruited participants from Spain, Italy, Greece, Turkey, Cyprus (from Turkish Cypriot and Greek Cypriot communities), Lebanon, and Egypt around the Mediterranean, as well as from South Korea and Japan in East Asia and the UK and the USA in the West. Largely consistent with theoretical portrayals of these regions, further data from the current study confirm that participants in most of these Mediterranean locations reported a higher prevalence of honor values in their societies, compared to participants in East Asian and Anglo-Western societies, who respectively perceived a greater prevalence of face and dignity values. Among the Mediterranean societies sampled, the perceived emphasis on honor values was strongest in Middle Eastern societies, followed by Southeastern European societies and then Latin European societies (Vignoles et al., 2023).[2]

Focusing on an understudied region in the psychological literature, the present study allowed us to make the following novel contributions: *First*, we examined the pattern of independence and interdependence in social orientation, self-construal, and cognitive style exhibited by individuals from the Mediterranean region, characterized by a cultural logic of honor, and compared the emerging pattern to that of individuals from the commonly studied cultural groups of East Asia, characterized by a cultural logic of face, and the West, characterized by a cultural logic of dignity. *Second*, inspired by the observation by San Martin and colleagues (2018) that independent features in the collectivistic Arab culture may serve relationships with others and thus enhance interdependence, we examined the role of independent and interdependent features of social orientation, self-construal, and cognitive style

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[2] In Latin European societies, the perceived prevalence of honor values was significantly higher than in East Asian societies, but non-significantly higher than in Anglo-Western societies. Participants' reports of the perceived importance of various specific honor concerns in their societies mostly followed a similar pattern. Participants' reports of their own personal values and concerns showed a more complex pattern of regional differences.

in predicting individuals' social well-being across the three regions. *Third*, we compared

subregional groups in the Mediterranean region (differentiated along ethnic, religious, linguistic,

and geographic lines) to examine whether these groups would show distinctive shared patterns of

independence and interdependence compared to groups from East Asian and Anglo-Western

regions. *Fourth*, given the importance of gender roles in most theoretical portrayals of a cultural

logic of honor (e.g., Caffaro et al., 2014; Cihangir, 2013; Rodriguez Mosquera, 2011), we

explored whether Mediterranean societies might show a stronger pattern of gender differences in

independence and interdependence compared to other world regions. To this end, we recruited a

comparable number of men and women across all sites to test gender differences in social

orientation, self-construal, and cognitive style within each region. *Fifth*, the inclusion of samples

from the East Asian and Anglo-Western regions allowed us to test the replicability of past

findings obtained from these two regions using a large battery of tasks and measures.

We assessed patterns of social orientation, self-construal, and cognitive style using both

implicit and explicit measures, providing a more comprehensive assessment of forms of

independence and interdependence than any previous study in the field. We included eight

implicit tasks (which produced 10 indices of independence and interdependence) that assess

different aspects of social orientation and cognitive style (see Table 1 for a description of each

study task and measure). Implicit measures, which involve completing tasks or responding to

questions in a non-reflective way, increase feasibility in translation and comparability of results

and help avoid common methodological limitations in the cross-cultural use of self-report

measures (Heine et al., 2002; Lalwani & Shavitt, 2009; Peng et al., 1997; but see below).

Moreover, it is by using implicit measures that researchers initially detected clearer cultural

differences between samples from East Asian and Western regions (e.g., Kitayama et al., 2009;

Park et al., 2016).

Table 1

Description of Study Tasks and Measures

	Tasks	Measures	Operationalization/Assessment	Meaning of the Dependent Variables*
Social Orientation	Implicit Social Orientation Questionnaire (ISOQ)	Intensity of Engaging (vs. Disengaging) Emotions	Intensity of socially engaging emotions (e.g., ashamed) minus intensity of socially disengaging emotions (e.g., proud)	Stronger relative intensity of socially engaging emotions associated with stronger social interdependence
		Predictors of Happiness	Regression coefficient for socially engaging emotions for happiness minus regression coefficient for socially disengaging emotions	Stronger relative prediction of happiness by socially engaging emotions is associated with stronger social interdependence
	Sociogram Task	Symbolic Self-Inflation	Size of circle drawn for the self minus the average size of all circles drawn for others	Stronger symbolic self-inflation associated with greater *in*dependence
	Inclusion of Other in the Self Scale (IOS)	Ingroup (vs. Outgroup) Closeness Bias	Average of felt closeness to ingroup members (the person they feel closest to, a good friend and family members) minus average of felt closeness to outgroup members (others in general, a stranger on the street)	Relatively greater ingroup closeness bias is associated with stronger social interdependence
	Nepotism Task	Nepotism in Reward Contexts	The amount of money allocated to reward an *honest friend* minus the amount of money allocated to reward an *honest stranger*	Greater monetary reward of friends than strangers is associated with stronger social interdependence
		Nepotism in Punishment Contexts	The amount of money allocated to punish a *dishonest stranger* minus the amount of money allocated to punish a *dishonest friend*	Greater monetary punishment of strangers than friends is associated with stronger social interdependence

	Tasks	Measures	Operationalization/Assessment	Meaning of the Dependent Variables*
Self-Construal	Culture & Identity Research Network Self Construal Scale (CIRN-SCS-3)	Interdependent self-construal (on 8 dimensions): 1. Similarity (vs. Difference) 2. Connection to Others (vs. Self-Containment) 3. Receptiveness to Influence (vs. Self-Direction) 4. Dependence on Others (vs. Self-Reliance) 5. Variability (vs. Consistency) 6. Harmony (vs. Self-Expression) 7. Commitment to Others (vs. Self-Interest) 8. Contextualized (vs. De-contextualized) Self	Participants rated statements within each dimension for how well each statement described them	Higher scores on each dimension are associated with a stronger interdependent (vs. independent) self-construal for that dimension
Cognitive Style	Attribution Task	Causal Situational (vs. Dispositional) Attribution	Average across situational attribution items minus average across dispositional attribution items	Relatively greater attribution of causality to situational factors is associated with stronger holistic cognition
	Triad Task	Thematic (vs. Taxonomic) Categorization	Percentage of items with thematic categorizations out of all items	Relatively greater tendency to categorize objects in thematic terms (based on their spatial, causal, or temporal relationships) is associated with stronger holistic cognition
	Inclusion Task	Inclusion of Contextual Information	Number of pieces of information that were perceived as relevant in resolving the murder case	Higher number of pieces of information perceived as relevant is associated with stronger holistic cognition
	Outside-In Task	Third-Person Perspective Taking	Extent to which somebody took a third- versus a first-person perspective when remembering specific situations	A stronger tendency to take a third-person perspective is associated with stronger holistic cognition

Note. Higher numbers indicate stronger interdependence or holistic cognition on all measures except for the sociogram task, in which higher numbers indicate

stronger independence (to ensure comparability with past studies).

We assessed eight dimensions of independent versus interdependent self-construal using an explicit measure. Previous studies with commonly used two-dimensional self-report measures of independence and interdependence (e.g., Singelis, 1994) usually failed to capture predicted cultural differences (for reviews see e.g., Cross et al., 2011; Oyserman et al., 2002). However, recent research into cultural models of selfhood has shown that a simple contrast between independence versus interdependence is insufficient to reflect diverse models of selfhood in different regions of the world, and that the failure of previous explicit measures to show expected patterns of cultural differences was likely due to specific methodological deficiencies of these earlier measures - including incorrect dimensionality linked to a failure to adjust for variation in response styles - and not due to problems with the use of explicit measures per se (Vignoles et al., 2016). Here, we used the most recent update of Vignoles and colleagues' (2016) multidimensional self-construal measure (CIRN-SCS-3; Krys et al., 2021; Yang, 2018), which was designed to address methodological limitations of previous explicit scales. This allowed us to examine if taking a multidimensional approach to assessing self-construal would help us identify cultural variation in predicted ways.

Method

Participants

To examine the questions listed above, in twelve study sites, we recruited 4,956 participants, 3,097 of whom we retained for analyses (M_{age} = 21.45, SD = 4.36, Min = 18, Max = 71) after applying several inclusion criteria described below (see Table 2 for sample characteristics for each data collection site). Gender distribution was balanced (55.25% women).

We primarily recruited participants via participant pools of collaborating institutions in Spain, Italy, Greece, Turkey, Cyprus (both Turkish Cypriot and Greek Cypriot communities),

Table 2

Sample Descriptives for each Data Collection Site

Research Site	n			Age		SSS (1-10)		Language	Data Source	Local Institution	Compensation
	Men	Women	% Women	*M*	*SD*	*M*	*SD*				
Turkish Cypriot	45	110	71.0%	24.23	9.03	6.4	1.31	Greek	Online, In-Lab	University of Cyprus	Course Credit, Raffle
Greek Cypriot	103	214	67.5%	20.89	2.36	6.04	1.19	Greek	Online, In-Lab	University of Cyprus	Course Credit, Raffle
Egypt	95	110	53.7%	20.73	1.56	6.44	1.31	Arabic	Online	British University of Egypt	Donation to Charity
Greece	284	196	40.8%	23.14	6.07	6.04	1.21	Greek	Online	University of Crete	Course Credit
Italy	112	135	54.7%	22.76	4.07	5.9	1.39	Italian	Online, In-Lab	University of Chieti-Pescara	Course Credit
Japan	105	114	52.1%	20.47	1.93	6.11	1.48	Japanese	Online, In-Lab	Nagoya University	Monetary
Korea	105	101	49.0%	22.40	2.82	6.19	1.68	Korean	Online	Sogang University	Online Voucher
Lebanon	96	165	63.2%	19.14	1.63	6.7	1.41	English	Online	American University of Beirut	Course Credit
Spain	124	116	48.3%	22.53	6.02	5.72	1.47	Spanish	Online	University of Granada	Course Credit
Turkey	111	241	68.5%	20.80	1.59	5.64	1.29	Turkish	Online	Bolu Abant Izzet Baysal University, Ordu University	Course Credit
UK	103	104	50.2%	20.25	2.03	5.6	1.39	English	Online, In-Lab	University of Kent	Course Credit, Monetary
US	103	105	50.5%	19.58	3.32	6.21	1.44	English	Online, In-Lab	Iowa State University	Course Credit
Total	1386	1711	55.3%	21.45	4.36	6.05	1.4				

Note. SSS: Subjective Socio-Economic Status

Lebanon, Egypt, UK, US, Korea, and Japan. In the UK, we also collected data using Prolific to reach the targeted sample size (30.27% of UK participants) and to make up for COVID-related disruptions during the initial phase of data collection. Depending on the recruitment site, participants received course credit, monetary compensation, had a financial contribution made to a COVID-related charity in their name, or were entered into a raffle for vouchers of local online vendors.

Sample size per data collection site was determined based on sample sizes adopted in previous research (Kitayama et al., 2009; e.g., Na et al., 2010; Salvador et al., 2020; San Martin et al., 2018) and availability of resources shaped by our budget and COVID-related restrictions. In each sample, we aimed for 100 men and 100 women to allow meaningful gender comparisons, which in some cases led to oversampling of women before we could reach the targeted number of men. With over 200 participants in most sites, sample size per group was comparable to or greater than the majority of past research that used a similar approach.

Inclusion Criteria

Participants were eligible to participate if they were 18 years or older, born in the respective country of data collection, and had lived in the country of data collection for more than half of their lives. In addition, in our analyses we included participants who self-identified as members of the majority group of the respective country (e.g., White British in the UK)[3], and as either male or female (all but 12 participants across all sites). Finally, we included four

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[3] Depending on feedback by local collaborators, we adjusted this criterion to the specific circumstances of the particular cultural context. In the Greek Cypriot sample, we included participants who either self-identified only as Cypriot or as Cypriot *and* any other ethnic group, whereas in the Turkish Cypriot sample we included participants who identified as either Cypriot or Turkish. In Lebanon and Egypt, we did not include a question about ethnic identity following recommendations from local collaborators.

attention checks in the questionnaire[4], and excluded participants who failed one or more attention checks from the final sample.

Procedure

After providing consent, participants completed a battery of tasks (in the same order) designed to assess their social orientation, self-construal and cognitive style as part of a larger study titled "Individual Differences in Social and Cognitive Orientation" conducted between December 2019 and February 2021[5], either in the lab (18.95%) or on their own devices outside the lab (81.05%) using an online questionnaire prepared on Qualtrics. Items within each task

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[4] Attention checks were one item measures distributed throughout the study that asked participants to check a certain item or to choose a certain rating. Due to technical problems one attention check was not included in the questionnaire used in Korea and Egypt. Finally, as we did not include the exclusion task in Egypt (see below), the attention check used as part of this task was also not included in participant selection in the Egyptian sample.

[5] To inspect the potential impact the coronavirus pandemic might have had on patterns of independence and interdependence, we analyzed the data collected in the UK before (in-lab, $n = 133$) and after (online, $n = 71$) the initial lockdown conducting three separate multivariate analyses of variance for social orientation, and self-construal dimensions, and cognitive style, using Bonferroni correction in the absence of prior hypothesis. We found no significant differences in measures of social orientation, $F(7, 193) = 1.06$, $p = .39$, $\eta_p^2 = .037$, and cognitive style, $F(7, 199) = 1.19$, $p = .32$, $\eta_p^2 = .023$. For self-construal dimensions, significant differences emerged only for self-containment (vs. connection to others), $F(1, 202) = 14.79$, $p = .005$, $\eta_p^2 = .038$, and self-interest (vs. commitment to others), $F(1, 202) = 17.78$, $p = .001$, $\eta_p^2 = .055$. Thus, out of a total of 18 measures, only 2 varied significantly from before to during the pandemic, providing weak evidence for timing of data collection. On both self-construal dimensions, participants in the in-lab data collection group rated themselves more strongly towards the interdependent end of each dimension than did participants in the online data collection group. We would like to note that these findings rely on two different sets of participants who completed the study at two different timepoints, hence we call for caution in their interpretation.

were randomized unless indicated otherwise below. With the exception of consent items, the sociogram task (for which at least 2 ellipses had to be drawn) as well as items necessary for checking inclusion criteria, participants were free to not answer any question in the questionnaire. The study received ethical approval from the institution of the principal investigator of the project as well as the ethical committees at the collaborators' institutions where data collection took place and/or was organized from.

Translation

Where the study was administered in a non-English speaking country, we translated the materials from English into the local language following a team translation approach (Survey Research Center, 2022; see also Harkness et al., 2010), in which all tasks were first translated by native speakers of the respective languages (either by a member of the research team or by a professional translator), and then reviewed and checked for accuracy and local conventions of language use by other team members that were fluent in both the local language and English. Where disagreements emerged, additional individuals were consulted before a final version was reached. Collaborators in all sites carefully checked each task to examine whether its content was understandable, meaningful, familiar, and appropriate for local use. In some cases, we adjusted the materials to ensure this (e.g., adjusting content to fit locally common names and activities).

Materials

Measures of Social Orientation

An interdependent social orientation is marked by a tendency to experience socially engaging (vs. disengaging) emotions more intensely, have one's happiness predicted to a greater extent by socially engaging (vs. disengaging) emotions, feel closer to ingroup relative to outgroup members, show weaker symbolic self-inflation, and greater nepotism towards friends. We used four tasks and measures (the Implicit Social Orientation Questionnaire [ISOQ], the

Inclusion of Other in the Self Scale [IOS], the Sociogram Task, and the Nepotism Task) to assess these markers.

Intensity of Engaging Emotions. Using the Implicit Social Orientation Questionnaire (ISOQ; Kitayama, Mesquita, et al., 2006), we asked participants to read a brief description of 10 situations commonly experienced in daily life (e.g., having a problem with a family member; watching TV). For each situation, participants rated how much they experienced twelve different emotions during the situation (1 = *not at all* to 6 = *very strongly*). Emotions varied in valence (positive vs. negative) and in their relational versus individual focus (socially engaging vs. socially disengaging emotions): feelings of closeness with others and friendly feelings (socially engaging and positive), ashamed and guilty (socially engaging and negative), proud and self-esteem (socially disengaging and positive), and frustration and angry (socially disengaging and negative). Each situation also included generally positive (elated, happy, calm) and negative (unhappy) emotions that helped us assess participants' overall well-being and valence of the situation. To calculate an index for intensity to experience socially engaging versus socially disengaging emotions for each individual, following past practice (e.g., Kitayama, Mesquita, et al., 2006; Na et al., 2020) we first determined for each situation whether it was perceived as positive or negative by the participants by subtracting the rating for 'unhappy' from the average rating for 'elated, happy, calm'. For positive situations, we calculated the positive engaging (*range*$_{Spearman-Brown}$ = .78 to .94) and positive disengaging (*range*$_{Spearman-Brown}$ = .65 to .86) emotion scores; for negative situations, we calculated the negative engaging (*range*$_{Spearman-Brown}$ = .44 to .80) and negative disengaging emotion (*range*$_{Spearman-Brown}$ = .40 to .84) scores. Next, for each situation, we subtracted the valence-matched disengaging emotion score from the valence-matched engaging emotion score, and then created a score for each participant by averaging across all situations to reveal the relative intensity of socially engaging (vs. disengaging)

emotions. Scores above 0 reflect a higher intensity of socially engaging than socially disengaging emotions (i.e., a form of interdependence), whereas scores below 0 reflect higher relative intensity of socially disengaging than socially engaging emotions (i.e., a form of independence).

Predictors of Happiness. Using the Implicit Social Orientation Questionnaire as above, we also examined the propensity to experience happiness as a function of socially engaging or socially disengaging emotions. To do this, following past practice (Kitayama, Mesquita, et al., 2006; Na et al., 2020) we regressed for each participant the averages of the general positive emotions (as an indicator of situational happiness) onto the average ratings for engaging and disengaging emotions (across all 10 situations). We then created a difference score by subtracting each participant's unstandardized coefficient for disengaging emotions from their coefficient for engaging emotions, with higher scores in this index reflecting a greater tendency to experience happiness as a function of socially engaging (vs. socially disengaging) emotions. Scores above 0 indicate that a participant's happiness was predicted more strongly by socially engaging than by disengaging emotions (i.e., a form of interdependence), whereas scores below 0 indicate that a participant's happiness was predicted more strongly by socially disengaging than engaging emotions (i.e., a form of independence).

Ingroup Closeness Bias. Using the Inclusion of Other in the Self Scale (IOS; Aron et al., 1992) we asked participants to indicate how close they feel to five different individuals and social groups using a pictorial measure of closeness. The measure consisted of two circles (one representing the self, the other representing the target person or group), which overlapped to gradually increasing degrees on a 7-point scale, ranging from no overlap to almost complete overlap. Participants were instructed to choose one pair of circles that best described their relationship with (1) members of their family, (2) a good friend of theirs, (3) a stranger on the street, (4) others in general, and (5) the person whom they feel closest to, in this order (the order

of these items was not randomized). We calculated two summary statistics to capture ingroup

and outgroup closeness by averaging the ratings for the person whom participants' felt closest to,

a good friend, and their members of their family (ingroup closeness; *country range* α = .51, to α

= .75), and by averaging the ratings for a stranger on the street and others in general (outgroup

closeness; *country range of r*$_{Spearman-Brown}$ = .51 to .72). Next, we subtracted the score for

outgroup closeness from the score for ingroup closeness to obtain an index of ingroup closeness

bias, used in past research as an additional indicator of interdependent social orientation (Na et

al., 2020). Most participants would be expected to report feeling closer to ingroup than to

outgroup members, reflected by a positive difference score, but a greater size of this difference

would indicate a stronger interdependent (vs. independent) social orientation.

   Symbolic Self-Inflation. Using the Sociogram Task modified from Kitayama and

colleagues (2009), we asked participants to draw their social network using circles to represent

the self and their friends, and using straight lines between the circles to indicate relationships

among the different people included. Participants were instructed to draw a circle representing

themselves first, followed by circles representing their chosen friends. Participants had up to 5

minutes to complete this task and could include as many friends as they liked. We collected data

online using a computer-programmed version of the initial paper-pencil version of this task (for

more details on this measure see the Supplementary Materials). We calculated the commonly

used index of "symbolic self-inflation" (defined as the proportion of the size of the self-circle to

the average size of all other circles). Scores above 1 indicate that a participant drew their self

circle larger than the average of their friend circles (i.e., a form of independence), whereas scores

below 1 indicate that they drew their self circle smaller than the average of their friend circles

(i.e., a form of interdependence). Note that unlike all other measures in the current study, higher

scores for symbolic self-inflation indicate higher independence (not interdependence), a decision we made to keep findings from this task comparable to previous studies.

Nepotism. To examine the degree to which people differ in how they treat friends versus strangers, we used a task designed to assess tendencies to reward honesty and punish deception (Wang et al., 2011). In this task, participants were asked to imagine themselves in a business deal with an honest friend, a dishonest friend, an honest stranger, and a dishonest stranger, with each situation described in a separate vignette. The order in which these situations were presented was randomized for each participant. The content of the friend and stranger vignettes did not differ except for the other person involved in the interaction ("a friend of yours" vs. "a stranger"). In the dishonest vignettes, the friend/stranger was described to be dishonest about some important information concerning the business deal, which caused the participant to earn less money than they would have if the friend/stranger would not have been dishonest (i.e., if their friend or stranger had been honest, the participant would have earned 50% more). In the honest vignettes, the friend/stranger was described to be honest about some important information concerning the business deal, which caused the participant to earn more money than they would have if the friend/stranger would not have been honest (i.e., if their friend or stranger had not been honest, the participant would have earned 50% less).

After each of the four vignettes, participants were given the chance to punish or reward the friend or stranger, using their own (fictitious) money. In both dishonest and honest vignettes, punishments/rewards were dealt at a 1:10 ratio (i.e., for every unit of their own money they could punish/reward the friend/stranger for 10 times that amount). Participants indicated their choice on an 11-point scale (ranging from *0 = do not punish/reward this person* to *10 = punish/reward this person $200 [spending $20 of your own money]*), with the punishment and reward amounts increasing in multiples of 20$, and the respective cost to the participant increasing in multiples of

2$. All monetary values were adjusted to local currencies to ensure that amounts were comparable in their overall purchasing value. All scenarios and reward/punishment options were presented as hypothetical, and no real money was given to participants at any point.

We computed two different indices reflecting nepotism: First, we computed one index of *nepotism in reward contexts* calculated as the difference between the amount participants indicated they would use to reward their honest friend minus the amount they would use to reward the honest stranger. Second, we computed an index of *nepotism in punishment contexts* calculated as the difference in the punishment participants allocated to a dishonest stranger minus the punishment allocated to their dishonest friend. Similar to ingroup closeness bias described above, demonstrating higher degrees of nepotism has been associated with stronger interdependent social orientation (Talhelm et al., 2014; Wang et al., 2011).

Measure of Explicit Self-Construal

Using the Culture and Identity Research Network Self Construal Scale - Version 3 (CIRN-SCS-3; Krys et al., 2021, p. 202; Yang, 2018), we asked participants to read 48 statements and to rate how well each statement described them using a 9-point Likert scale (*1 = doesn't describe me at all* to *5 = describes me exactly*, with half-point response options in-between: 1½, 2½, 3½, 4½). The CIRN-SCS-3 assesses eight bipolar dimensions of self-construal, with each dimension being measured by 6 items that reflect the independent and interdependent poles of each dimension. The respective dimensions (with example items measuring the positively scored interdependent pole) were Similarity (vs. Difference) (e.g., '*You like being similar to other people*'), Connection to Others (vs. Self-Containment) (e.g., '*If someone in your family achieves something, you feel proud as if you had achieved something yourself*'), Receptiveness to Influence (vs. Self-Direction) (e.g., '*You usually ask your family for approval before making a decision*'), Dependence on Others (vs. Self-Reliance) (e.g., '*In*

difficult situations, you tend to seek help from others rather than relying only on yourself'),

Harmony (vs. Self-Expression) (e.g., '*You prefer to preserve harmony in your relationships, even if this means not expressing your true feelings*'), Commitment to Others (vs. Self-Interest) (e.g., '*You value good relations with the people close to you more than your personal achievements*'), Variability (vs. Consistency) (e.g., '*You act very differently at home compared to how you act in public*'), and Contextualized (vs. De-contextualized) Self (e.g., '*If someone wants to understand who you are, they would need to know about the place where you live*').[6] To adjust for possible individual and/or cultural differences in response style, the score for each item was adjusted by subtracting the participant's average response across all items (i.e., *ipsatization*), before reverse scoring items measuring the independence pole of each dimension. All subscales showed acceptable reliability for the entire sample (α range for the whole sample*:* 0.70 to 0.85; α range across sub-scales and country groups*:* .53 to .90).[7] We created participant scores for analysis by averaging responses for each subscale, with higher scores representing higher interdependent self-construal. Thus, for each dimension, scores above 0 indicate higher endorsement of interdependent than independent items, whereas scores below 0 indicate higher endorsement of independent than interdependent items.

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[6] Due to a technical error, two items from the subscale on Self-Expression vs. Harmony ("*You like to discuss your own ideas, even if it might sometimes upset the people around you*" and "*You prefer to express your thoughts and feelings openly, even if it may sometimes cause conflict*") were missing in the version used in the Greek Cypriot sample in Cyprus.

[7] Confirmatory factor analyses supported the eight-dimensional structure of the self-construal scale while accounting for individual differences in response style (Welkenhuysen-Gybels et al., 2003). Alignment method analyses showed that all eight subscales met criteria for approximate measurement invariance of loadings and intercepts across our 12 cultural samples (Asparouhov & Muthén, 2014). See Supplementary Materials for details.

Measures of Cognitive Style

A holistic cognitive style is marked by a tendency to attribute behavior more to situational (vs. dispositional) factors, categorize objects based on shared categories (vs. shared rules and attributes), view more (vs. less) contextual information as relevant to an event, and take a third-person (vs. first-person) perspective when remembering past events. We used four tasks (Attribution Task, Triad Task, Inclusion Task, Outside-In Task) to assess these markers.

Causal Situational (vs. Dispositional) Attribution. Using the Attribution Task (Kitayama, Ishii, et al., 2006), we examined the tendency to attribute behavior to situational rather than person-related factors. We presented participants with 4 vignettes each describing a different situation. Two of the vignettes described the protagonist as engaging in a socially *undesirable* behavior (e.g., a physician concealing their mistake and telling a patient's family that the patient died of a heart attack) and the other two described the protagonist as engaging in a socially *desirable* behavior (e.g., a baseball player holding free baseball camps for kids living in poor neighborhoods instead of taking a summer vacation). Participants were then asked to think about the reasons for the protagonist's behavior and to provide an evaluation of that person's behavior by answering the same four items for each vignette: whether the described action was caused by (a) dispositional factors (e.g., *"Features of [Protagonist] (such as his/her character, attitude, or temperament) influenced her behavior [...]"*) or (b) situational factors (e.g., "*Features of the environment that surround [Protagonist] (such as the atmosphere, social norms, or other contextual factors) influenced his/her behavior*"). All items were rated using a 7-point scale ranging from 1 = *strongly disagree* to 7 = *strongly agree*.

Following past practice (see Kitayama, Ishii, et al., 2006; Kitayama et al., 2009), we created an index of situational attribution (by averaging situational attributions ratings in each vignette; *range α* = .71 to .82) and an index of dispositional attribution (by averaging

dispositional attribution ratings in each vignette; *range α* = .71 to .87), averaged each score across all vignettes, and computed an index of *causal situational (vs. dispositional) attribution* by subtracting the average dispositional attribution rating from the average situational attribution rating. Scores above 0 indicate that participants attributed behavior more to situational than dispositional factors (i.e., a form of interdependence), whereas scores below 0 indicate that a participant attributed behavior more to dispositional than situational factors (i.e., a form of independence).

      Thematic Categorization. We used the Triad Task (Chiu, 1972; see also Ji et al., 2004; Miyamoto & Ji, 2011) to examine the tendency to categorize objects based on their similarity of attributes (taxonomic categorization) or based on the spatial, causal, or temporal relationships between them (thematic categorization). Participants saw 16 sets of three objects (e.g., seagull - sky - dog), four of which were fillers (e.g., apple, orange, pear). The order of triads was not randomized. Participants were asked to indicate which two of the three objects were most closely related. By choosing two words, all three-word sets could be grouped based on thematic (e.g., seagull and sky, as a seagull flies in the sky) or taxonomic (e.g., seagull and dog, as both belong to the category 'animal') categorization. Meaningless categorizations (e.g., sky and dog; 2.3% of all categorizations) were not considered in the analysis.[8] For each participant, we extracted an index of *thematic (vs. taxonomic) categorization,* defined as the percentage of thematic

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[8] Because of a technical error, Korean participants received one triad fewer than participants in the other samples (soup - knife - spoon), and instead had one triad duplicated (beer - water - fish). Due to the randomization of the item order between participants, it was not possible to determine which triad was presented to any participant first. For the Korean sample only, we therefore calculated our percentage index only for those participants that showed the same answers across both duplicate triads and excluded those participants that did not (*n* = 14 participants responded differently between the two identical triads).

categorizations out of all possible categorizations; higher percentage scores in this task thus indicate higher interdependence (rather than independence).

    Inclusion of Contextual Information. To assess individuals' tendency to consider more pieces of contextual information in causal attributions of behavior (Choi et al., 2003), we asked participants to put themselves in the shoes of a police officer in charge of a criminal case in which a graduate student had murdered a professor (their academic advisor). The goal of the task was to establish the motive of why the graduate student might have committed the crime. Participants were provided with a series of pieces of information related to the case and were asked to indicate whether they considered any piece of information as *irrelevant* to solving the case.[9] We opted for the short version of the original task, which contained 17 pieces of information (e.g., whether the graduate student had any brothers and sisters, see Na et al., 2013). Based on feedback from our collaborators in Egypt, we did not include this task in the study with the local sample, as the topic of the task (a hypothetical murder case) and some of the items could be perceived as potentially inappropriate in that cultural context. We calculated an index for the *inclusion of contextual information*, defined as the number of items that participants deemed causally relevant (i.e., representing the remaining number of items after excluding those indicated as irrelevant from the total 17 items).

    Third-Person (vs. First-Person) Perspective Taking. To examine individuals' tendency to take a third-person (vs. first-person) perspective when remembering past situations, we used the Outside-In Task (Cohen & Gunz, 2002) and presented participants with 10 prompts that

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[9] We used the exclusion rather than inclusion of information procedure as past work has shown that the exclusion procedure was more sensitive in distinguishing between cultural groups (Choi et al., 2003).

described different situations (e.g., when you were in a group performance).[10] The order of prompts was not randomized. Participants were asked to recall a specific instance of that situation, to briefly describe it in one sentence, and to rate the perspective they took when remembering a situation on a scale from 1 (*entirely a first-person memory*) to 11 (*entirely a third-person memory*). We averaged the ratings across the situations to create a third-person perspective taking index (*range α* = .81 to .93); higher scores therefore represent a greater tendency to remember events from a third-person rather than a first-person perspective (i.e., a form of interdependence), whereas lower scores represent a greater tendency to remember events from a first-person rather than a third-person perspective (i.e., a form of independence).

Social Well-Being

Participants indicated the extent to which they are satisfied with nine different domains of their lives (e.g., *standard of living, health*) taken from the OECD Guidelines on Measuring Well-being (OECD, 2013). All items were rated using a 10-point scale (0 = *not at all* to 10 = *completely satisfied*). We averaged two items that focused on relationships (*personal relationships, feeling part of their community;* overall Spearman-Brown = .63*; range* Spearman-Brown across data collection sites = .48 to .79) to create a measure of social well-being.

Demographic Information

In the final section of the study, participants responded to demographic questions which were adjusted to each data collection site. Participants in all sites reported their gender, age, country of birth, country where they attended high school, length of stay in the country of data collection, native language, type of environment they mainly lived in (urban, rural, both),

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[10] Five more situations that we added to this task to examine situations of different nature were not included in this analysis.

religious background, religiosity (McDaniel & Burnett, 1990), and perceived social status in the country of residence measured using the MacArthur Scale of Subjective Social Status (Adler et al., 2000). Participants in all sites except Lebanon and Egypt also reported their ethnicity.

Results

Analysis Plan

We analyzed all study tasks and measures using analyses of variance (ANOVA) focusing on 3 (cultural regions: Mediterranean, East Asian, Anglo-Western) X 2 (gender: men vs. women), presenting first a three-region comparison for each indicator across men and women in the Mediterranean (n = 2,257), East Asian (Japan, Korea) (n = 425), and Anglo-Western (UK, US) (n = 415) regions. Next, we conducted a three-way within-region comparison including groups from the Mediterranean region only (i.e., Latin Europe [n = 487], Southeastern Europe [n = 797] and the Middle East [n = 973]). Finally, we ran three multiple regression analyses for each region using measures of social orientation, self-construal, and cognitive style as separate sets of predictors of social well-being. Zero-order correlations and descriptive statistics for all measures for samples from all countries are reported in the Supplementary Materials (SM).

An initial inspection of our data showed small but significant age and subjective socio-economic status (SSS) differences between men and women in different regions, as indicated by significant interaction effects between region and gender for age, $F(2, 3091) = 3.97$, $p = .019$, $\eta_p^2 = .003$, and for SSS, $F(2, 3068) = 4.80$, $p = .008$, $\eta_p^2 = .003$. We therefore controlled for both age and SSS in our analyses.[11] We used Sidak adjustment for multiple comparisons of groups. All confidence intervals (*CI*s) reported below are 95%. With the exception of symbolic self-inflation (see below), all measures were scored such that higher, or more positive, scores indicate tendencies towards interdependence whereas lower, or in some cases negative, scores indicate

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[11] Results remain largely the same when analyses were conducted without these covariates.

tendencies towards independence (for descriptive statistics for all study tasks and measures by region, see Table 3). For some tasks, following the convention in this line of research, we calculated difference scores between the independent and the interdependent ways of responding to examine the balance between the two types of response tendencies, which also helped remove any cultural differences in acquiescent response style (e.g., Baumgartner & Steenkamp, 2001; Podsakoff et al., 2012). *F* values and degrees of freedom may vary across tasks due to inclusion of data only of participants who answered more than half of the available items in each index, task, or measure (for descriptive statistics per region and task and *F* values for 3-region main effects see Table 3, for an illustration of group differences in social orientation indices see Figure 1, in self-construal dimensions see Figure 2, and in cognitive style indices see Figure 3).

Indicators of Social Orientation

Intensity of Engaging Emotions

Overall, participants showed a tendency to experience socially disengaging emotions (e.g., pride, anger) relative to socially engaging emotions (e.g., feelings of closeness, shame) at a stronger intensity, as indicated by the negative difference scores in all regional samples. As shown in Table 3, this tendency towards emotional independence was significantly greater among individuals from the Mediterranean region compared with those from Anglo-Western (*p* < .001, *CI* [-.25, -.07]) and East Asian regions (*p* < .001, *CI* [-.51, -.34]), and for individuals from the Anglo-Western region compared with those from the East Asian region (*p* < .001, *CI* [-.15, -.38]).

Table 3

Descriptive statistics and ANCOVA Results for Study Tasks and Measures

Variable	Mediterranean Region (n = 2,257)		East Asian Region (n = 425)		Anglo-Western Region (n = 415)		ANCOVA			
	M	SD	M	SD	M	SD	F	df1	df2	η^2_p
Social Orientation										
Intensity of engaging emotions	-0.58a	0.74	-0.16b	0.58	-0.43c	0.52	69.11 ***	2	3046	.043
Predictors of happiness	-0.16a	0.68	0.27b	0.69	0.00c	0.79	55.61 ***	2	3049	.035
Symbolic self-inflation	2.03a	1.52	1.90ab	1.22	1.79b	0.98	5.37 **	2	3013	.004
Ingroup closeness bias	3.70b	1.19	3.15a	1.19	3.58b	1.07	36.95 ***	2	3061	.024
Nepotism (reward)	1.15a	2.86	1.78b	2.81	1.34ab	2.55	8.55 ***	2	3061	.006
Nepotism (punishment)	1.10a	3.64	1.07a	3.23	0.79a	3.03	1.41	2	3062	.001
Self-Construal										
Similarity (vs. Difference)	-1.54a	1.34	-0.76b	1.37	-0.73b	1.47	106.2 ***	2	3060	.065
Connection (vs. Containment)	2.14a	1.37	1.37b	1.53	1.13c	1.41	115.4 ***	2	3060	.07
Receptiveness to Influence (vs. Self-Direction)	-1.17a	1.34	-0.51b	1.44	-0.62b	1.38	60.94 ***	2	3060	.038
Dependence (vs. Self-Reliance)	-1.28a	1.55	-0.32b	1.76	-0.82c	1.64	74.39 ***	2	3060	.046
Variability (vs. Consistency)	-0.17a	1.79	0.87b	1.56	0.28c	1.75	60.88 ***	2	3060	.038
Harmony (vs. Self-Expression)	-0.70a	1.53	0.15b	1.45	-0.07c	1.47	71.24 ***	2	3060	.044
Commitment to others (vs. Self-Interest)	0.46a	1.41	0.24b	1.22	0.56a	1.20	6.072 **	2	3060	.004
Contextualized Self (vs. De-Contextualized Self)	-1.20b	1.55	-0.97a	1.34	-1.29b	1.39	5.229 **	2	3060	.003
Cognitive Style										
Causal Situational attribution	-1.29b	1.23	-0.75a	1.10	-1.31b	1.23	35.94 ***	2	3062	.023
Thematic categorization bias	0.69a	0.28	0.63b	0.32	0.58c	0.32	30.61 ***	2	3063	.02
Inclusion of contextual information	12.77b	3.87	14.12a	3.41	13.11b	3.51	21.94 ***	2	2864	.015
Third-person perspective taking	3.62b	2.08	3.83b	1.68	3.28a	1.66	9.76 ***	2	3011	.006

Note. The ANCOVAs controlled age, SSS, gender, and interaction between region and gender. Participants in the Egyptian sample did not complete the exclusion task. The eight sub-scales of SCS were treated as repeated measures in the general linear model analyses. * $p < .05$, ** $p < .01$, *** $p < .001$. Means that do not share a subscript differed significantly at $p < .05$ in post hoc pairwise comparisons (for exact p values, see text).

Predictors of Happiness

Among participants from the East Asian region, happiness was predicted more strongly on average by positive socially engaging (vs. disengaging) emotions, suggesting an implicit tendency towards interdependence, significantly more so than among participants from the Anglo-Western ($p < .001$, *CI* [.19, .45]) and Mediterranean regions ($p < .001$, *CI* [.33, .53]). In contrast, happiness among participants in the Mediterranean region was predicted somewhat more by positive socially disengaging (vs. engaging) emotions, suggesting an implicit tendency towards independence; this pattern was significantly different than the pattern among participants from the Anglo-Western region for whom happiness was equally predicted by positive engaging and disengaging emotions ($p = .017$, *CI* [-.22, -.02]).

Symbolic Self-Inflation

Participants in all regions on average drew a circle representing themselves that was significantly bigger than the circles they drew to represent friends, as indicated by positive scores across all groups. This tendency towards independence was significantly greater among participants from the Mediterranean region compared with those from the Anglo-Western region ($p = .006$, *CI* [-.42, -.05]). Unexpectedly, members of the East Asian region on average showed an intermediate level of self-inflation that did not differ significantly from those of the Anglo-Western ($p = .770$, *CI* [-.13, .35]) and Mediterranean regions ($p = .313$, *CI* [-.06, .31]).

Ingroup Closeness Bias

All groups on average reported feeling closer to ingroup members (e.g., family and friends) than to outgroup members (i.e., strangers, people in general), as indicated by positive difference scores. Unexpectedly, this tendency towards interdependence was significantly weaker among members of the East Asian region compared with members of the Mediterranean ($p < .001$, *CI* [-.68, -.38]) and Anglo-Western ($p < .001$, *CI* [-.62, -.23]) regions, which did not

differ from each other ($p = .27$, *CI* [-.05, .25]). This analysis also revealed a significant gender main effect, $F(1, 3061) = 10.80$, $p < .001$, $\eta_p^2 = .004$, qualified by a significant region X gender interaction, $F(2, 3061) = 3.64$, $p = .026$, $\eta_p^2 = .002$, such that women from the Mediterranean region ($M = 3.86$, $SD = 1.14$) exhibited significantly stronger ingroup closeness bias than did their male counterparts ($M = 3.48$, $SD = 1.22$), $p < .001$. No significant gender differences emerged in the other two regions ($ps > .118$).

Nepotism

We first examined the degree of *nepotism in reward contexts*, defined as the difference between the amount of money used to reward an honest friend and the amount of money used to reward an honest stranger. Participants in all regions assigned a greater amount to reward an honest friend than an honest stranger, yet this tendency was significantly weaker among participants from the Mediterranean region compared with those from the East Asian region ($p < .001$, *CI* [-.97, -.26]) and highly similar to that observed among participants from the Anglo-Western region ($p = .96$, *CI* [-.52, .21]). Participants from the East Asian region exhibited a slightly stronger nepotism for rewards compared with participants from the Anglo-Western region, which did not reach significance ($p = .053$, *CI* [-.004, .93]).

Next, we examined the degree of *nepotism in punishment contexts*, defined as the difference between the amount of monetary punishment allocated to a dishonest stranger and the amount of monetary punishment allocated to a dishonest friend. Participants in all regions showed nepotism in the allocated level of punishment, punishing the dishonest stranger more than the dishonest friend, but this tendency did not vary significantly across the three regions.

Interim Summary

Overall, across a majority of the implicit indicators of social orientation commonly employed in past research, participants from the Mediterranean region exhibited a relatively

independent orientation compared to participants from Anglo-Western and East Asian regions, including a stronger tendency to experience socially disengaging (vs. engaging) emotions, having their happiness predicted more strongly by socially disengaging (vs. engaging) emotions, showing a greater symbolic self-inflation (compared to Anglo-Western participants only), and weaker nepotism in reward contexts (compared to East Asian participants only). The main exception to this pattern was the weaker ingroup closeness bias observed among East Asian participants compared with participants from the Mediterranean (and Anglo-Western) region.

Multidimensional Self-Construal

As shown in Table 3, participants from the Mediterranean region rated themselves on average towards the independent pole on six dimensions of self-construal, reporting tendencies towards difference (vs. similarity), self-direction (vs. receptiveness to influence), self-reliance (vs. dependence on others), consistency (vs. variability), self-expression (vs. harmony), and decontextualized self (vs. contextualized self). However, they scored towards the interdependent pole on the two remaining dimensions, reporting tendencies towards commitment to others (vs. self-interest) and connection to others (vs. self-containment). Participants from the East Asian region rated themselves on average towards the interdependent pole on four dimensions, emphasizing connection, variability, harmony, and commitment to others, but towards the independent pole on the other four dimensions, emphasizing difference, self-direction, self-reliance, and decontextualized self. Participants from the Anglo-Western region rated themselves on average towards the independent pole on four dimensions, emphasizing difference, self-direction, self-reliance, and decontextualized self, but towards the interdependent pole on three dimensions, emphasizing connection, variability, and commitment to others; on harmony (vs. self-expression), Anglo-Western participants scored close to the theoretical mid-point.

Figure 1

Three-Region Comparisons on Social Orientation Indicators
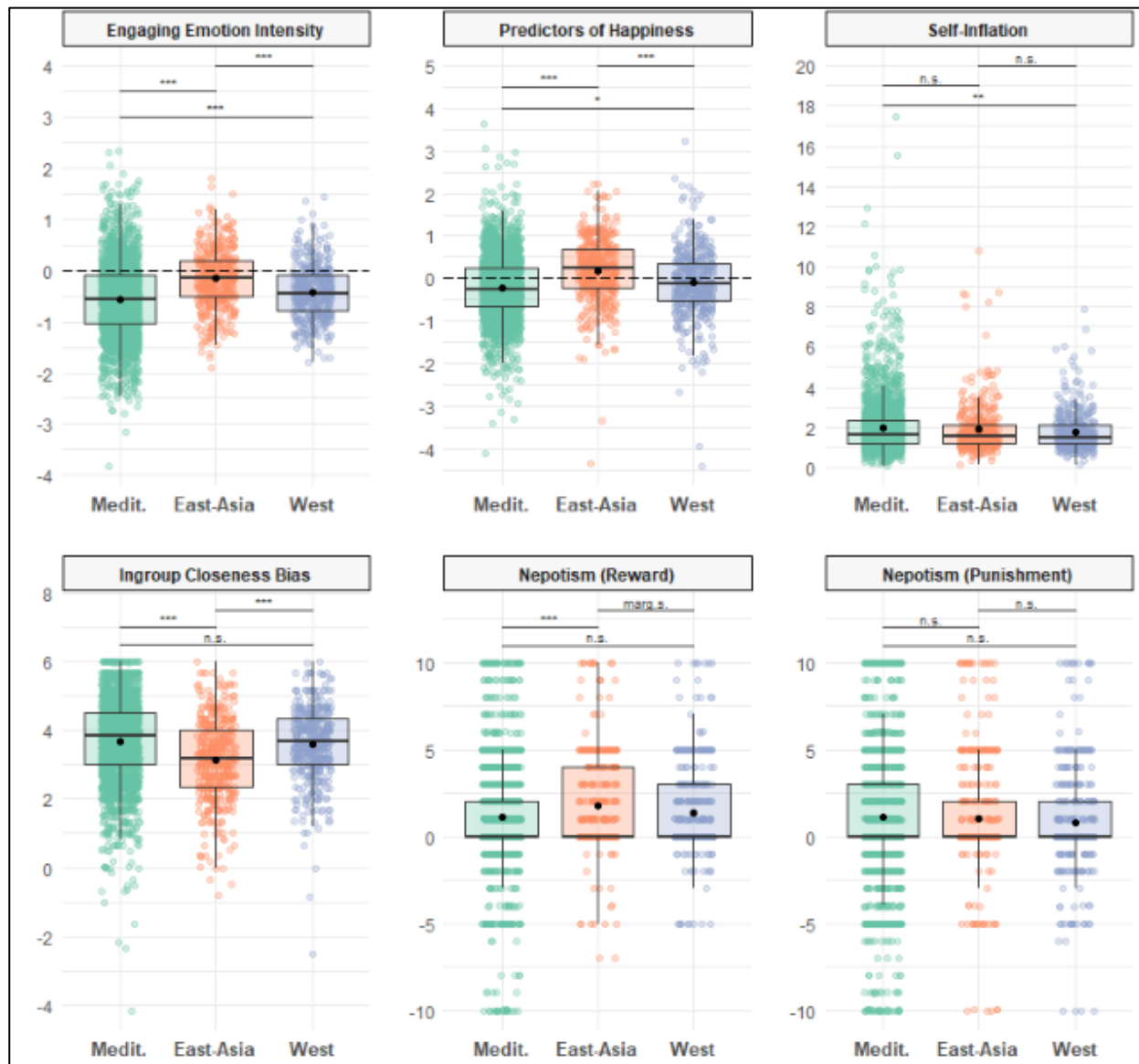
Note. Higher scores for all indicators correspond to stronger interdependence, except for self-inflation (lower scores indicate stronger independence). For all graphs, the dotted line represents the conceptual midpoint of the index, indicating an approximate balance of independent and interdependent tendencies. Black dots represent the region mean. For visualization purposes, we excluded one case from the predictors of happiness with a score > 5, and one case from self-inflation with a score > 20.

Pairwise comparisons across the three regions showed significant differences for 20 of the 24 possible comparisons on all dimensions for all two-region pairs. In particular, participants from the Mediterranean region on average rated themselves significantly towards the *independent* pole compared to participants from both East Asian and Anglo-Western regions on five dimensions, showing a greater emphasis on difference (vs. similarity), self-direction (vs. receptiveness to influence), self-reliance (vs. dependence on others), consistency (vs. variability), and self-expression (vs. harmony) than participants in both other regions (all *p*s < .001), as well as a greater emphasis on decontextualized self (vs. contextualized self) compared to participants in the East Asian region (*p* = .003), but not the Anglo-Western region (*p* = .413). However, members of Mediterranean societies also rated themselves on average closer to the *interdependent* pole on connection to others (vs. self-containment) compared to participants in both other regions (*p*s < .001) and on commitment to others (vs. self-interest) compared to participants from the East Asian region (*p* = .005) but not the Anglo-Western region (*p* = .118).

Consistent with prior theorizing, participants from the East Asian region on average rated themselves as significantly more interdependent than did participants from the Anglo-Western region on five dimensions: connection to others (vs. self-containment) (*p* = .017), variability (vs. consistency) (*p* < .001), harmony (vs. self-expression) (*p* = .031), dependence on others (vs. self-reliance) (*p* < .001), and a contextualized (vs. decontextualized) self (*p* < .001). However, participants from these two regions endorsed difference (*p* = .76) and self-direction (*p* = .16) at similar levels, and on average Anglo-Western participants showed a stronger interdependent focus than East Asian participants in commitment to others (vs. self-interest) (*p* = .004).

Inspecting gender differences across the eight self-construal dimensions and regions revealed significant gender differences in five out of eight dimensions with women scoring significantly more towards the interdependent pole of a self-construal dimension than did men

(all *p*s < .018). Two exceptions to this pattern emerged for the self-expression (vs. harmony) and consistency (vs. variability) dimensions on which Mediterranean women rated themselves significantly more towards the independent pole than did Mediterranean men (both *p*s < .001).

Interim Summary

Overall, across eight dimensions of explicit self-construal, members of Mediterranean societies exhibited a largely, but not exclusively, *independent* profile, compared to members of both East Asian and Anglo-Western societies. On average, participants from this region emphasized six forms of independence (difference, self-direction, self-reliance, consistency, self-expression, and a decontextualized self), but also two forms of interdependence (connection to others and commitment to others) in their self-ratings, in all cases significantly more than participants from East Asian societies and in most cases significantly more than participants from Anglo-Western societies.

Indicators of Cognitive Style

Causal Situational Attribution

As can be seen in Table 3, participants in all three regions tended on average to attribute behavior more to dispositional than to situational causes, thus tending towards an independent or analytical cognitive style. However, consistent with previous research, participants from the East Asian region on average made more situational (vs. dispositional) attributions compared to participants from the Anglo-Western regions (*p* < .001, *CI* [.36, .76]); this pattern also applied when they were compared with participants from the Mediterranean region (*p* < .001, *CI* [.38, .67]). Participants from the Anglo-Western and Mediterranean regions showed highly similar attributional styles (*p* = .96, *CI* [-.19, .13]).

Figure 2

Three-Region Comparisons on Self-Construal Dimensions
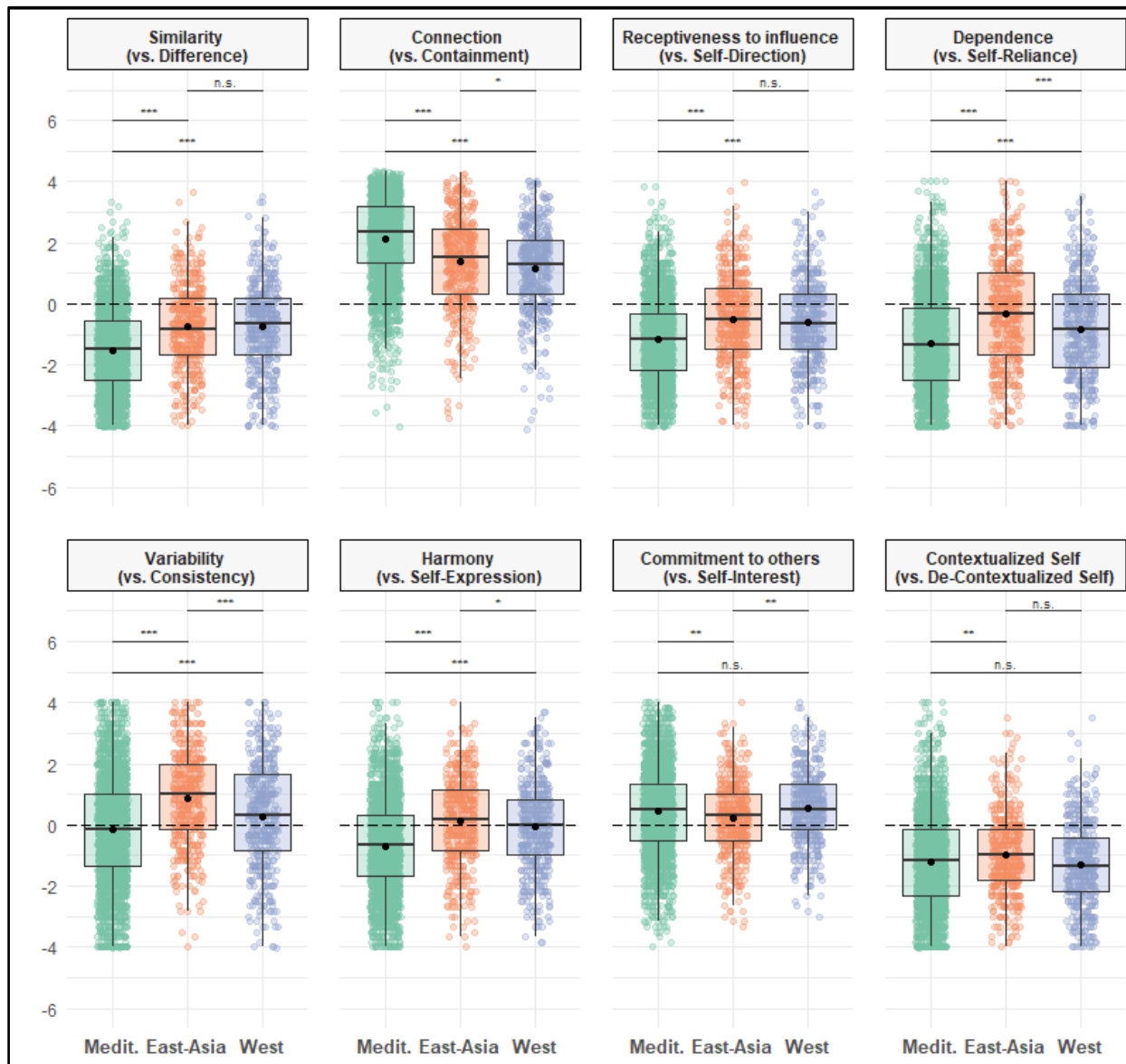
Note. Higher scores for all indicators correspond to a stronger tendency towards the interdependent end of a dimension, lower values indicate a stronger tendency toward the independent end of a dimension. The dotted line represents the theoretical midpoint of each subscale, indicating the point at which participants agreed to an equal extent with items reflecting both independent and interdependent tendencies.

Thematic Categorization

Participants in all three regions on average categorized objects more in thematic ways (e.g., classifying a seagull with the sky) rather than taxonomic ways (e.g., classifying a seagull with a dog; range: 58% to 69% of all triads). Participants from the Mediterranean region exhibited a significantly stronger tendency to categorize objects in thematic (vs. taxonomic) terms compared to participants from both Anglo-Western ($p < .001$, *CI* [.08, .15]) and East Asian regions ($p < .001$, *CI* [.03, .10]), indicating a more holistic or interdependent cognitive style. Consistent with previous research, participants from the East Asian region on average made thematic (vs. taxonomic) classifications more than did participants from the Anglo-Western region ($p = .041$, *CI* [-.098, -.002]).

Inclusion of Contextual Information

In an imaginary murder investigation, participants from the East Asian region excluded significantly fewer pieces of contextual information as causally irrelevant (in other words they included significantly more pieces of contextual information as relevant) to the case than did those from Anglo-Western ($p < .001$, *CI* [.39, 1.64]) and Mediterranean regions ($p < .001$, *CI* [.85, 1.81]), who viewed a similar number of clues as relevant ($p = .33$, *CI* [-.81, .18]).

Third-Person Perspective Taking

Across all three regions, mean scores in this task were lower than the theoretical midpoint, suggesting a greater tendency to take a first- (vs. third-) person perspective when remembering past situations. This tendency, however, varied in magnitude across the regions, with participants from the Anglo-Western region taking the third-person perspective less strongly than did participants from the Mediterranean ($p = .001$, *CI* [-.65, -.14]) and East Asian ($p < .001$, *CI* [-.91, -.25]) regions, who did not differ from each other ($p = .23$, *CI* [-.07, .43]). This region effect was qualified by a significant region X gender interaction effect, $F(2, 3011) =$

3.66, $p = .026$, $\eta_p^2 = .002$, with men ($M = 3.79$, $SD = 2.18$) more likely taking the third-person

perspective than women ($M = 3.49$, $SD = 1.99$) in the Mediterranean region ($p < .001$), but not in

the other two regions ($ps > .32$).

Interim Summary

Overall, analyses of different indicators of cognitive style across the three regions

revealed a mixed pattern with participants from the Mediterranean region exhibiting a stronger

holistic cognitive style in terms of thematic (vs. taxonomic) categorizations compared to both

Anglo-Western and East Asian participants and perspective taking compared with Anglo-

Western participants (similar to East Asian participants), but a stronger analytic cognitive style in

causal attribution of behavior and inclusion of contextual information tasks compared with East

Asian participants (similar to Anglo-Western participants). Thus, the regional variation in the

pattern of holistic and analytic cognitive style depended on the type of tasks.

The Role of Independence and Interdependence in Social Well-Being

Next, we examined how independent and interdependent features of social orientation,

self-construal, and cognitive style were linked to social well-being. The corresponding regression

analyses revealed different patterns of predictions across the three regions (see Table 4)[12].

Regression analyses with implicit *social orientation indicators* as predictors showed that higher

closeness with ingroups (vs. outgroups) positively predicted social well-being among

participants in all regions. However, only among participants from the Mediterranean region,

higher intensity of engaging (vs. disengaging) emotions, and greater symbolic self-inflation also

positively predicted social well-being, whereas greater nepotism in punishment contexts

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[12] Given that ways of being independent and interdependent are typically close to orthogonal at the individual level

(Kitayama et al., 2009; Na et al., 2010), we found no problems of multicollinearity in any of the regression analyses,

as indicated by low VIF values (all VIFs ranged between 1.001 and 2.013).

Figure 3

Three-Region Comparisons on Cognitive Style Indicators
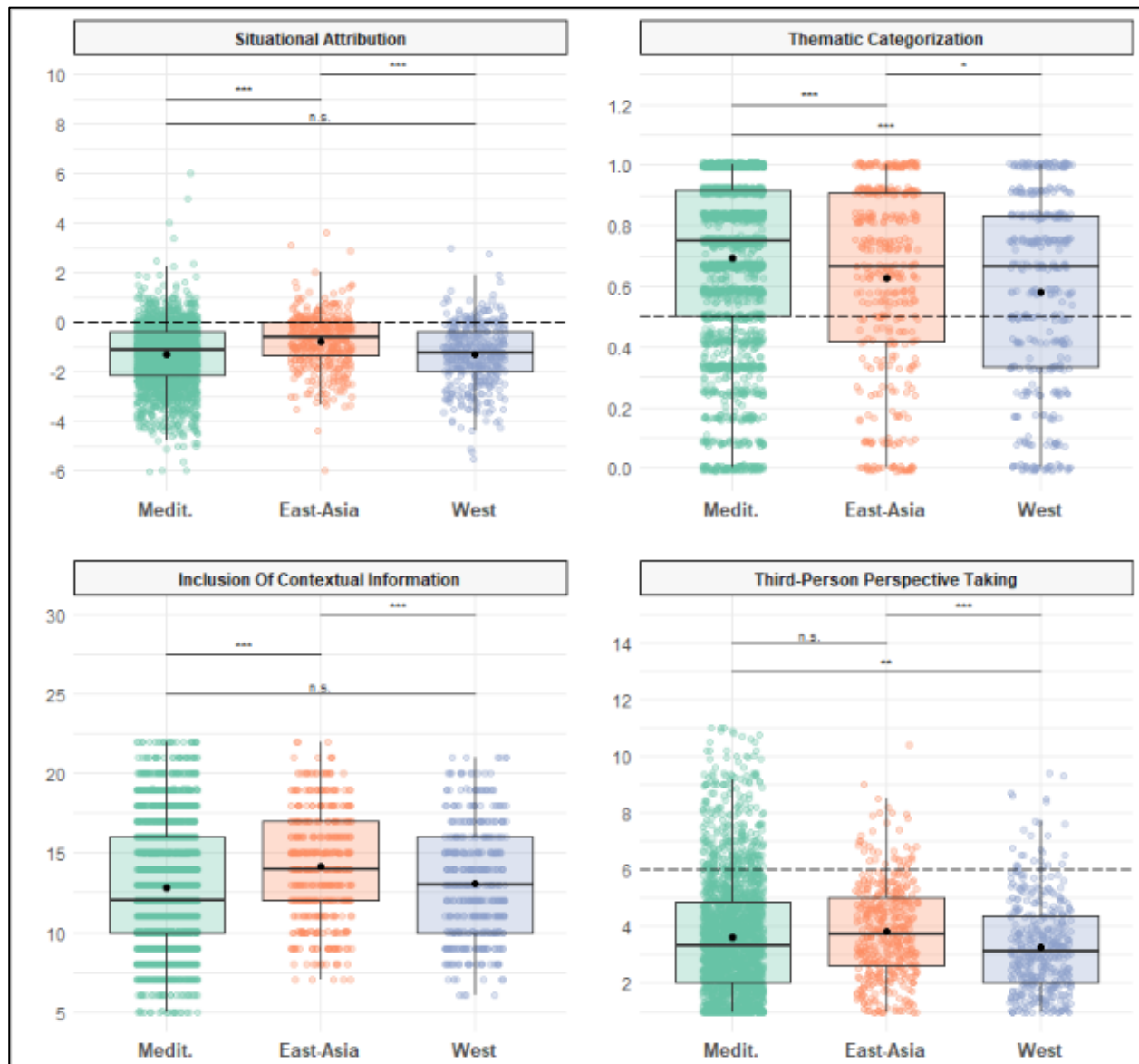
Note. Higher scores for all indicators correspond to stronger holistic cognitive style (lower scores indicate stronger analytic cognitive style). Black dots represent the region mean. For situational attribution and third-person perspective taking the dotted line represents the conceptual midpoint of the index, indicating an approximate balance between analytic and holistic cognitive styles.

negatively predicted social well-being. For participants from East Asian and Anglo-Western regions these predictions were non-significant or in the opposite direction.

Regression analyses with the eight dimensions of *explicit self-construal* as predictors showed that interdependent tendencies towards dependence on others (vs. self-reliance) and connection with others (vs. self-containment), but also an independent tendency towards consistency (vs. variability), predicted social well-being among participants in all regions. Moreover, an interdependent tendency towards commitment to others (vs. self-interest) predicted social well-being positively among participants from the Mediterranean and East Asian regions, but not the Anglo-Western region. Notably, among participants from the Mediterranean region only, stronger independent tendencies towards self-direction (vs. receptiveness to influence) and self-expression (vs. harmony) positively predicted social well-being.

Finally, regression analyses with *cognitive style indicators* as predictors revealed that none of the cognitive style measures significantly predicted social well-being among participants from the Anglo-Western region. Thematic categorization positively predicted social well-being among participants from both the Mediterranean and East Asian regions, whereas third-person perspective taking negatively predicted social well-being *only* among participants from the Mediterranean region (or put differently, exhibiting an analytic orientation by taking a first-person perspective positively predicted social well-being in this sample).[13]

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[13] It is worth noting that some of the significant predictions observed in the Mediterranean region might have been due to the larger sample size in this group. Some of the trends that emerged in the East Asian and Anglo-Western samples may be worth following up in larger samples (the negative role of third-person perspective taking in social well-being among participants from the Western region [$p = .08$]; the negative role of situational attribution among participants form the East Asian region [$p = .09$]; difference ([vs. similarity] and self-direction [vs. receptiveness to influence] predicting social well-being in the East Asian sample [$p = .09$ and $p = .10$, respectively]; see Table 4).

Collectively, these findings demonstrate that social well-being in the Mediterranean region was predicted by a range of social, self-related, and cognitive indicators of interdependence (ingroup closeness, intensity of engaging [vs. disengaging] emotions, nepotism in the context of punishment, thematic [vs. taxonomic] categorization, dependence on, connection to others, and commitment to others) *and* independence (i.e., symbolic self-inflation, self-direction, self-expression, consistency, first-person [vs. third-person] perspective taking). In contrast, none of the indicators of independence emerged as a significant predictor of social well-being in the East Asian sample, with the exception of consistency.

Variation in Independence and Interdependence within the Mediterranean Region

Next, we examined how the eight cultural groups sampled from the Mediterranean region compare in their independent or interdependent tendencies by relying on a clustering approach based on countries' ethnic/racial, religious, and linguistic background, their geographic proximity, and colonial heritage (Mensah & Chen, 2013), which resulted in a three-way contrast between Latin Europe (Spain, Italy), Southeastern Europe (Greek Cypriot community, Greece), and the Middle East (Turkey, Turkish Cypriot community, Lebanon, Egypt). Although this is one of many possible types of clustering that could be adopted to group societies in this region, it is one that considers important socio-ecological features that are likely to shape psychological processes (see Uskul & Oishi, 2018, 2020).

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Table 4

Linear Regression Analyses for Social Well-Being

Predictors	Mediterranean Region				East Asian Region				Anglo-Western Region			
	B	*SE*	*β*	*p*	*B*	*SE*	*β*	*p*	*B*	*SE*	*β*	*p*
Social Orientation												
Intensity of engaging emotions	0.14	0.06	0.05	.03 *	-0.04	0.20	-0.01	.83	-0.61	0.19	-0.16	.001 ***
Predictors of happiness	-0.04	0.06	-0.01	.55	-0.17	0.13	-0.06	.20	0.14	0.12	0.06	.25
Symbolic self-inflation	0.09	0.03	0.06	.004 **	0.11	0.09	0.06	.22	-0.03	0.10	-0.01	.77
Ingroup closeness bias	0.55	0.04	0.28	<.001 ***	0.60	0.10	0.31	<.001 ***	0.33	0.09	0.18	<.001 ***
Nepotism (reward)	0.03	0.02	0.04	.08	0.00	0.04	0.00	.99	0.02	0.04	0.03	.55
Nepotism (punishment)	-0.04	0.01	-0.06	.005 **	-0.05	0.03	-0.07	.12	0.01	0.03	0.02	.65
Model Summary	$F_{(6, 2188)} = 35.30$ ***, adjusted R^2 = .09				$F_{(6, 401)} = 7.28$ ***, adjusted R^2 = .09				$F_{(6, 404)} = 4.30$ ***, adjusted R^2 = .05			
Self-Construal												
Similarity (vs. Difference)	0.00	0.04	0.00	.99	-0.15	0.09	-0.09	.09	0.02	0.08	0.02	.80
Connection (vs. Containment)	0.32	0.04	0.19	<.001 ***	0.30	0.08	0.19	<.001 ***	0.22	0.08	0.16	.004 **
Receptiveness to influence (vs. Self-Direction)	-0.14	0.04	-0.08	.002 **	-0.17	0.10	-0.10	.10	-0.03	0.10	-0.02	.77
Dependence (vs. Self-reliance)	0.10	0.03	0.07	.003 **	0.18	0.07	0.14	.006 **	0.14	0.07	0.12	.04 *
Variability (vs. Consistency)	-0.28	0.03	-0.22	<.001 ***	-0.27	0.08	-0.18	<.001 ***	-0.16	0.06	-0.15	.005 **
Harmony (vs. Self-expression)	-0.10	0.04	-0.07	.005 **	-0.03	0.10	-0.02	.79	-0.03	0.08	-0.02	.71
Commitment to others (vs. Self-interest)	0.10	0.04	0.06	.006 **	0.22	0.12	0.12	.05	-0.07	0.09	-0.04	.46
Contextualized Self (vs. De-contextualized Self)	0.02	0.03	0.02	.41	-0.05	0.08	-0.03	.51	0.00	0.07	0.00	.98
Model Summary	$F_{(8, 2242)} = 43.39$ ***, adjusted R^2 = .13				$F_{(8, 416)} = 8.80$ ***, adjusted R^2 = .13				$F_{(8, 406)} = 3.38$ ***, adjusted R^2 = .04			
Cognitive Style												
Situational attribution	-0.04	0.04	-0.02	.34	-0.18	0.11	-0.09	.09	0.09	0.08	0.05	0.28
Thematic categorization	0.52	0.18	0.06	.004 **	0.79	0.36	0.11	.03 *	0.37	0.30	0.06	0.21
Inclusion of contextual information	-0.01	0.01	-0.02	.33	-0.02	0.04	-0.03	.55	0.03	0.03	0.06	0.25
Third-person perspective taking	-0.06	0.03	-0.06	.010 *	0.01	0.07	0.00	.94	-0.10	0.06	-0.09	0.08
Model Summary	$F_{(4, 2002)} = 4.52$**, adjusted R^2 = .01				$F_{(4, 406)} = 2.25$, p = .06, adjusted R^2 = .01				$F_{(4, 409)} = 1.87$, p=.12, adjusted R^2= .01			

Note. *B*: unstandardized coefficients; *SE*: coefficients standard error; *β*: standardized coefficients. * $p < .05$, ** $p < .01$, *** $p < .001$

Did the Mediterranean subgroups tend to cluster together?

Our comparative examination of all study tasks and measures revealed both similarities and differences across the three circum Mediterranean subgroups (see Table 5 for descriptive statistics). Overall, the three Mediterranean subgroups did *not* significantly differ from each other on 23 out of 54 (42.59%) possible comparisons (i.e., 3 subgroup comparisons for each of the 18 tasks/measures). In comparison, when contrasted against the East Asian group collectively (i.e., Mediterranean vs. East Asian regions), we found non-significant differences on only 3 out of 18 possible differences (16.67%) and when compared to the East Asian region individually (3 subgroup separately vs. East Asian region), we found non-significant differences on 11 out of 54 possible comparisons (20.37%). When compared to the Anglo-Western group collectively (i.e., Mediterranean vs. Anglo-Western regions), we found non-significant differences only in 6 out of 18 comparisons (33.33%); when compared to the Anglo-Western group individually (3 subgroups separately vs. Anglo-Western region), we observed non-significant differences on 23 out of 54 possible comparisons (42.59%). Taken together, these results demonstrate that the subgroups within the Mediterranean region were more similar to each other in their independent and interdependent tendencies than they were to samples in the East Asian region, but less so when compared with the Anglo-Western region. We visually present these comparisons in Figure 4 using a forest plot, which depicts the mean differences in independent and interdependent tendencies for two sets of comparisons: between the three larger comparison regions (Anglo-Western, East Asian, and the Mediterranean), and between the three subregions of the Mediterranean (Latin Europe, Southeastern Europe, and the Middle East). The plot demonstrates that a greater number of the mean differences were significantly different from zero (indicating a significant difference) for comparisons involving the three main regions, than were for the comparisons involving the three Mediterranean subgroups.

Table 5

Descriptive and ANCOVA for Study Tasks and Measures (Three Mediterranean Subregions)

| Variable	Latin Europe ($n = 485$)		Southeastern Europe ($n = 785$)		Middle East ($n = 960$)		ANCOVA ($df1 = 2$)		
	M	SD	M	SD	M	SD	F	$df2$	η^2_p
Social Orientation									
Intensity of engaging emotions	-0.42$_a$	0.69	-0.48$_a$	0.77	-0.72$_b$	0.71	32.35 ***	2210	0.028
Predictors of happiness	-0.20$_a$	0.69	-0.24$_a$	0.80	-0.20$_a$	0.74	0.71	2212	0.001
Symbolic self-inflation	1.93$_a$	1.08	2.19$_b$	1.97	1.94$_a$	1.27	8.78 ***	2191	0.008
Ingroup closeness bias	3.62$_a$	1.08	3.64$_a$	1.21	3.77$_a$	1.22	0.76	2221	0.001
Nepotism (reward)	1.46$_a$	3.38	1.30$_a$	2.61	0.87$_b$	2.76	7.62 ***	2221	0.007
Nepotism (punishment)	1.09$_{ab}$	3.43	1.44$_a$	3.59	0.83$_b$	3.76	6.42 **	2222	0.006
Self-Construal							3.67 *	2220	0.003
Similarity (vs. Difference)	-1.29$_a$	1.32	-1.59$_b$	1.30	-1.61$_b$	1.36	8.38 ***	2220	0.007
Connection (vs. Containment)	1.96$_a$	1.50	2.00$_a$	1.32	2.33$_b$	1.33	13.18 ***	2220	0.012
Receptiveness to Influence (vs. Self-direction)	-1.12$_a$	1.32	-1.12$_a$	1.32	-1.24$_b$	1.37	3.78 *	2220	0.003
Dependence (vs. Self-Reliance)	-1.55$_a$	1.43	-0.96$_b$	1.52	-1.41$_a$	1.60	31.41 ***	2220	0.028
Variability (vs. Consistency)	-0.33$_a$	1.85	-0.08$_b$	1.59	-0.15$_{ab}$	1.90	2.62	2220	0.002
Harmony (vs. Self-Expression)	-0.98$_a$	1.57	-0.62$_b$	1.46	-0.62$_b$	1.53	12.04 ***	2220	0.011
Commitment to others (vs. Self-Interest)	0.26$_a$	1.41	0.70$_b$	1.30	0.35$_a$	1.47	18.75 ***	2220	0.017
Contextualized Self (vs. De-Contextualized Self)	-0.90$_a$	1.69	-1.43$_b$	1.42	-1.17$_c$	1.54	17.10 ***	2220	0.015
Cognitive style									
Situational attribution	-1.21$_a$	1.33	-1.18$_a$	1.09	-1.44$_b$	1.28	9.66 ***	2222	0.009
Thematic categorization	0.74$_a$	0.28	0.64$_b$	0.30	0.72$_a$	0.26	18.91 ***	2224	0.017
Inclusion of contextual information	12.74$_{ab}$	3.89	12.34$_a$	4.03	13.24$_b$	3.65	10.23 ***	2024	0.010
Third-person perspective taking	3.37$_a$	1.93	3.79$_b$	2.17	3.61$_{ab}$	2.06	5.52 **	2171	0.005

Note. The ANCOVAs controlled age, SSS, gender, and interaction between region and gender.

Participants in the Egyptian sample did not complete the exclusion task. The eight sub-scales of SCS were treated as repeated measures in the general linear model analyses. Means that do not share a subscript differed significantly at $p < .05$ in post hoc pairwise comparisons. Latin Europe: Spain, Italy, South-East Europe: Greece, Greek Cypriot community, the Middle East: Turkey, Turkish Cypriot community, Lebanon, Egypt. * $p < .05$, ** $p < .01$, *** $p < .001$.

In what ways were the Mediterranean groups similar to and different from each other?

When we inspected the similarities between the three Mediterranean subgroups across the different tasks and measures, we found that all three subgroups in the Mediterranean region did *not* differ from each other in ingroup closeness bias and predictors of happiness. The Latin-European and Southeastern European groups had comparable scores for situational attribution, inclusion of contextual information, intensity of engaging emotions, and nepotism in both reward and punishment contexts, and also both showed a similarly strong tendency towards connection to others (vs. self-containment) in our explicit measure of self-construal. The Latin European and the Middle Eastern groups were comparable on predictors of happiness, symbolic self-inflation, nepotism in punishment contexts, thematic categorization, inclusion of contextual information, and third-person perspective taking, and also both showed a similarly strong tendency towards self-reliance (vs. dependence on others) and consistency (vs. variability), but also towards commitment to others (vs. self-interest) in our explicit measure of self-construal. Finally, the Middle Eastern group and Southeastern European group showed comparable scores for third-person perspective taking and predictors of happiness, and also both showed a similarly strong tendency towards difference (vs. similarity), consistency (vs. variability), and self-expression (vs. harmony) in our explicit measure of self-construal.

Focusing on differences between the three subregions, the analyses showed that participants from the Latin European group showed significant differences compared with participants from both the Middle Eastern and Southeastern European group on three self-construal dimensions, exhibiting significantly stronger similarity (vs. difference) and a more

Figure 4

Forest Plot of Pairwise Comparisons between Regional and Subregional Groups
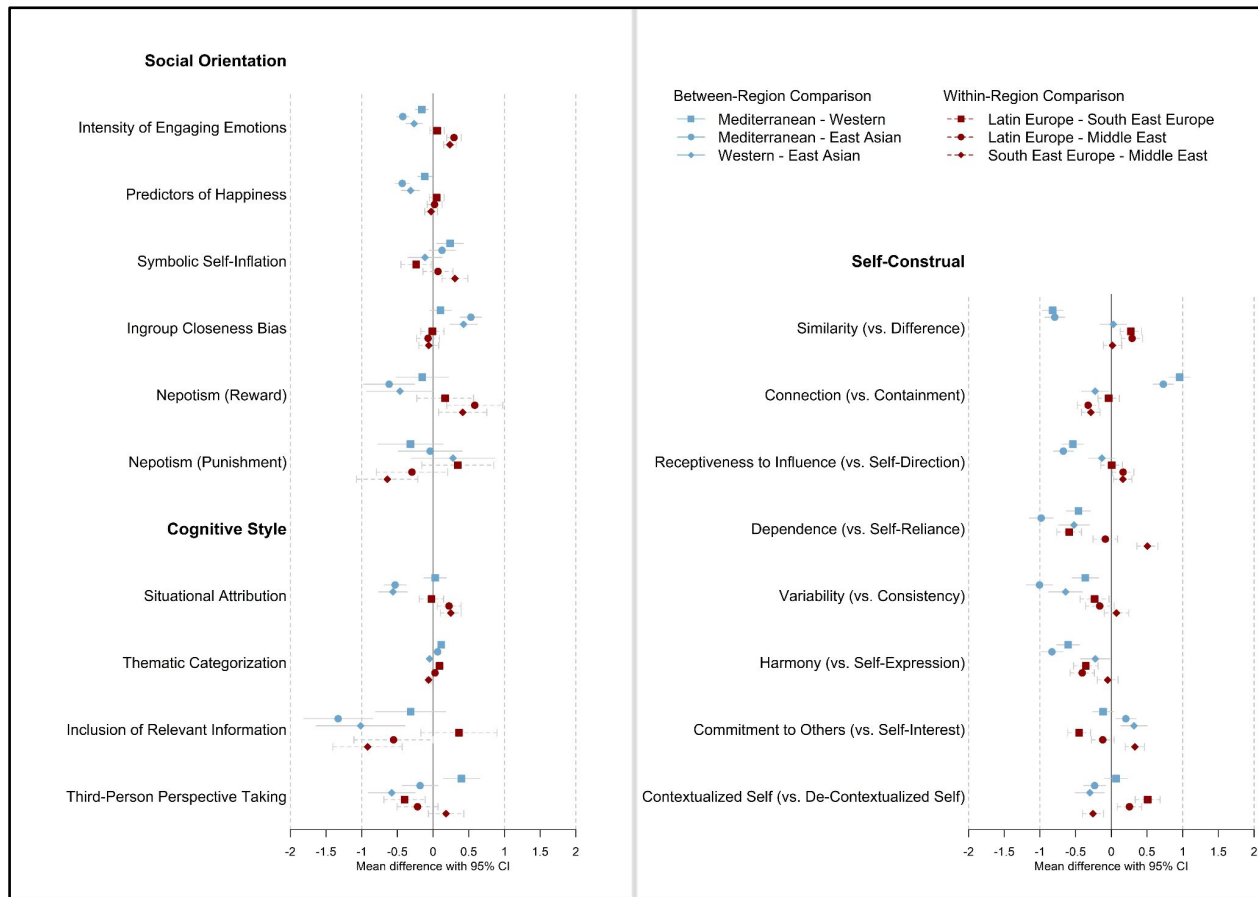
Note. Shown is a forest plot illustrating mean differences of the pairwise comparisons between region groups (direction of difference as presented in legend), as well as the associated 95% confidence interval. Comparisons between the three main regions are marked with blue markers, comparisons between region groups within the Mediterranean are marked with red markers. A confidence interval that crosses the bold, grey vertical line of zero suggests no significant difference between the respective comparison groups at the regular significance level of *p* < .05.

contextualized (vs. decontextualized) self, but also stronger self-expression (vs. harmony). Participants from the Southeastern European group exhibited significantly weaker taxonomic (vs. thematic) categorization and stronger symbolic self-inflation, as well as a stronger decontextualized (vs. contextualized) self, but also stronger dependence on others (vs. self-reliance) and stronger commitment (vs. self-interest) compared to participants from both the Middle Eastern and Latin European groups. Finally, participants from the Middle Eastern group exhibited significantly stronger independent tendencies compared with participants from both Latin European and Southeastern European groups showing stronger intensity of disengaging emotions, dispositional attributional style, less inclusion of contextual information, weaker nepotism in reward context, and stronger self-direction (vs. receptiveness to influence) and decontextualized (vs. contextualized) self; however, they rated themselves more strongly towards the interdependent end of the connection to others (vs. self-containment) dimension of self-construal.

Discussion

We conducted the first major study of patterns of independence and interdependence circum Mediterranean, an underrepresented world region in psychological research often described as following a cultural logic centering around the maintenance and defense of honor and social reputation. Our findings contradict the idea that "non-WEIRD" or "majority world" societies have similar cultural emphases on interdependence, which are uniformly contrasted with a uniquely Western focus on independence (e.g., Henrich et al., 2010). Instead, we found that participants from the Mediterranean region were on average relatively *independent* in their social orientation and self-construal, on some measures even more so than participants from Anglo-Western societies; however, they also showed stronger interdependence on measures that highlighted the connectedness between individuals and their groups (e.g., ingroup closeness,

connection to others, commitment to others) as well as the relationality between objects and perspective taking (thematic categorization, third-person perspective taking). Thus, our results support calls for a more differentiated, rather than binary, view of global cultural diversity (e.g., Clancy & Davis, 2019; Ghai, 2021; Kitayama et al., 2022; Krys et al., 2022; Syed & Kathawalla, 2022; Vignoles, 2018).

Independence and Interdependence in the Mediterranean Region

At first sight, our samples from eight Mediterranean societies tended to show a relatively strong emphasis on independence in most aspects of their social orientation, self-construal, and to a slightly lesser extent their cognitive style. Compared to members of both East Asian and Anglo-Western societies, members of Mediterranean societies on average reported stronger socially disengaging (vs. engaging) emotions, based their happiness more on socially disengaging (vs. engaging) emotions, and construed themselves as more different from others (vs. similar to others), self-directed (vs. receptive to influence), self-reliant (vs. dependent on others), consistent across contexts (vs. variable), and self-expressive (vs. harmonious). Moreover, similar to Anglo-Western participants, they showed a lower average focus on contextual information in their self-construal (de-contextualized [vs. contextualized]) and when making attributions (causal situational attribution and inclusion of contextual information), as well as lower levels of nepotism in reward contexts, compared to East Asian participants. Furthermore, participants from this region showed the highest average level of symbolic self-inflation, significantly higher than we observed in Anglo-Western societies but non-significantly higher than in East Asia.

Yet, a closer look at the data reveals a more complex picture. Firstly, together with the independent elements described above, participants from Mediterranean societies also scored highly on certain forms of *interdependence*: Most strikingly, participants from this region

construed themselves on average as substantially more connected to others (vs. self-contained) than participants in either the Anglo-Western or the East Asian region. Participants from Mediterranean societies also showed a stronger tendency than those in both other regions to categorize objects based on thematic rather than taxonomic relationships, and a stronger tendency than Anglo-Western participants to see themselves from a third-person perspective when remembering past events (similar to East Asian participants). Furthermore, participants from Mediterranean societies construed themselves on average as higher in commitment to others (vs. self-interest) than East Asian participants (but similar to Anglo-Western participants).

Secondly, several forms of independence were associated with higher social well-being in this region, suggesting that these superficially independent ways of construing the self may have functions that support social inclusion—and thus arguably interdependence (see San Martin et al., 2018). Although several forms of interdependence and one form of independence predicted greater social well-being across all regions, the Mediterranean region showed a distinct pattern which also highlighted the role of several further forms of *independence* in social well-being. Most notably, among participants from this region, symbolic self-inflation, self-direction, self-expression, and a greater tendency for a first-person perspective in remembering past events *positively* predicted social well-being, whereas similar relationships were absent or did not reach significance in the other two regions. This highlights the importance of considering what psychological needs particular forms of independence and interdependence may serve before categorizing regions based on mean levels alone.

This combination of independent and interdependent features, and independent features that appear to serve socio-relational functions, is consistent with portrayals of Mediterranean societies as characterized by a cultural logic of honor (e.g., Pitt-Rivers, 1965; Vignoles et al., 2023). Participants from these societies on average showed an 'inflated' sense of self,

characterized by self-consistency, difference, self-direction, self-reliance, and self-expression, and a tendency to experience socially disengaging emotions (such as pride) over engaging ones (such as friendly feelings); yet, this inflated self was also porous, closely connected to others rather than self-contained, aspects of it were seemingly linked to social well-being, and participants' tendency to see themselves from a third-person perspective suggested a greater concern about their social image. This combination of features seems to capture both the focus on strength and positivity, as well as the underlying vulnerability and social contingency, of maintaining an "honorable" self in the context of a society where a cultural logic of honor is prevalent (e.g., Leung & Cohen, 2011; Stewart, 1994).

These findings support and extend San Martin and colleagues' (2018) observations in the Arab region, which suggested a self-assertive version of interdependence in which independent behaviors serve relational functions for important ingroups. Our results mostly converged with those obtained by San Martin and colleagues, despite differences in the methodology and design across the two studies, including the range of cultural groups studied, the particular types of tasks presented to participants, and the data sources used (i.e., we collected data for all groups in one study; San Martin et al., 2018, combined different data sets collected in different years to run their regional comparisons). Future research is needed to shed light on whether inferences about varieties of interdependence patterns (e.g., relational versus collective interdependence; assertive interdependence) may depend on tasks and measures included in a given study and the groups that occupy this world region, as well as the source of divergence in the regional differences in dispositional bias that emerged in the current study compared to the study conducted by San Martin and colleagues.

Overall, despite the important differences that emerged in our data, participants from the Mediterranean region were more similar to their counterparts from the Anglo-Western region

than they were to those from the East Asian region. As mentioned earlier, similarities between the Mediterranean and Anglo-Western region appeared in tasks that had a relational or group element (ingroup closeness bias, nepotism in reward and punishment contexts) and in tasks that had contextual elements (de-contextualized vs. contextualized self, situational attribution, inclusion of contextual information); differences between participants from these two regions concentrated mostly on self- and emotion-related processes and self-construal dimensions. These differences seem to reflect self-promotion and strong self-image aspects of cultural groups in which honor values and concerns are salient forces that shape social behavior, as well as the importance of connectedness to close others (e.g., family) where the individual and close others implicate each other through their choices and behaviors. It is worth noting that this insight emerged thanks to the inclusion of a large battery of tasks and suggests that we may gain greater understanding about the nature of regional differences and similarities in research that uses a large lens focused simultaneously on different aspects of how we construe ourselves, relate to others, and process the world around us. Moreover, this pattern also calls for future research to understand why these two groups were similar in some measures but not others.

Variation Across Mediterranean Societies

Our analyses also revealed an interesting pattern of similarities and differences across samples from different parts of the Mediterranean region. Several of the independent and interdependent characteristics of Mediterranean cultures highlighted above (including intensity of disengaging (vs. engaging) emotions, weaker nepotism in reward context, attributing causes to dispositional (vs. situational) factors, less inclusion of contextual information and construing the self as self-directed and decontextualized, but also connected to others) tended to be strongest among members of Middle Eastern societies compared to the other two Mediterranean groups, and relatively weaker among members of Latin European societies, consistent with the generally

greater perceived prevalence of honor values and concerns in the Middle Eastern region compared to Latin European and Southeastern European countries found elsewhere in our project (Vignoles et al., 2023). On the other hand, construals of the self as self-expressive were strongest in Latin Europe, and symbolic self-inflation and construals of the self as decontextualized, but also committed to others, were strongest in South-East European societies. These findings provide valuable detail regarding the different cultural priorities across Mediterranean societies, and they highlight the need for caution against any simplified narrative about a 'Mediterranean identity or cultural area' (see Albera, 2006; Pina-Cabral, 1989).

Nevertheless, certain forms of independence and interdependence were relatively distinctive to our Mediterranean samples, i.e., similar across all three Mediterranean subregions and significantly different from either or both of the more commonly studied East Asian and Anglo-Western regions. Samples from all three Mediterranean subregions shared a common focus on several forms of independence (happiness based on disengaging emotions, dispositional attribution style, self-construal as self-directed, different from others, and consistent across contexts) and interdependence (ingroup closeness, self-construal as connected to close others), which was somewhat distinctive from the prevailing patterns among participants from the East Asian and Anglo-Western regions. Overall, our data suggested that samples from these three subregions were more similar to each other than they were to samples from East Asian societies; differences were less clear when compared with Anglo-Western samples. Thus, it seems tenable to draw certain conclusions about "Mediterranean cultures", while recognizing that no cultural region is homogeneous, that cultural regions are analytical heuristics rather than objective entities, and that different ways of categorizing the world's cultures may be appropriate for different purposes (Vignoles et al., 2016).

Gender Differences

Men and women in all regions were more comparable than different on most tasks with two exceptions: Mediterranean women showed stronger ingroup closeness and were more likely to take the first-person perspective when remembering past events than did their male counterparts. Significant gender differences emerged on five out of eight dimensions of explicit self-construal with women showing greater interdependence than did men, except for two (self-expression vs. harmony and consistency vs. variability) on which Mediterranean women rated themselves more independently than did Mediterranean men. It would be interesting to examine how gender differences on these indicators unique to the Mediterranean region may be in the service of the gendered nature of a cultural logic of honor (such as aggression in men and sexual purity in women): Would, for example, consistency protect women from their behavior being misinterpreted if they behaved differently in relation to different individuals or in different situations? Or does Mediterranean men's social reputation benefit from self-monitoring through the eyes of an imaginary third-person, to ensure they portray a social image that fits the culturally expected standards? It is worth noting that these gender differences emerged in samples where participants' subjective socio-economic status was around midpoint of the socio-economic ladder (more on this point under limitations below) and may therefore be specific to a certain segment of the society. Whether these gender differences would hold in data gathered from a more diverse groups in these societies requires further empirical investigation.

East-West Differences

Our findings largely replicated, but also substantially extended, previous research comparing patterns of independence and interdependence in East Asian and Western cultures (e.g. Kitayama et al., 2009). As in previous studies, participants from the East Asian region exhibited a stronger interdependent orientation than did participants from the Anglo-Western

region, across the majority of tasks and measures. For social orientation, East Asian participants were more likely than Anglo-Western participants to experience engaging rather than disengaging emotions, to have their happiness predicted more strongly by socially engaging than by disengaging emotions, and to show nepotism in allocating rewards more generously to friends than to strangers. For cognitive style, East Asian participants exhibited a stronger tendency than Anglo-Western participants to attribute behavior to situational rather than dispositional causes, to include a wider range of contextual information when making an attribution, to categorize objects based on their spatial, causal, or temporal relationships rather than similarity in attributes, and to take a third- (vs. first-) person perspective bias when remembering past events. However, participants from these two regions did not differ significantly in symbolic self-inflation, and Anglo-Western participants unexpectedly showed a stronger ingroup closeness bias.

An important extension of that previous research was our use of a new, multidimensional, measure of explicit self-construal, avoiding the methodological limitations of earlier bidimensional measures that typically failed to show expected differences between samples from East Asian and Western societies (e.g. Kitayama et al., 2009; reviewed by Cross et al., 2011; Levine et al., 2003). Thus, we were able to reveal a more nuanced pattern of findings that largely, but not wholly, supported the expected pattern of differences across East Asian and Anglo-Western societies, revealing some of the distinctive features of self-construal in Mediterranean societies discussed earlier. With this measure, East Asian participants showed a greater tendency towards the interdependent pole for connection to others (vs. self-containment), variability (vs. consistency), harmony (vs. self-expression), dependence on others (vs. self-reliance), and contextualized (vs. decontextualized) self-views, compared to Anglo-Western participants. However, participants from these two regions did not differ significantly on measures of similarity (vs. difference) or receptiveness to influence (vs. self-direction), and

Anglo-Western participants averaged higher than East Asian participants on commitment to others (vs. self-interest). This pattern was largely consistent with findings of Vignoles and colleagues (2016) using an earlier iteration of the current self-construal measure. However, ours is the first study to include such a measure together with a range of implicit tasks commonly used in studies by Kitayama and colleagues. Thus, we can rule out the possibility that their different findings for explicit self-construal are due to differences in sampling (as we largely replicated the findings of Kitayama et al., 2009, for implicit tasks, but we did not replicate the lack of expected differences in explicit self-construal).

Contributions, Limitations and Directions for Future Research

The current study represents the first-of-its-kind, large-scale evaluation of social orientation, self-construal, and cognitive style in the Mediterranean region, a region that has been traditionally neglected in comparative psychological research, providing nuanced insights into the patterns of independence and interdependence observed among individuals living in this region in comparison to individuals from the Anglo-Western and East Asian regions. Our research contributes to the emerging literature comparing individuals from world regions considered to embody cultural logics of face, dignity, and honor to different degrees (Aslani et al., 2016; Leung & Cohen, 2011; Smith et al., 2017; Yao et al., 2017), to the growing number of studies on regional analysis of psychological processes (e.g., East Asians vs. South Asians in the U.S., see Lu et al., 2020; rice vs. wheat farming in China, see Talhelm et al., 2014), and to recent large-scale cross-societal studies that has started representing the Mediterranean region in their explorations (e.g., Romano et al., 2021; but also Eriksson et al., 2021; Van Doesum et al., 2021). Thus, our research responds to the urgent call to globalize psychological science by expanding the evidence pool beyond the commonly examined samples from North American and East Asian contexts (e.g., Rad et al., 2018; Thalmayer et al., 2021). It contributes to efforts to decenter

the West in the behavioral sciences and underscores the importance of testing assumptions concerning cultural differences in psychological processes in understudied regions to provide culturally meaningful insights into what it means to be a person and how we think, feel, and act.

Sampling a wider range of cultures is beneficial not only for inclusivity per se but also for theoretical development. Just as cultural psychology's interest in East Asian societies since the 1980's led to major theoretical advances in rejecting incorrect universalist assumptions in the behavioral sciences, the current focus on broadening the cultural database beyond Anglo-Western and East Asian samples is leading researchers to modify previous binary and unidimensional models of cultural variation. Our findings add weight to emerging arguments that independence and interdependence are not monolithic constructs, but are better viewed as umbrella terms for a range of cultural dimensions and characteristics (e.g., Kitayama et al., 2022; Vignoles et al., 2016). A notable further advance is in unpacking the dichotomy of analytic versus holistic cognition, which similarly developed initially from East-West comparative studies (Nisbett et al., 2001). Here, Anglo-Western and East Asian participants differed in the predicted manner across four different measures of cognitive style, similar to many previous studies. Yet, Mediterranean participants were as 'analytical' as Anglo-Western participants in two measures focusing on the use of contextual information in attributions, whereas they were even more 'holistic' than East Asian participants in the other two measures focusing on thematic categorizations and third-person perspective taking. This pattern of findings is not explicable using a simple contrast of analytic versus holistic cognitive style, and thus provides an impetus to develop new and potentially more adequate explanations of how patterns of cognition may differ across cultural groups.

Our study also makes a methodological contribution by including, for the first time, a multidimensional self-construal scale together with implicit social orientation and cognitive style

measures. Our findings highlight the need to reconsider the often-criticized role of explicit measures in culture comparative research (S. Heine et al., 2002; Lalwani & Shavitt, 2009; Peng et al., 1997), and the importance of differentiating between different facets of cultural models of selfhood for a more nuanced assessment of cultural differences. Explicit measures can meaningfully capture the role of culture in psychological processes within conscious awareness as expressed in self-report measures, as long as they are constructed and used in ways that allow diverse cultural differences to emerge fully and that tackle long known problems with handling self-report measures across different cultural contexts.

We would like to highlight some limitations of the current research and suggest future directions. First, in the current study we focus on the Mediterranean region as one of the world regions characterized as following a cultural logic of honor. This choice was motivated by wanting to examine an understudied region of the world and *not* driven by an assumption that honor is exclusively Mediterranean in origin, nor that Mediterranean societies (or any others in the world) should be reduced to a monolithic category of "honor cultures". Similar notions of honor can be found and have been studied in other societies across the world (D'Lima et al., 2020; Gengler et al., 2021; Horden & Purcell, 2000; Johnson & Lipsett-Rivera, 1998). Thus, further research is needed to examine the extent to which our findings generalize to other regions across the globe such as Southern regions of the U.S., Latin America, and South Asia, where cultural logic of honor is thought to be similarly prevalent. Emerging evidence suggests less uniformity across these different regions than the relevant theoretical frameworks might predict. For example, Vignoles and colleagues (2016) found that patterns of self-construal in the Middle East differed from those in other regions associated with honor systems, such as Latin America. Similarly, Günsoy and colleagues (2020) found that participants from the southern U.S. exhibited more similarities in goal-directed behavior to their northern U.S. counterparts than they

did to Turkish participants, who were less likely than both American samples to cooperate with a person who insulted them despite this decision costing them in reaching their goal. These initial findings suggest that individuals from different regions where honor plays an important role in social life may define themselves and respond to honor threatening situations in distinct ways. Just as it is important to strive towards a more nuanced understanding of the variation among non-Western regions in forms and strength of independence and interdependence, this includes examining variation across different world regions that have been labeled together as "honor cultures". Considering local socio-ecological and societal organizational features is likely to provide insight into the reasons for differences and similarities across these different regions.

Second, our research, along with San Martin and colleagues' (2018) research in the Arab region, has started to unfold the meaning and role of different forms of independence and interdependence in social functioning across different cultural contexts. Future research is needed to disentangle the mechanisms through which different forms of independence and interdependence in social orientation, self-construal, and cognitive style may serve relational outcomes in different world regions. Such research could contribute to developing a more nuanced approach to understanding cultural differences that examines how and why different societies across the world foster ways of being both independent and interdependent, rather than either/or (Vignoles et al., 2016).

Third, our samples consisted of young adults mostly in urban centers of respective countries which restricted the representation of socio-demographic variables in their full range that have been shown to be associated with degrees of independence and interdependence. For example, across all sites, participants on average identified themselves as falling around the midpoint of the socioeconomic ladder (note that this feature of the study makes it more comparable to other studies in the literature that used a similar sampling approach [Kitayama et

al., 2009; Kitayama, Ishii, et al., 2006; San Martin et al., 2018)]). Our study was also limited in its coverage of East Asian and Anglo-Western regions, including only two country samples of each region, and in its coverage of the North African coast of the Mediterranean region. These limitations call for future research to test the generalizability of the current findings in more demographically heterogeneous samples and larger set of countries from each region.

Fourth, it is important to note the relatively small effect sizes observed in the comparisons reported here. Although the effect sizes emerged in the current study were largely comparable to those found in past research that included different cultural comparisons (e.g., Kitayama et al., 2009; Na et al., 2010, 2020), it is worth highlighting that most of this research, including ours, relied on student samples that are likely to be similar in terms of various background characteristics. It remains to be tested whether effect sizes would be larger if our study were replicated using more representative samples with more diverse age, educational level, and socio-economic status covering both urban and rural contexts. Finally, our research is descriptive and correlational in its nature, relies to some degree on self-report and does not examine potential underlying reasons for the observed differences and similarities between the three regions. Future research linking regional patterns in self-construal, social orientation, and cognitive style to societal-level and socio-ecological variables such as types of governance, history of intergroup conflict, climate, historical subsistence patterns (for an overview, see Uskul & Oishi, 2020) would help unravel the role played by these high-level factors in the patterns observed for the Mediterranean region in comparison to East Asian and Anglo-Western regions. Such research would however need to consider the within-region diversity in these factors as the Mediterranean region is hardly a homogenous unit when it comes to political, economic, and historical background factors and other relevant socio-ecological variables, as we mentioned above as one of the reasons for focusing on this region in the current study. Similarly,

triangulating current findings using other methods (e.g., archival, experimental, text analysis) would further contribute to our understanding of regional differences and similarities in social orientation, self-construal, and cognitive style.

Conclusion

Our research aimed to go beyond the narrow focus on East Asian and Anglo-Western cultures in cultural psychology, which is problematic for theory development and for our understanding of the diversity in psychological processes, and which has left other world regions marginalized in the scientific discussions in the field of cultural psychology and psychological science more broadly. Our findings go against the long-held assumption that all non-Western (or collectivistic) cultures promote similar models of selfhood, and add to emerging evidence of the pitfalls of generalizing findings obtained in East Asian societies to non-Western societies in other parts of the world that carry very different ethnic, religious and historical backgrounds, as well as promoting different cultural logics (e.g., Krys et al., 2022). These regional differences are important for theorizing on independence and interdependence and the predictions researchers draw for psychological processes that have been shown to vary mainly across Anglo-Western and East Asian societies. A tripartite model differentiating between cultural logics of face, honor, and dignity provides an improvement over a dichotomous Western versus non-Western distinction of cultural groups across the world, but this is still bound to produce a reductionistic picture of worldwide variation in patterns of independence and interdependence. More granular approaches focusing on additional world regions will contribute to the detection of variation in these constructs. Yet, we believe that the approach we used in the current study is an important step to identifying patterns of independence and interdependence in social orientation, self-construal, and cognitive style in an understudied part of the world and brings insight into how this region compares to other more commonly examined world regions.

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Data Availability

The data that support the findings of this study and produced this manuscript are openly

available in the Open Science Framework at

https://osf.io/254yp/?view_only=b35801305c884ff28e4127161567c06a.

Code Availability

The syntax that supports the findings of this study and produced this manuscript are available

upon request.