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et al.; Pick, Cari M.; Ko, Ahra; Wormley, Alexandra S.; Wiezel, Adi; Kenrick, Douglas T.; Al-Shawaf, Laith; Barry, Oumar; Gul, Pelin; Stanciu, Adrian

Published in:
Evolution and Human Behavior

DOI:
10.1016/j.evolhumbehav.2022.09.003

Publication date:
2022

Evolution and Human Behavior 43 (2022) 527–535

Contents lists available at ScienceDirect

Evolution and Human Behavior

journal homepage: www.elsevier.com/locate/ens

Family still matters: Human social motivation across 42 countries during a global pandemic

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https://doi.org/10.1016/j.evolhumbehav.2022.09.003
Received 11 October 2021; Received in revised form 2 September 2022; Accepted 10 September 2022
Available online 5 October 2022

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ARTICLE INFO

Keywords:
COVID-19
Family
Fundamental social motives
Cross-cultural research
Life satisfaction

ABSTRACT

The COVID-19 pandemic caused drastic social changes for many people, including separation from friends and coworkers, enforced close contact with family, and reductions in mobility. Here we assess the extent to which people's evolutionarily-relevant basic motivations and goals—fundamental social motives such as Affiliation and Kin Care—might have been affected. To address this question, we gathered data on fundamental social motives in 42 countries ($N = 15{,}915$) across two waves, including 19 countries ($N = 10{,}907$) for which data were gathered both before and during the pandemic (pre-pandemic wave: 32 countries, $N = 8998$; 3302 male, 5585 female; $M_{age} = 24.43$, $SD = 7.91$; mid-pandemic wave: 29 countries, $N = 6917$; 2249 male, 4218 female; $M_{age} = 28.59$, $SD = 11.31$). Samples include data collected online (e.g., Prolific, MTurk), at universities, and via community sampling. We found that Disease Avoidance motivation was substantially higher during the pandemic, and that most of the other fundamental social motives showed small, yet significant, differences across waves. Most sensibly, concern with caring for one's children was higher during the pandemic, and concerns with Mate Seeking and Status were lower. Earlier findings showing the prioritization of family motives over mating motives (and *even over Disease Avoidance motives*) were replicated during the pandemic. Finally, well-being remained positively associated with family-related motives and negatively associated with mating motives during the pandemic, as in the pre-pandemic samples. Our results provide further evidence for the robust primacy of family-related motivations even during this unique disruption of social life.

1. Introduction

In late 2019 and 2020, the COVID-19 pandemic spread to every continent. There have been previous deadly pandemics, such as the 1918 influenza and, more recently, H1N1 in 2009 (see, for instance, Jones, Podolsky, & Greene, 2012). Yet, never before has there been such a concerted international effort to contain the spread of a disease by reducing social contact. On January 30, 2020, the World Health Organization (WHO) declared the COVID-19 outbreak to be a Public Health Emergency of International Concern. To prevent the spread of COVID-19, the WHO, the U.S. Centers for Disease Control and Prevention (CDC), and governments around the world recommended multiple social countermeasures including reducing the movement of people (e.g., cancelling mass gathering activities, limiting international and local travel, "lockdowns" banning nonessential movement outside the home), avoiding contact with symptomatic individuals, wearing facial coverings, and other "social distancing" guidelines (e.g., maintaining distance from other individuals, curfews, transferring school and university activities to remote formats) (e.g., Le Quéré et al., 2020; Sohrabi et al., 2020). Indeed, nearly 4.5 billion humans (57% of the world's population) were confined with partial or full lockdown measures in early April 2020 to control the spread of COVID-19 (Bates, Primack, Moraga, & Duarte, 2020). Globally, >168 million children were not able to attend school in person between March 2020 and February 2021 (UNICEF, 2021), and 91% of the world's population lived in countries with travel restrictions in the spring of 2020 (Connor, 2020).

The implementation of these and similar measures has varied worldwide. However, data from the United States illustrate the drastic changes seen in the social lives of many: Pew, Gallup, and Census polls in 2020 found that around 90% of Americans were avoiding travel on planes, trains, and buses; 75% were avoiding shopping in stores or going to restaurants; and 80% were avoiding small gatherings with friends and family (Saad, 2020). Even when people left their homes, about 80% of

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Americans were wearing masks and attempting to keep their distance from other people they encountered (Kramer, 2020). Most Americans ceased direct interactions with coworkers: 71% reported working from home (Parker, Menasce Horowitz, & Minkin, 2020; Parker, Minkin, & Bennett, 2020), and about 25% reported that they or someone in their household lost a job during the pandemic (Parker, Menasce Horowitz, & Minkin, 2020, Parker, Minkin, & Bennett, 2020). Children became isolated from peers as well, with over 80% of schoolchildren staying home from school and taking classes online (McElreath, 2020). Thus, as contact with friends, coworkers, relatives outside the immediate household, and strangers radically decreased, interactions with immediate household members increased.

1.1. Fundamental social motives

For the past several years, the Global Fundamental Motives project has been collecting data from societies around the world assessing the relative priority given to the different fundamental social motives (Ko et al., 2020; Pick et al., 2022a). The fundamental social motives are suites of cognitive tools and behaviors for navigating social lives and relationships that appear designed to address recurrent adaptive challenges faced by our ancestors, and still faced by people living in the modern world (Kenrick, Griskevicius, Neuberg, & Schaller, 2010; Neel, Kenrick, White and Neuberg, 2016). These motivational priorities include protecting oneself from dangerous others, gaining and maintaining friendships, acquiring status, finding sexual partners, maintaining romantic relationships, caring for family and offspring—and avoiding disease. However, people have finite resources, time, and effort to spend pursuing these varied goals. Over the course of their lifespans, people's prioritization of different fundamental social motives will shift. For example, as a young boy grows into adolescence, his motivational focus may shift from a concern over finding friends to increased attention toward seeking romantic partners; as a young couple have their first child, they may focus less on status-seeking or even mate retention and instead prioritize parenting and kin care. Further, given the trade-offs inherent in certain fundamental social motives, different people in the same life stage will prioritize different motivations (Krems, Kenrick, & Neel, 2017; Neel et al., 2016).

Alongside developmental and situational variations in individuals' prioritization of different fundamental social motives, our prior work also found evidence suggesting universality of particular fundamental social motive priorities (Ko et al., 2020). People in a wide range of societies tend to, on average, place higher priority on family-care-related motives than on finding new mates (and most people prioritize family-care-related motives over all other motives). Prior work has also observed linkages between fundamental social motive priorities and subjective well-being, such that well-being is positively associated with family-care-related motives, but negatively associated with mate-acquisition motives (Ko et al., 2020).

1.2. COVID-19 and fundamental social motives

Have the radical COVID-induced changes in people's social lives altered the way they prioritize these fundamental social motives? Further, have there been shifts in the previously observed links between those motivational priorities and well-being?

On the one hand, perhaps we would not expect increased concern over disease avoidance to create corresponding shifts in other motives. Our ancestors commonly encountered threats from infectious diseases (Casanova & Abel, 2005; Deschamps et al., 2016; Fumagalli et al., 2011), and nevertheless had to persist in addressing other fundamental priorities: protecting themselves from dangerous people, maintaining friendships, gaining status, acquiring mates, maintaining romantic relationships, and caring for their families.

On the other hand, compared to threats such as conspecific violence, pandemic diseases were not as much of a threat in traditional hunter-gatherer life, in which many disease threats were local, from sources such as parasites in local water or infected cuts (e.g., Hewlett, Van De Koppel, & Van De Koppel, 1986; Hill, Hurtado, & Walker, 2007). And the sort of "social distancing" from friends, group members, and extended family that has happened during the COVID-19 pandemic was not an option throughout ancestral history—it is historically unusual, if not completely unique. During the global pandemic, parents who have been focused on caring for children who are attending school virtually from home may have difficulty seeking status and excelling in their careers, especially women (Power, 2020). Moreover, people focused on avoiding contracting contagious disease may have difficulty forming and maintaining friendships or finding mates. Therefore, to the extent that we expect the pandemic to have increased people's prioritization of disease avoidance, we might see corresponding decreases in their focus on other fundamental social motives. Alternatively, people may be starved for social contact and actively seek it out. We may thus see corresponding increases in people's focus on other fundamental social motives.

Prior work has shown that across a large and diverse array of societies, people report greatly prioritizing family-related motives (romantic relationship maintenance and kin care) over mate-acquisition motives (mate-seeking and breakup concerns; Ko et al., 2020). Might those relative priorities have changed since the beginning of the COVID-19 pandemic? It is certainly possible that the relative distance between the importance of kin care and mate-seeking could have been reduced. For instance, the fact that the pandemic forced many people to be in unceasing contact with immediate family members, sometimes alongside financial stressors, might have decreased people's motivations to spend time with family. On the other hand, the increased reliance on immediate family members for social support could have further strengthened family-related motives. Researchers do find that families experience a range of possible reactions to the COVID-19 pandemic, from strained family relationships to cherishing the opportunity to spend more time together (Evans et al., 2020). At the same time, anyone who did not have a romantic partner when the pandemic began would have found their mating goals severely thwarted by the concerns about social distancing, mask-wearing, and the reduced ability to encounter potential new partners in social settings. This might have increased the emphasis on mating—or might have decreased it, because mating-related motives could have been pushed by the wayside as survival became paramount and disease concerns crowded out both the opportunities and desire to meet new partners.

Here, we built on international data we collected on people's fundamental social motives before the COVID-19 outbreak by collecting additional international data on people's fundamental social motives during the first year of the pandemic. These extensive data collections allowed us to assess whether there had been any differences in motivational priorities before versus during the pandemic. Additionally, we were able to assess whether previously observed links between fundamental social motives and well-being might have changed.

2. Method

2.1. Participants

Across both waves, we collected cross-sectional data from a total of 42 countries, covering all inhabited continents ($N_{analyzed}$ = 15,915), including 19 countries in which we collected data both before and during the pandemic ($N_{analyzed}$ = 10,907).

2.1.1. Pre-pandemic data collection

To assess these questions, we built on past work: We measured 8998 people's fundamental social motives in 32 countries from 2016 to late 2019, before the onset of the COVID-19 pandemic. This included the 28 societies discussed in Ko et al. (2020) and data from four additional countries collected in late 2019. Data were collected in local languages

via convenience samples by collaborators around the world. Participants included university students, online survey workers, and community samples (for additional details on translation and data collection procedures by country, see Pick et al., 2022a). The target sample size per country was 200 participants, although data collection limitations in some countries did not allow the target sample size to be reached (average sample size collected was 281 participants, with a range from 84 to 769 participants) (see Supplemental Material Table S1 for a full list of countries and sample sizes per country).

Of the 8998 participants in this pre-pandemic wave of data collection, 3302 identified as male, 5585 identified as female, and 111 declined to answer or selected "other." Participants had a mean age of 24.43 years ($SD = 7.91$). Participants had a mean subjective socioeconomic status (SES) of 6.17 ($SD = 1.69$), where 10 indicates the participant believes that, in their country, they are among the "best off" in terms of money, education, and respected jobs, and 1 indicates "worst off" (see Supplemental Material Table S1 for participant descriptive information by country).

2.1.2. Mid-pandemic data collection

From April 2020 through November 2020, during the midst of the first year of the pandemic, we gathered data from an additional 6917 people across 29 countries. Data were collected in local languages via convenience samples by collaborators around the world. Participants included university students, online survey workers, and community samples (for additional details on translation and data collection procedures by country, see Pick et al., 2022a). The target sample size per country was 200 participants, although data collection limitations in some countries did not allow the target sample size to be reached (average sample size collected was 239 participants, with a range from 67 to 612 participants) (see Supplemental Material Table S1 for a full list of countries and sample sizes per country).

Of the 6917 participants surveyed during the pandemic, 2249 identified as male, 4218 identified as female, and 450 declined to answer or selected "other." Participants had a mean age of 28.59 years ($SD = 11.31$). Participants had a mean subjective SES of 6.10 ($SD = 1.76$) (see Supplemental Material Table S1 for participant descriptive information by country).

2.2. Procedure

This project was approved by Arizona State University's Institutional Review Board. In both waves of data collection, after participants provided consent, fundamental social motives were measured via the Fundamental Social Motives Inventory, which assesses people's motives on 11 dimensions: Self-Protection, Disease Avoidance, Affiliation (Exclusion Concern), Affiliation (Group), Affiliation (Independence), Status, Mate Seeking, Breakup Concern, Mate Retention, Kin Care (Family), and Kin Care (Children) (see Supplemental Material for full scale; Neel et al., 2016). Each motive was measured via six items on 7-point Likert-type scales, where higher scores indicate greater concern with or believed importance of the motive (with items reverse-coded as necessary). For example, the Disease Avoidance subscale included items such as, "I avoid people and places that might carry diseases." The Kin Care (Family) subscale included items such as, "Caring for family members is important to me." And the Mate Seeking subscale included items such as, "I would like to find a new romantic/sexual partner soon." Only participants with children completed Kin Care (Children) items, and only participants in romantic relationships completed Breakup Concern and Mate Retention items. Native speakers translated the survey into local languages for use in countries in which English is not commonly spoken. Participants who left any fundamental social motive subscale (except Mate Retention, Breakup Concern, or Kin Care (Children)) completely blank, participants who entered a score outside the range of a scale, and participants who entered a number under 18 or over 125 for age were excluded from all descriptive statistics, analyses, tables, and figures presented here ($N_{excluded} = 2807$).

We then assessed additional psychological variables and basic demographic information. Due to variation in surveys implemented in different countries at different time points, not all participants were asked all of the following items. In 33 countries, participants' well-being was assessed via the Satisfaction with Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985): five items on 7-point scales, with higher scores indicating greater satisfaction with life (see Supplemental Table S1 for full list of countries). We also measured the extent to which participants' basic needs (i.e., enough food, enough water, a reliable place to live, a comfortable temperature, and a safe place to live) were being fulfilled. Basic demographic information collected included participants' subjective SES, sex, age, country of birth and/or ethnicity, current relationship status, and number of children. The English versions of these materials are available on the Open Science Framework (OSF) repository at https://osf.io/p9z2a/.

Finally, participants in some English-speaking countries were asked additional exploratory items assessing how good they believe they are at accomplishing each of the fundamental social motives, how much time they spend per week on each motive, and how interested they would be in knowing how important each motive is to a new person they meet.

2.3. Data analyses

Data were analyzed and visualized using SPSS statistical software version 28, SAS statistical software version 9.4, and R statistical software versions 4.0.2 and 4.1.3 with the *corrplot, foreign, ggplot2,* and *readxl* packages (R packages: Wei & Simko, 2021; R Core Team, 2020; Wickham, 2016; Wickham & Bryan, 2019; respectively).

2.3.1. Data availability

The data associated with this research are available on the Open Science Framework (OSF) repository at https://osf.io/p9z2a/ ([dataset] Pick et al., 2022b).

3. Results

3.1. Shifts in fundamental social motives before vs. during the COVID-19 pandemic

3.1.1. Disease avoidance

The Disease Avoidance subscale assesses the extent to which people worry about catching diseases from others, and the extent to which people avoid other people and places that might have contagious illnesses. Because SARS-CoV-2 (the virus that causes COVID-19) spreads via close person-to-person contact, we expected people would be more motivated to avoid disease during the pandemic compared to before. When aggregating across the 19 countries with data in both waves, we indeed found that Disease Avoidance motive ratings were significantly higher during the pandemic ($M_{before} = 4.04$, $SD_{before} = 1.25$; $M_{during} = 4.70$, $SD_{during} = 1.26$; $t(10905) = 27.46$, $p < .001$; Cohen's $d = 0.53$). This was the largest shift on any motive dimension. See Supplemental Material Tables S2 and S3 for fundamental social motive means by country in each wave. Supplemental Material Table S4 reports similar findings from analyses that also include data collected from countries in only one wave.

3.1.2. Other fundamental social motives

When pooling across the 19 countries in which we collected data in both waves, for seven of the other ten fundamental social motives we also found small but significant differences in ratings during versus before the pandemic (Fig. 1a). Participants' motive ratings were significantly higher mid-pandemic compared to pre-pandemic for Self-Protection ($M_{before} = 4.57$, $SD_{before} = 1.25$; $M_{during} = 4.87$, $SD_{during} = 1.21$; $t(10710) = 12.91$, $p < .001$, Cohen's $d = 0.25$), Affiliation (Independence) ($M_{before} = 4.22$, $SD_{before} = 1.27$; $M_{during} = 4.37$, $SD_{during} =$

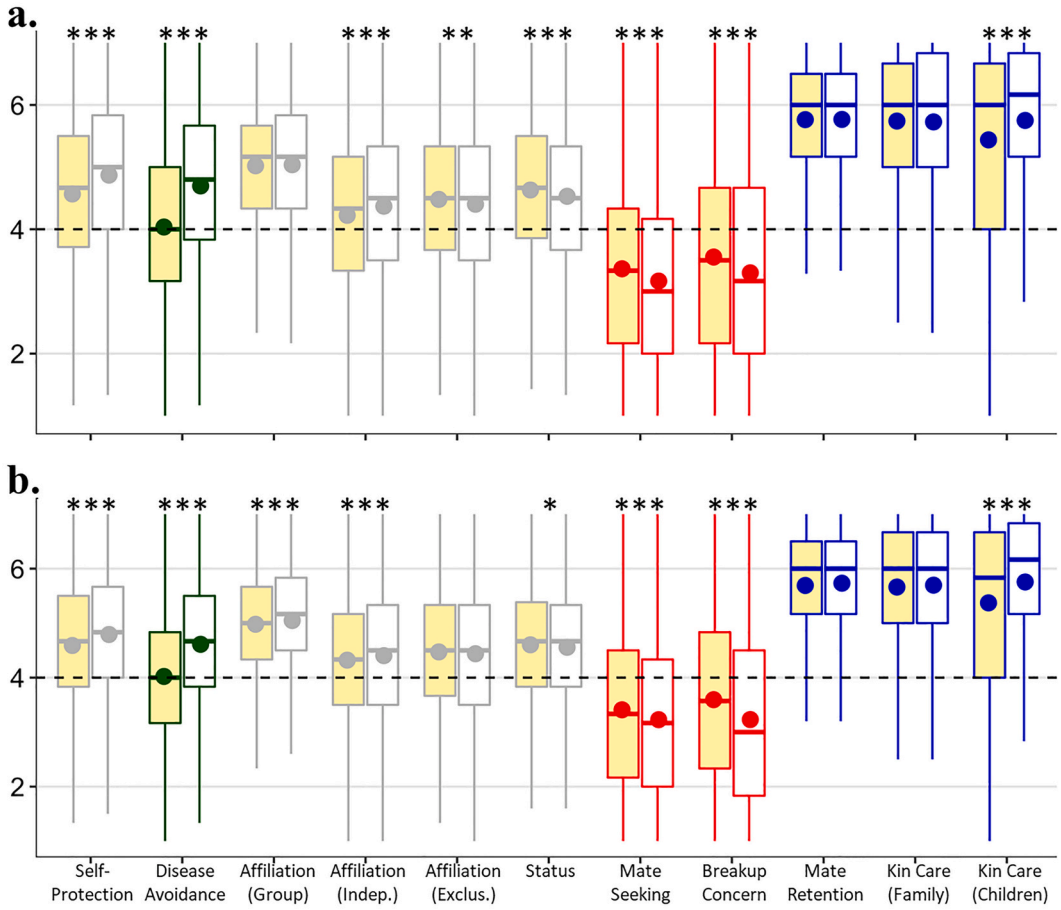

Fig. 1. Fundamental Social Motives Pooled Across Countries, Before vs. During COVID-19 Pandemic.
Note. Fig. 1a shows aggregated data from the 19 countries in which data were collected *both* before the pandemic (yellow) and during the pandemic (white). Fig. 1b compares aggregated data from all 32 countries in which data were collected before the pandemic (yellow) versus all 29 countries in which data were collected during the pandemic (white). Disease Avoidance motive is highlighted in green, motives related to mate seeking (i.e., Mate Seeking, Breakup Concern) are highlighted in red, and motives related to long-term familial bonds (i.e., Mate Retention, Kin Care (Family), Kin Care (Children)) are highlighted in blue. Each circle indicates the mean, horizontal lines across each box indicate the median, boxes indicate the second and third quartiles, and vertical lines indicate the first and fourth quartiles. The horizontal dashed line across each figure indicates the scale midpoint.
$^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$.

1.33; $t(10443) = 5.85$, $p < .001$, Cohen's $d = 0.11$), and Kin Care (Children) ($M_{before} = 5.44$, $SD_{before} = 1.48$; $M_{during} = 5.75$, $SD_{during} = 1.41$; $t(2517) = 5.45$, $p < .001$, Cohen's $d = 0.22$). Participants' motive ratings were significantly lower mid-pandemic compared to pre-pandemic for Affiliation (Exclusion Concern) ($M_{before} = 4.48$, $SD_{before} = 1.24$; $M_{during} = 4.40$, $SD_{during} = 1.32$; $t(10370) = -3.17$, $p = .002$, Cohen's $d = -0.06$), Status ($M_{before} = 4.63$, $SD_{before} = 1.16$; $M_{during} = 4.53$, $SD_{during} = 1.23$; $t(10401) = -4.39$, $p < .001$, Cohen's $d = -0.09$), Mate Seeking ($M_{before} = 3.36$, $SD_{before} = 1.47$; $M_{during} = 3.17$, $SD_{during} = 1.53$; $t(10440) = -6.84$, $p < .001$, Cohen's $d = -0.13$), and Breakup Concern ($M_{before} = 3.55$, $SD_{before} = 1.58$; $M_{during} = 3.30$, $SD_{during} = 1.66$; $t(5988) = -6.29$, $p < .001$, Cohen's $d = -0.16$). We found no significant changes in Affiliation (Group), Mate Retention, or Kin Care (Family) motives. Supplemental Material Table S4 reports similar findings from analyses that also include data collected from countries in only one wave (also displayed in Fig. 1b).

3.1.3. *Exploratory analyses predicting shifts in fundamental social motives*

Given that these data have a multi-level structure, we also conducted a series of multi-level models (MLM). However, we were constrained in the number of predictors that could be included in these models given the relatively low power at level 2, thus, we consider these analyses exploratory. These MLM analyses investigate possible individual-level and country-level predictors of selected fundamental social motives: Disease Avoidance, Kin Care (Family), Mate Seeking, and Affiliation (Independence). We focus on these fundamental social motives to (1) further explore people's Disease Avoidance response to the pandemic, to (2) further explore the universal pattern that people, on average, prioritize family-related motives over mating-related motives (as seen in Ko et al., 2020, and discussed in greater detail below), and to (3) further explore how people's Affiliation motives may have been affected during the pandemic.

Past work has shown a relationship between fundamental social motives and life history variables such as life stage (age) and sex among United States participants (e.g., Neel et al., 2016). Thus, in each analysis, individual-level predictors such as the participant's age, gender, and subjective SES were included as fixed effects, and the wave in which the participant's data were collected was included as a random effect. Country-level predictors in each analysis included the country's GDP per capita, average trust in government, and historical disease prevalence index (The World Bank, 2020; OECD, 2018; Murray & Schaller, 2010; respectively). GDP is a commonly studied cross-cultural predictor, and trust in government has recently been shown as a predictor of various COVID-19-related indicators and behavioral and psychological processes around the world (e.g., Goldfinch, Taplin, & Gauld, 2021; Han et al., 2021; Nielsen & Lindvall, 2021; OECD, 2021; OECD, 2022; Trent, Seale, Chughtai, Salmon, & MacIntyre, 2022). We included these variables and the historical disease prevalence index to explore whether

they might predict differences in people's fundamental social motives across countries and before versus during the pandemic.

MLM results suggest that Disease Avoidance and Kin Care (Family) motives tended to be higher during the pandemic, whereas Mate Seeking motive tended to be lower during the pandemic (no significant difference was found in Affiliation (Independence) across waves). Further, Disease Avoidance motive was positively associated with age and gender (with males coded 0 and females coded 1). Kin Care (Family) motive was positively associated with age, gender, and subjective SES. Mate Seeking motive was negatively associated with age and gender. Affiliation (Independence) motive was positively associated with age and negatively associated with gender and subjective SES. However, because these exploratory MLM analyses do not disaggregate individual-level effects from potential country-level effects on individual-level predictors, this would be a useful avenue of future research. Among the country-level predictors, GDP per capita positively predicted Mate Seeking motive, with no other significant effects. For full descriptions and results of each exploratory MLM analysis, see Supplemental Materials Tables S5 through S8.

3.2. *Familial bonds vs. mating motivation*

Within both the evolutionary social psychology and traditional social psychology frameworks, researchers have paid more attention to understanding romantic partner choice, attraction, and other aspects of romantic relationships compared to understanding long-term family ties (Daly, Salmon, & Wilson, 1997). However, we found that people around the world place more importance on family-related motives than mating

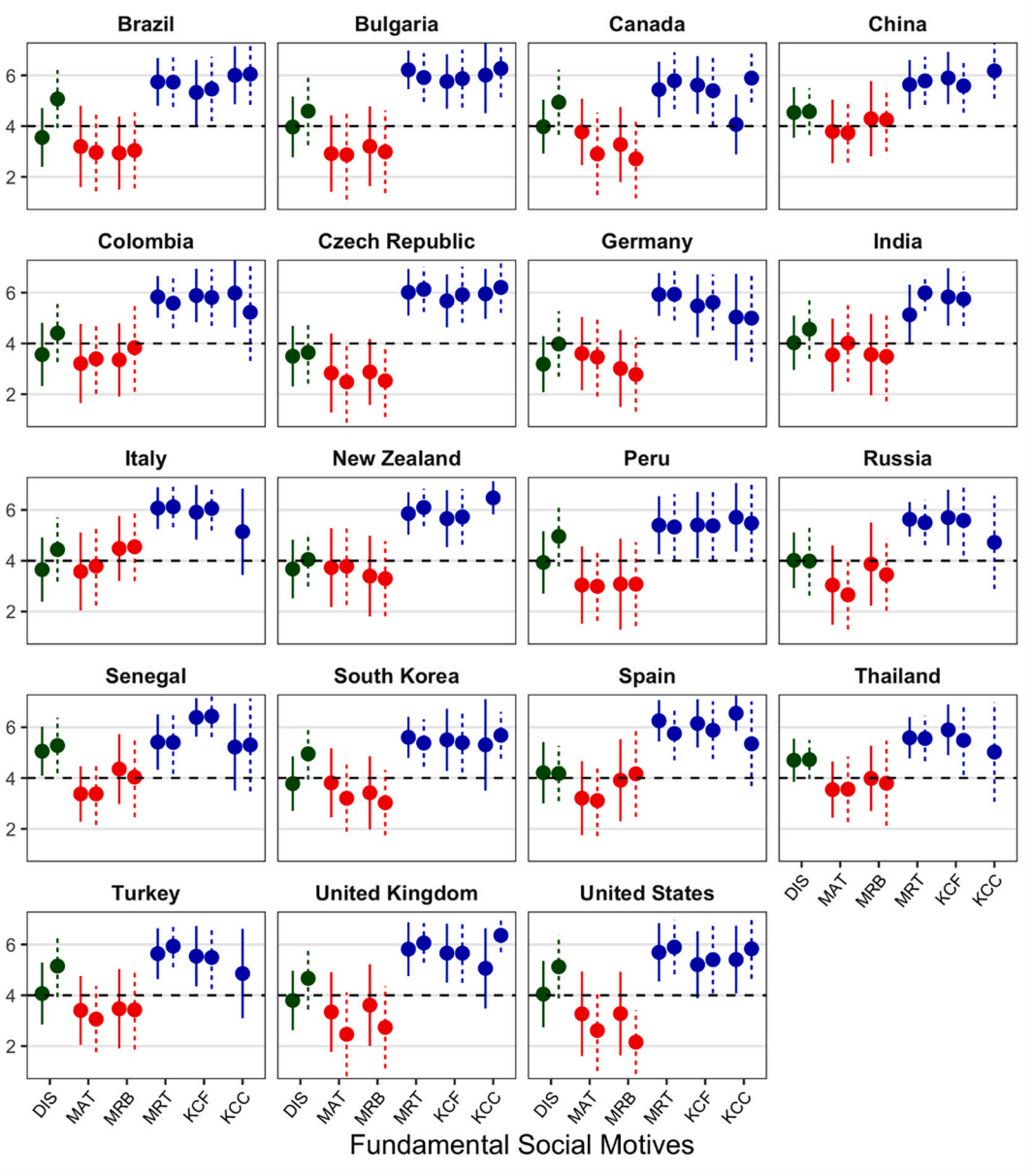

Fig. 2. Selected Fundamental Social Motives Before vs. During COVID-19 Pandemic in 19 Countries.
Note. Selected fundamental social motive subscales are shown for the 19 countries in which data were collected *both* before the pandemic (solid lines) and during the pandemic (dotted lines). Disease Avoidance motive (DIS) is shown in green, motives related to mate-seeking (i.e., Mate-Seeking (MAT), Breakup Concern (MRB)) are shown in red, and motives related to long-term familial bonds (i.e., Mate Retention (MRT), Kin Care (Family; KCF), Kin Care (Children; KCC)) are shown in blue. KCC scores are not shown for countries in which 10 participants or fewer had children/responded to KCC items (these samples are indicated in Tables S2 and S3). See Supplemental Material Fig. S2 for all fundamental social motive subscales from all 42 countries. Circles indicate means and vertical lines indicate ±1 standard deviation. The horizontal dashed line indicates the scale midpoint.

motives (Ko et al., 2020). Here, we find that despite a global pandemic, these family motives were still stronger than mate-seeking motives (Fig. 1). This pattern can be seen across all 19 countries in which data were collected both before and during the pandemic (Fig. 2; and this pattern can also be seen in each country in which data were collected only before *or* during the pandemic, Fig. S2). This was also true for both male and female participants (Fig. S1).

3.3. Fundamental social motives and subjective well-being

In the pre-pandemic data, people prioritized family bonds, and that prioritization was connected to well-being. People who emphasized family bonds tended to have higher life satisfaction, whereas people who emphasized mating tended to have lower life satisfaction (U.S. data, Ko et al., 2020). Both depression and anxiety were positively correlated with mate-seeking motives and negatively correlated with long-term familial bonds motives.

This pattern remained unchanged during the COVID-19 pandemic in our international sample (Table 1). During the pandemic, people's satisfaction with life remained positively correlated with long-term familial bonds motives (Mate Retention: $r(1569) = .11$, $p < .001$; Kin Care (Family): $r(2581) = .16$, $p < .001$; Kin Care (Children): $r(903) = .08$, $p = .02$) and negatively correlated with mate-seeking motives (Mate Seeking: $r(2581) = -.20$, Breakup Concern: $r(1590) = -.21$, $ps < .001$) in the 10 countries in which life satisfaction was measured in both waves. Supplemental Material Table S9 reports similar findings from analyses also including data from countries in which life satisfaction was only measured in one wave.

Pooling across all 33 countries for which we have life satisfaction data, we next predicted individuals' life satisfaction from all the fundamental social motives simultaneously, using Cluster-Robust Errors (CRE) analyses to account for potential non-independence of participants within countries (White, 1984). We found that before the pandemic, people had higher life satisfaction if they had higher Affiliation (Group) and Affiliation (Independence) motives ($\beta = 0.14$, $t(937) = 2.18$, $p = .03$; $\beta = 0.10$, $t(937) = 1.99$, $p = .047$; respectively), but lower life satisfaction if they had higher Mate Seeking and Breakup Concern motives ($\beta = -0.16$, $t(937) = -2.68$, $p = .01$; $\beta = -0.13$, $t(937) = -5.97$, $p < .0001$; respectively). During the pandemic, people again had higher life satisfaction if they had higher Affiliation (Group) and Affiliation (Independence) motives ($\beta = 0.26$, $t(1359) = 5.98$, $p < .0001$; $\beta = 0.16$, $t(1359) = 2.72$, $p = .01$; respectively), and they again had lower life satisfaction if they had higher Mate Seeking motive ($\beta = -0.10$, $t(1359) = -3.53$, $p = .001$), although there was no significant relationship with Breakup Concern ($\beta = -0.05$, $t(1359) = -0.99$, $p = .32$). New—but unsurprising—during the pandemic, people had lower life satisfaction if they had higher Disease Avoidance concern ($\beta = -0.11$, $t(1359) = -2.90$, $p = .004$). See Supplemental Material Table S10 for full results of both CRE analyses.

4. Discussion

The global COVID-19 pandemic profoundly affected people's daily lives and personal relationships around the world. Our international datasets allowed us to ask what effect the pandemic might have had on motivational priorities. Unsurprisingly, there was a large shift in Disease Avoidance motivation in most of the countries we measured around the world. Other motives did show some more subtle changes, but also high levels of stability. Importantly, the high priority placed on family-care motives relative to mating motives, which was previously observed universally, remained high during the unique circumstances of the pandemic and with a sample that included several new societies. Further, positive relationships between these family-oriented motivations and well-being persisted, despite circumstances that might conceivably have altered them. In fact, the priority placed on family-care related motivations generally *exceeded* disease avoidance, even in the midst of the pandemic. This suggests that these family-oriented motivations are remarkably robust human priorities.

It is worth noting that there were statistically significant changes in most of the fundamental social motives. None of the motives changed to the degree that Disease Avoidance did, but many of the other smaller shifts seem sensible. Self-Protection, Affiliation (Independence), and Kin Care (Children) were all higher during the pandemic compared to before; Affiliation (Exclusion Concern), Status, Mate Seeking, and Breakup Concern were all lower during the pandemic. It makes sense that caring for one's children would go up during a health crisis, and that concerns over status, maintaining friendships, and finding a mate would go down.

Although we might have expected to see large shifts in people's social motives related to friendship, mating, or family, we saw relatively small differences. Perhaps one reason for the absence of large changes is that although *physical* distancing became the reality for many people during the pandemic, modern tools allowed people to avoid the full effects of *social* distancing. Through tools such as videoconferencing, phone calls and texts, and social media, many people were able to talk with and even see close ones (and colleagues) online. Further, via modern dating websites and phone apps, many people may have continued to pursue mate-seeking motives virtually, despite extra hurdles due to lockdown measures.

4.1. Limitations

One key limitation of the present work is that our data, though in many cases collected from the same societies at different timepoints, were not collected from the same individuals. Hence, we cannot assess questions of individual-level change or stability in motivational priorities. Given that our data are cross-sectional rather than longitudinal, we hesitate to draw strong conclusions regarding the relatively small differences in most motives before versus during the pandemic. However,

Table 1
Correlations between Satisfaction with Life and Fundamental Social Motives, Before vs. During COVID-19 Pandemic across 10 Countries.

	SPO	DIS	AFG	AFI	AFX	STA	MAT	MRB	MRT	KCF	KCC
	r(df)	*r(df)*	*r(df)*	*r(df)*	*r(df)*	*r(df)*	*r(df)*	*r(df)*	*r(df)*	*r(df)*	*r(df)*
Pre-Pandemic	−.09* (2601)	−.13* (2601)	.11* (2601)	.05* (2601)	−.14* (2601)	−.08* (2601)	−.23* (2601)	−.25* (1744)	.18* (1859)	.11* (2601)	.25* (693)
During Pandemic	−.05* (2581)	−.11* (2581)	.17* (2581)	.03 (2581)	−.11* (2581)	−.02 (2581)	−.20* (2581)	−.21* (1590)	.11* (1569)	.16* (2581)	.08* (903)

Note. Correlations between individuals' satisfaction with life and each fundamental social motive before versus during the COVID-19 pandemic, pooled across the 10 countries for which we have life satisfaction data both before and during the pandemic. Participants' well-being was measured via the Satisfaction with Life Scale (SWLS; Diener et al., 1985); higher scores indicate more satisfaction with life. Fundamental social motive subscales are Self-protection (SPO), Disease Avoidance (DIS), Affiliation (Group) (AFG), Affiliation (Independence) (AFI), Affiliation (Exclusion Concern) (AFX), Status (STA), Mate Seeking (MAT), Breakup Concern (MRB), Mate Retention (MRT), Kin Care (Family) (KCF), and Kin Care (Children) (KCC). Degrees of freedom are indicated in parentheses. Supplemental Material Table S9 reports similar findings from analyses also including data from countries in which SWLS was measured in only one wave.

* $p < .05$.

given that our major findings replicate the universal pre-pandemic pattern that family-related motives are more important than mating motives, and show a logical increase in Disease Avoidance motive during the pandemic, we do not expect that differences in participant characteristics between waves of data collection systematically contributed to our results.

We also note that although our data were collected from multiple societies worldwide, varying in culture, language, religion, and wealth, and although our samples included non-university participants within many countries (Ko et al., 2020; Pick et al., 2022a), samples from many countries were collected from a single community within the country or from university undergraduates. Thus, it is possible that the motivational priorities of people outside of large cities or people who were not university undergraduates may have shifted in ways not well-captured in our samples. For example, many university students switched to online learning during the pandemic. However, many other adults, especially those in "essential industries" were unable to work from home during the pandemic, and they may have had to isolate from their close friends and family to prevent spreading COVID-19 to them if contracted in the workplace. In a similar vein, the economic impacts of the pandemic likely varied across industries and social classes within societies, with those in lower wage jobs potentially more affected than white collar workers. Our data likely oversample from relatively higher SES groups, and it is possible different effects might have been observed among other segments of these societies.

In the present work, people's fundamental social motives were measured using a single self-report instrument. Although this instrument has been previously validated (Neel et al., 2016), it is theoretically possible that results might differ if these motivations were measured differently. That said, in previous work, Ko et al. (2020) found, for example, that participants prioritized family-related motives over mate-seeking motives when a range of different materials and methods (including a forced ranking method) were used, which suggests that the key patterns of results observed in the present work should likely hold if these motives were measured in a different manner.

Although it is beyond the scope of the present work, one interesting avenue for future research will be to elucidate the underlying computational processes involved in coordinating the suites of cognitive tools, feelings, and behaviors that comprise the different fundamental social motives. It would also be worthwhile to explore how people build their perceptions of the relative importance of the different motives. We hope that researchers will pursue these important questions in the future.

4.2. Conclusion

Throughout history and across cultural contexts, human beings have faced, and continue to face, a variety of challenges. In the face of those challenges, people have relied upon family members (Hill et al., 2011; Hrdy, 2007). Thus, perhaps we need not be surprised that even in the face of this historically unique challenge, family still seems to matter most. Further, these family-related motivations were consistently linked to well-being, both before and during the pandemic. This points to the possibility that such motives may help buffer against some of the worst social and psychological effects of threats like pandemics and other disasters.

Author note

Data collected in the pre-pandemic wave were presented at the 2020 Society for Personality and Social Psychology annual meeting. Data from 27 societies collected in the pre-pandemic wave were published in Ko et al., 2020, *Perspectives on Psychological Science*. All data are published in Pick et al., 2022a, *Scientific Data* and are available at https://osf.io/p9z2a/. A previous preprint version of this manuscript is posted on https://psyarxiv.com/z7mjc. This study was not preregistered.

Author contributions

Conceptualization and Methodology: C. M. Pick, A. Ko, D. T. Kenrick, and M. E. W. Varnum developed the manuscript's arguments and study design. Investigation: All authors contributed to data collection. Data curation: C. M. Pick, A. Ko, A. Wiezel, and A. S. Wormley curated the data. Formal analysis: C. M. Pick, A. Ko, A. S. Wormley, and A. Wiezel analyzed the data. Visualization: A. Ko, C. M. Pick, and A. S. Wormley produced and edited figures. Project administration: C. M. Pick coordinated the project. Writing – original draft: C. M. Pick drafted the manuscript, with significant input from D. T. Kenrick and M. E. W. Varnum. Writing – review and editing: C. M. Pick, D. T. Kenrick, M. E. W. Varnum, A. Ko, A. S. Wormley, A. Wiezel, L. Al-Shawaf, R. P. Defelipe, V. Fetvadjiev, L. S. Hansson, J. Lasselin, A. L. Mafra, S. Moran, J. O, T. Talhelm, A. K. Uskul, J. V. Valentova, and M. A. C. Varella provided critical comments and revisions; all authors approved the final manuscript for submission. Funding acquisition: M. E. W. Varnum, D. T. Kenrick, A. C. Crispim, R. P. Defelipe, S. Graf, M. Hřebíčková, J. O, S. Salgado, and A. S. Wormley each acquired financial support for the project. Supervision: M. E. W. Varnum and D. T. Kenrick supervised the project.

Funding

The contributions of M. E. W. Varnum, D. T. Kenrick, C. M. Pick, and A. S. Wormley were supported by the *National Science Foundation* [grant #1822713]. A. S. Wormley was also supported by the National Science Foundation Graduate Student Fellowship Program. The contributions of A. C. Crispim and R. P. Defelipe were supported by funding from *FAPESP (São Paulo Research Foundation)*. The contributions of M. Hřebíčková and S. Graf were supported by the *Czech Science Foundation* [grants #17-14387S, #20-01214S] and by the *Institute of Psychology, Czech Academy of Sciences* [RVO: 68081740]. The contributions of J. O were supported by Departmental Research Funds from the Department of Psychology at Aberystwyth University. The contributions of S. Salgado were supported by *Universidad de La Frontera* [Project DIUFRO DI20–0080]. The funding sources had no role other than financial support.

The data from Kenya were collected by Busara Center for Behavioral Economics.

Declaration of Competing Interest

None.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.evolhumbehav.2022.09.003.

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