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Are the nice ones left behind: a European multi-country survey on the relationship between altruism and forgone care

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Abstract

Background Forgone care was widespread during the COVID-19 pandemic and is linked to poorer health outcomes. Research on its determinants has focused mainly on sociodemographic characteristics and access barriers, but has not examined the role of individual dispositions such as altruism. Because forgoing care during a pandemic can benefit others, for instance by leaving scarce resources available or reducing infection risk for health care staff, altruistic individuals may be more likely to forgo care. This study examines whether altruism is associated with self-initiated forgone care during the COVID-19 pandemic.

Methods We used survey data from eight European countries (Denmark, France, Germany, Italy, the Netherlands, Portugal, Spain, and the United Kingdom). The analytic sample comprised 6,859 participants, with approximately 830 to 930 per country.

Results Altruism was positively associated with forgone care, and this relationship remained robust when accounting for different degrees of delay, types of health care providers, and countries. Furthermore, age moderated this association.

Conclusion By identifying altruism as a factor associated with forgoing care, this study contributes to a better understanding of health care utilization during crises. The results are relevant from a health policy perspective, as they have implications for health care systems and health outcomes during crises.

Keywords Altruism, Forgone care, Pandemic, Crisis, Utilization, Health policy, Public health

Introduction

The COVID-19 pandemic placed unprecedented strain on health care systems worldwide, affecting both the demand for and supply of health care services. People avoided care for fear of infection [1], and access was restricted to limit transmission [2]. As a result, forgone care was widely reported [3–7].

Forgone care refers to situations in which an individual "does not utilize healthcare services although he or she perceives a need for them" [8]. Empirical studies have shown that it is more common among women, younger individuals, and those in poor health [8, 9], as well as

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among people with low income [8, 10–12], people not living in a partnership [13], or those with language barriers or experiences of racial discrimination [14, 15]. Forgone care entails costs for individuals and society: it is linked to poorer health [16–18] and may increase long-term health care expenditures, as delayed treatment can worsen illness [19].

Crises such as pandemics are also times of solidarity and altruism, which can help societies cope with adversity [20–22]. During COVID-19, altruistic tendencies manifested in several ways. Personal exposure to the virus increased charitable donations [23], and altruism was associated with prosocial behaviors such as waiting at home for test results, wearing masks, and voluntary quarantine [24]. Altruism can be defined as behavior that costs the individual performing it but benefits others [25]. Research on altruism in health care often focuses on physicians' and nurses' work motivation [26, 27]. Other strands of research have examined altruism in specific contexts, such as blood donation [28], organ donation [29] and participation in scientific studies [30]. However, researchers have rarely investigated the relationship between altruism and care utilization. Still, some experimental studies exist, which found that altruistic appeals can reduce requests for overused services [31], that altruism is associated with less antibiotic use [32], and that altruistic people prefer treatment options that contribute less to antibiotic resistance [33]. Previous research has also shown that altruism motivates vaccination decisions [34–36].

Notably, none of these studies has examined forgone care. Altruism may lead individuals to forgo care, particularly during pandemics. Forgoing care entails costs for the individual but can benefit others by freeing scarce medical resources, easing the burden on health care staff, and reducing infection risk [2, 37, 38]. Yet altruistic behavior is not unconditional: the higher the personal cost, the less likely altruistic action becomes [25, 39]. Because health care needs increase with age [40–42], the consequences of forgoing care are likely to be more severe for older individuals, who correspondingly report less forgone care [8, 9]. We therefore expect altruism to be positively associated with forgone care and that this association weakens with age.

Examining the relationship between altruism and forgone care contributes to understanding altruism in patient behavior, the factors associated with forgone care during crises, and the potential health implications of altruistic behavior [43, 44]. This study aimed to test these assumptions empirically by examining the association between altruism and self-initiated forgone care, and how age moderated this association, during the COVID-19 pandemic. Exploring these relationships matters for health policy, as the proposed effects may affect healthcare systems and health outcomes during crises.

Methods

Data

To investigate the relationship between altruism and forgone care, we used survey data from eight European countries (Denmark, France, Germany, Italy, the Netherlands, Portugal, Spain, and the United Kingdom). The initial sample comprised 8,112 participants aged 18 years or older, with approximately 1,000 per country. The market research company Dynata collected data online using multiple recruitment channels (affiliate networks, open recruitment, loyalty programs, mobile apps) to reach diverse segments of the population in each country. Quota sampling was used to approximate the population distribution in terms of sex, age category, and region (quotas applied independently, not interlocked) in each country, based on national census data (e.g., Destatis for Germany, INSEE for France, ISTAT for Italy; full sources listed in [45]).

We collected data between May 4 and May 24, 2022. Participants were asked about instances of forgone care during the four months preceding the survey (see "Measures" below). During this period, COVID-19 infection rates and hospitalizations were among the highest of the entire pandemic [46, 47], representing a crucial phase in which the potential relationship between altruism and forgone care may have been particularly relevant.

The data used in this study are part of a larger data set, the European COvid Survey (ECOS) (for further information on the survey design and procedures, see [45]). Several quality checks were implemented to ensure high data quality [45]. Participants provided informed consent at the beginning of the survey.

Measures

We measured altruism using the scale developed by Manzur and Olavarrieta [48], a short version of the well-established self-report altruism scale by Rushton et al. [49]. Participants indicated how often each of nine situations had applied to them (e.g., "I have given money to a charity"; "I have offered to help a disabled or elderly stranger across a street") on a 5-point scale ranging from "never" (1) to "always" (5), with higher scores indicating greater altruism. The distribution of responses to the altruism items is shown in Additional file 1. Internal consistency was good, both overall (Cronbach's $\alpha = 0.86$) and within each country (α ranging from 0.81 in Portugal to 0.88 in Germany, the United Kingdom, and France). The scale comprises two factors: charity (3 items, e.g., "I have given money to a charity"; $\alpha = 0.70$) and helping behavior (6 items, e.g., "I have offered to help a disabled or elderly stranger across a street"; $\alpha = 0.86$), which were examined

separately in a robustness check (see Results). A multigroup confirmatory factor analysis of the two-factor structure showed adequate fit (CFI = 0.94, SRMR = 0.05, RMSEA = 0.09), allowing a residual covariance between two items describing help for strangers in public spaces. Constraining factor loadings to be equal across countries did not substantially worsen model fit (ΔCFI = – 0.008), supporting metric invariance. This indicates that the items relate to altruism similarly across all eight countries, so associations involving altruism can be compared across countries.

We assessed forgone care with the question, "Thinking about the last 4 months, did you defer/delay any medical care treatments due to the COVID-19 pandemic?", which, by its phrasing, presupposes that a treatment was due; participants without any pending treatment during this period would not be captured by this item. We measured forgone care separately for four provider types: general practitioners (GPs), hospitals (elective services only), dentists, and specialists. For each service type, respondents indicated the delay duration (no delay, some days, some weeks, more than one month, more than three months). We also asked participants who reported forgone care with any of the four providers, "Who initiated the cancellation/postponement of care?", with response options "Doctor/medical institution" and "It was my decision". As this question was asked once and only one option could be selected, respondents could not report both types; we classified forgone care as provider-initiated or self-initiated accordingly.

Several control variables were included. Participants reported their age, sex, and highest level of educational attainment (e.g., university degree). Educational attainment was categorized into three levels (low, middle, high) [45]. They also indicated whether they faced income difficulties and whether children under 18 years lived in their household. Participants also indicated their COVID-19 vaccination status.

Several additional scales captured factors potentially associated with forgone care or altruism. Health status was measured using the EQ-5D-5L [50]. We assessed perceived risk of COVID-19 infection with four items on 5-point scales capturing perceived risk of becoming infected, perceived risk to one's own health if infected, perceived risk to the health of one's family, and perceived risk to the health of one's community (α = 0.86). Risk-averse behavior was measured with nine items on 4-point scales, for example, "I try to keep physical distance" and "I try to reduce the amount of my contacts" (α = 0.90). Trust in health care and government was measured using 5-point scales asking participants how much they trusted their national government and health care institutions (GPs and hospitals). We included trust in health care because it is positively associated with access to needed care [51]. As trust in GPs and trust in hospitals were highly correlated (r = .80, p < .001), both items were averaged to create a composite measure of trust in health care (α = 0.89). For the analyses, both trust measures were dichotomized, distinguishing participants reporting high trust (values ≥ 4) from all others.

Native speakers—primarily researchers with expertise in health economics and survey methodology—translated the questionnaire, including all measures described above, into the respective national languages and reviewed it with the multilingual research team responsible for data collection. A detailed description of all measures is provided in Additional File 1.

Analysis

To analyze the relationship between altruism and forgone care, we conducted logistic regression analyses using STATA 19. Our main analysis focused on forgone care with GPs and hospitals, as they represent distinct types of health care utilization: GP visits are more frequent and generally involve less severe conditions, whereas hospital visits are less frequent and tend to be associated with more severe health problems. Moreover, trust measures were available only for GPs and hospitals, not for dentist and specialist care. The dependent variable was dummy-coded as 1 if a participant reported self-initiated forgone care for at least some days with either provider (for the distribution of responses for GPs and hospitals, see Additional file 1).

We excluded participants reporting provider-initiated forgone care (n = 1,253) from the regression analyses, resulting in an analytic sample of 6,859. As our theoretical framework concerns individual decisions to forgo care for the potential benefit of others, provider-initiated cancellations or postponements—which reflect institutional rather than individual decision-making—are conceptually distinct from the self-initiated forgone care examined here and were therefore not informative for testing our hypotheses. Compared with the analytic sample, participants with provider-initiated forgone care were somewhat younger; we also observed smaller differences in sex and education (see Additional file 2). They also reported higher altruism scores (M = 2.72 vs. 2.21; t(8110) = 21.92, p < .001). We therefore additionally examined provider-initiated forgone care in a robustness test (see below). Finally, we compared the sex and age distribution of the analytic sample with national population statistics for each country. Sex distributions closely matched national figures; age distributions also largely corresponded, with somewhat greater deviations in some countries (see Additional file 2).

We estimated three nested logistic regression models. Model 1 included only control variables (age, gender, education level, income difficulties, children in the

household, COVID-19 vaccination status, health status, perceived risk of COVID-19 infection, risk-averse behavior, trust in health care, trust in government, and country dummies). In Model 2, altruism was added as an additional independent variable. Model 3 further included interaction terms. Because age was treated as a categorical variable (18–34, 35–54, ≥ 55), two interaction terms were introduced. We refer to this set of models as the main analysis. We assessed multicollinearity using variance inflation factors (VIFs); all values were well below conventional thresholds (mean VIF = 1.97, maximum VIF = 3.68).

Several robustness tests were conducted. First, we re-estimated the main model with progressively reduced sets of covariates: a reduced specification retaining sociodemographic controls and country fixed effects while omitting health-related and attitudinal covariates that may themselves lie, in part, on a pathway between altruism-related dispositions and care-seeking behavior (health status, perceived COVID-19 risk, risk-averse behavior, institutional trust, vaccination status), and a minimal specification containing only age, altruism, and their interaction. Second, we repeated the main analysis with age treated as a continuous rather than a categorical variable, again applying the reduced specifications described above. Third, we tested whether the association depended on how forgone care was operationalized: using separate dummy variables for GP and hospital care, a dummy variable for delays of more than one month, and a broadened outcome including all four surveyed provider types (GP, hospital, dentist, specialist); the reduced specifications described above were applied to this broadened outcome as well. Fourth, we examined the two factors underlying the altruism scale (charity and helping behavior) by entering them separately in place of the full scale, again applying the reduced specifications described above. Fifth, we tested whether the association was consistent across countries, both through country-specific regressions and a pooled model with altruism × country interaction terms and a joint significance test. Finally, we examined whether the association was specific to self-initiated forgone care, using multinomial logistic regressions on the full sample ($n = 8{,}112$) that distinguished between no, self-initiated, and provider-initiated forgone care, with and without the age interaction.

Results

Descriptive results

Table 1 presents the number and proportion of participants for several demographic characteristics. It also shows, for each demographic characteristic, the proportion of participants reporting self-initiated forgone care and their corresponding mean altruism scores.

Main analysis

Table 2 presents the logistic regression results from the main analysis for self-initiated forgone care. Altruism was positively and significantly associated with forgone

Table 1 Characteristics of the data set

		n	%	Altruism Mean (SD)	Self-initiated forgone care
Overall		6,859	100%	2.21 (0.76)	19.5%
Age	18–34	1,494	21.78%	2.40 (0.80)	34.8%
	35–54	2,591	37.78%	2.22 (0.78)	20.5%
	≥ 55	2,774	40.44%	2.08 (0.71)	10.3%
Sex	Female	3,614	52.69%	2.22 (0.74)	20.1%
	Male	3,245	47.31%	2.19 (0.78)	18.9%
Educational attainment	Low	997	14.54%	2.00 (0.75)	18.7%
	Middle	2,672	38.96%	2.11 (0.76)	18.6%
	High	3,190	46.51%	2.35 (0.75)	20.5%
Children	No	4,961	72.33%	2.12 (0.73)	15.7%
	Yes	1,898	27.67%	2.43 (0.81)	29.3%
Income difficulties	With great difficulties	593	8.65%	2.15 (0.82)	24.6%
	With some difficulties	2,502	36.48%	2.20 (0.77)	23.3%
	Fairly easy	2,791	40.69%	2.22 (0.73)	16.8%
	Easily	973	14.19%	2.21 (0.81)	14.2%
COVID-19 vaccination status	No	750	10.93%	2.05 (0.79)	18.9%
	1–2 shots	1,278	18.63%	2.35 (0.81)	30.9%
	3–4 shots	4,831	70.43%	2.19 (0.74)	16.6%

$N = 6{,}859$. The analytic sample excludes participants reporting provider-initiated forgone care ($n = 1{,}253$; see Methods). "Children" indicates whether individuals under 18 years live in the household. Self-initiated forgone care refers to cases in which participants themselves decided to postpone or forgo medical treatment rather than experiencing provider-initiated cancellations or delays, and includes all participants who reported any delay (i.e., at least some days) with either a general practitioner or a hospital

Table 2 Logistic regression results

Model		**Self-initiated forgone care**		
		(1)	**(2)**	**(3)**
Age	*18–34*	(Ref)	(Ref)	(Ref)
	35–54	0.44***	0.51***	0.53***
		(0.04)	(0.04)	(0.05)
	≥ 55	0.25***	0.3***	0.32***
		(0.02)	(0.03)	(0.03)
Sex		0.82**	0.85*	0.86*
		(0.06)	(0.06)	(0.06)
Educational attainment	*low*			
	middle	1	0.9	0.9
		(0.11)	(0.1)	(0.1)
	high	1.1	0.9	0.9
		(0.12)	(0.1)	(0.1)
Children		1.78***	1.41***	1.39***
		(0.14)	(0.11)	(0.11)
Income difficulties	*With great difficulties*			
	With some difficulties	1.18	1.11	1.1
		(0.14)	(0.14)	(0.14)
	Fairly easy	1	0.9	0.89
		(0.12)	(0.12)	(0.12)
	Easily	0.88	0.79	0.76
		(0.13)	(0.12)	(0.12)
Health status		0.86***	0.86***	0.87***
		(0.01)	(0.01)	(0.01)
Severity of risk of COVID-19 infection		1.31***	1.18***	1.18***
		(0.06)	(0.06)	(0.06)
Risk-averse behavior		1.25***	1.21***	1.2**
		(0.07)	(0.07)	(0.07)
Trust in health care		0.56***	0.54***	0.55***
		(0.04)	(0.04)	(0.04)
Trust in government		1.17*	1.06	1.05
		(0.09)	(0.09)	(0.09)
COVID-19 Vaccination status		Included	Included	Included
Country dummies		Included	Included	Included
Altruism			2.27***	2.76***
			(0.11)	(0.24)
Altruism*Age (35–54)				0.87
				(0.1)
Altruism*Age (≥ 55)				0.61***
				(0.08)
Const		0.72	0.8	0.76
		(0.16)	(0.18)	(0.18)
Observations		6859	6859	6859
McFadden-Pseudo R^2		0.15	0.2	0.2
Chi^2		1022.14	1328.92	1346.19
AIC		5792.79	5488	5474.73
BIC		5956.79	5658.84	5659.23

Table entries are odds ratios; standard errors are in parentheses. Self-initiated forgone care refers to cases in which participants themselves decided to postpone or forgo medical treatment rather than experiencing provider-initiated cancellations or delays. This category includes all participants who reported any delay (i.e., at least some days) with either a general practitioner or a hospital. "Children" indicates whether individuals under 18 live in the household. "Ref" indicates the reference category for categorical variables. *** $p < .001$, ** $p < .01$, * $p < .05$

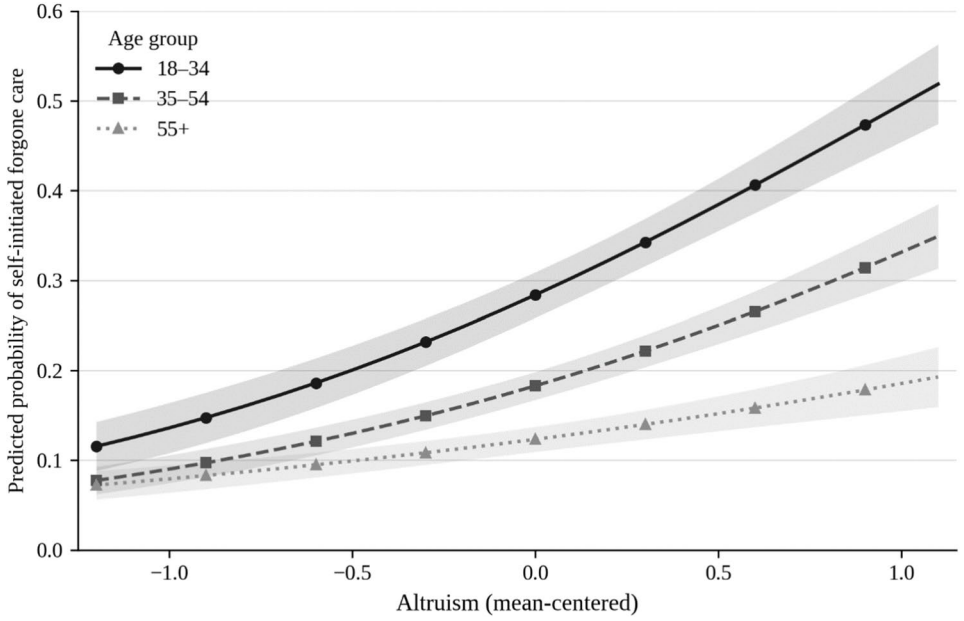

Fig. 1 Predicted probability of self-initiated forgone care by altruism and age group. Note. Predicted probabilities are based on Model 3 (Table 2), holding all other covariates at their observed values (average marginal predictions). Altruism is mean-centered; the x-axis covers approximately 1.5 SD below to 1.5 SD above the sample mean. Shaded bands represent 95% confidence intervals

care (see Model 2). On the probability scale, a one-point increase in altruism was associated with an average increase of 10.1% points in the probability of self-initiated forgone care (AME = 0.101, 95% CI [0.090, 0.112]). McFadden's pseudo-R^2 increased from 0.15 to 0.20 when altruism was added to the model (comparing Models 1 and 2), and model fit improved accordingly (AIC decreased from 5,792.79 to 5,488.00; BIC decreased from 5,956.79 to 5,658.84).

Model 3 presents the results of the moderation analysis; including the age interaction further improved model fit relative to Model 2 (AIC = 5,474.73 vs. 5,488.00) and showed the best fit among all models estimated in the main analysis, with BIC values for Models 2 and 3 being nearly identical (5,659.23 vs. 5,658.84), reflecting the trade-off between improved fit and the two additional parameters. The interaction term for participants aged 55 years or older was significant and below 1 (OR = 0.61), consistent with the hypothesis that the association between altruism and forgone care weakens with age. To facilitate substantive interpretation of this moderation, we computed average marginal effects (AMEs) of altruism on the probability of forgone care, separately by age group. The AME was 0.165 (95% CI [0.142, 0.188]) among participants aged 18–34, 0.113 (95% CI [0.096, 0.130]) among those aged 35–54, and 0.052 (95% CI [0.034, 0.069]) among participants aged 55 and older; pairwise comparisons showed that these marginal effects differed significantly across all age groups (all $p < .001$). Figure 1 displays predicted probabilities of forgone care across the range of altruism scores, separately by age group, illustrating this pattern.

Regarding the control variables, older participants and men were less likely to report forgone care. Participants with children under 18 years living in their household were more likely to report forgone care. Better health status and higher trust in health care providers were both negatively associated with forgone care – i.e., participants in good health and those with higher trust were less likely to report forgone care. In contrast, higher perceived severity of infection risk and stronger risk-averse behavior were positively associated with forgone care – i.e., participants who perceived greater COVID-19 risk or who avoided risk more actively were more likely to forgo care.

Robustness tests

We conducted several tests to assess the robustness of our results (see Additional file 3 for detailed results of all robustness tests).

First, we tested whether the association depended on the control variables included in the model. In addition to the models presented in Table 2, we re-estimated Model 3 with two smaller sets of covariates: one retaining only sociodemographic controls and country fixed effects, and one including only age, altruism, and their interaction. The association between altruism and forgone care, and its moderation by age, remained significant in all specifications. The average marginal effect of altruism was 0.100 in Model 3, 0.120 when we omitted health-related and attitudinal covariates, and 0.122 when we retained only

age, indicating that these covariates accounted for part, but not most, of the association.

Second, we tested whether our operationalization of age affected the results by treating age as continuous rather than categorical. Re-estimating all specifications described above with this continuous age measure, the association and its moderation by age remained significant throughout.

Third, we examined whether the association depended on how we operationalized forgone care. The association and its moderation by age remained significant across all specifications when examining GP and hospital care separately, when restricting the analysis to delays of more than one month, and when broadening the outcome to include all four surveyed provider types (GP, hospital, dentist, specialist; trust in health care was omitted from this last specification, as it was not assessed for dentist and specialist care).

Fourth, we examined whether the association was consistent across facets of altruism. Examining the two factors underlying the altruism scale (charity and helping behavior) separately across all specifications, both were positively and significantly associated with forgone care, with the helping-behavior dimension showing a numerically stronger association throughout.

Fifth, we examined whether the association was consistent across countries. Country-level regressions showed a positive association between altruism and forgone care in all eight countries. The interaction term for participants aged 55 and older pointed in the expected direction in seven of eight countries (all except Denmark) but was statistically significant only in Germany and Spain. A formal test of altruism × country interactions in Model 3 found no statistically significant cross-country heterogeneity ($\chi^2(7) = 3.81$, $p = .802$). Average marginal effects of altruism, estimated separately for each country, ranged from 0.077 (Denmark) to 0.116 (Germany), all statistically significant ($p < .001$).

Finally, we examined whether the association was specific to self-initiated forgone care. In the multinomial analysis of the full sample ($n = 8{,}112$), altruism was positively associated with both self-initiated (RRR = 2.27, 95% CI [2.07, 2.49]) and provider-initiated forgone care (RRR = 2.48, 95% CI [2.25, 2.74]), with no significant difference between the two ($\chi^2(1) = 2.43$, $p = .119$), and the moderation by age was observed for both types. By contrast, risk-averse behavior was associated only with self-initiated forgone care ($\chi^2(1) = 8.46$, $p = .004$), indicating that the two types of forgone care are empirically distinct.

Discussion

This study examined whether altruism was associated with self-initiated forgone care and whether age moderated this association. Using survey data from 6,859 participants in eight European countries, we tested these relationships through logistic regression analyses.

Our results showed a positive association between altruism and self-initiated forgone care that was robust across a range of alternative model specifications, operationalizations of forgone care, and facets of altruism (see Robustness tests). Importantly, we observed the association between altruism and forgone care in all countries in our dataset, and a formal test found no significant heterogeneity in this association across countries, although cultural and regulatory factors were not directly measured and cannot be ruled out as sources of unobserved variation. In addition, our results indicate that age moderated the association; this moderating effect was robust across specifications. At the country level, it pointed in the expected direction in seven of eight countries but was statistically significant in only two, likely reflecting reduced statistical power in smaller country-level samples.

A further finding qualifies the interpretation of this association. One of our additional analyses showed that altruism was also associated with provider-initiated forgone care to a similar extent as with self-initiated forgone care. We also observed moderation by age for both types. By contrast, risk-averse behavior was associated only with self-initiated forgone care, indicating that the two types of forgone care are empirically distinct. The association with altruism is therefore not confined to situations in which individuals themselves decide to forgo care. Rather than reflecting only an active willingness to sacrifice one's own care for the benefit of others, altruism may more generally shape how individuals respond to limited care availability—for instance, by accepting postponements proposed by providers instead of insisting on treatment. Providers, in turn, may more readily postpone care for patients they expect to cope well with a delay. Overall, our findings suggest that more altruistic individuals were less likely to claim care during the pandemic, but it remains unclear whether this reflects deliberate self-sacrifice.

This study contributes to the literature in several ways. First, it adds to knowledge of altruism in health care, particularly regarding health care utilization. Previous research has shown that altruism motivates vaccination behavior [34, 35] and may help reduce the use of unnecessary services [31]. However, researchers have not examined the relationship between altruism and forgone care. We addressed this gap by showing that altruism is associated with forgone care during the COVID-19 pandemic, identifying a previously unexamined disposition associated with health care demand during crisis conditions.

Second, research on the antecedents of forgone care has mainly focused on demographic characteristics [8] or on factors linked to disadvantage or discrimination, such

as language barriers, race [14] and income [12] —barriers that persist independently of pandemics, even though crises may intensify them [52, 53]. Altruism adds a qualitatively different perspective. It points to individual dispositions that may shape whether people claim care when resources are scarce—a condition more likely during crises, making our findings especially relevant to such circumstances.

Third, although several studies have found that altruism is positively associated with health and well-being [44], we show that altruism is also linked to forgone care—which is, in turn, associated with adverse health outcomes [16–18]. This apparent tension is consistent with prior work [44] showing that the positive relationship between altruism and health holds only up to the point at which individuals feel overwhelmed by the demands of helping others. Forgone care during pandemics may represent another instance of this boundary condition, where altruistic tendencies may come at the cost of the individual's health, although we did not observe the health consequences of forgone care in our data.

Our results have several implications. On the one hand, if forgone care reduces demand during crisis peaks, it may relieve health care systems, benefiting health care workers and patients with urgent needs. However, our data do not show whether the postponements reported here actually had this effect. On the other hand, if forgone care leads to adverse health outcomes, it can cause individual suffering and add long-term strain on health care resources. Although we collected our data during the COVID-19 pandemic, this association is not necessarily limited to this context. Given the likelihood of future pandemics, policymakers could consider these potential effects, e.g., when urging people to stay home to minimize contact or when planning resource allocation. In particular, public health messaging could take into account that individuals with a stronger propensity toward altruism may be more likely to forgo care, and could clarify that seeking necessary care does not generally disadvantage others. Policies aimed at reducing forgone care (e.g., financial support, telemedicine options) should consider that individual differences in altruism, alongside economic and logistical barriers, may be associated with care-seeking behavior—though the underlying reasons for this association require further research before specific policy recommendations can be derived.

Our theoretical framework proposes that altruism leads individuals to forgo care during pandemics. However, as the analysis is based on cross-sectional survey data, causal interpretations should be treated with caution. Still, a reverse relationship whereby forgone care increases altruism appears unlikely, as altruism is considered a relatively stable trait [49]. Moreover, experiences of resource scarcity are more likely to be associated with selfish rather than altruistic behavior [54]. An additional limitation concerns unmeasured confounding. Our measure of altruism may partly capture other stable dispositions—such as caution or compliance with collective norms—that could independently influence both altruism scores and care-seeking behavior. Our controls for perceived COVID-19 risk and risk-averse behavior are imperfect proxies for these motives. Our data therefore establish an association between altruism and self-initiated forgone care but cannot rule out competing explanations. This is underscored by the finding, discussed above, that altruism was similarly associated with provider-initiated forgone care.

Furthermore, personal cost is central to the theoretical argument that altruistic action becomes less likely as costs increase; we interpret the age moderation as consistent with this cost-sensitivity mechanism because health care needs, and therefore the potential costs of forgoing care, generally increase with age. However, our data do not capture the clinical severity of the specific care postponed. While our robustness checks varied the type of care forgone and the length of the delay, these variations describe forgone care but do not measure its personal cost. We therefore cannot verify that care forgone by older participants was, in fact, more costly, and interpret the age moderation as consistent with, rather than direct evidence for, this mechanism.

A further limitation concerns how we operationalize forgone care. Although the survey item's phrasing ("did you defer/delay any medical care treatments") presupposes that a treatment was pending, it does not independently verify healthcare need. The reference category (no forgone care) therefore combines participants who received needed care with participants who had no pending treatment; the proportion of each is unknown. This imprecision has an uncertain direction of bias: altruism is positively associated with health and well-being [44], suggesting that more altruistic participants may, on average, be less likely to have needed care in the first place. Adjusting for health status may capture part of this pathway, but health status and health care need are not equivalent. Therefore, we cannot rule out that unmeasured differences in health care need are associated with altruism and bias our estimates in an unknown direction.

Finally, our data stem from a non-probability online panel. Although quotas were applied for sex, age, and region, the analytic sample deviated from population distributions in some respects (see Additional file 2), and online panel participants may differ from the general population in characteristics not covered by the quotas, such as internet use or health literacy. Our findings may therefore not be fully generalizable to the populations of the countries studied.

Addressing these limitations, future research should examine the relationship between altruism and forgone care using causal or longitudinal designs, ideally incorporating claims data, explicit measures of perceived healthcare need, and respondents' reasons for forgoing care. Qualitative research could be particularly valuable for exploring the motives underlying forgone care and the role of providers in decisions to postpone care. Such designs would also help clarify why altruistic individuals forgo care and allow examination of the health consequences.

Conclusion

This study provides empirical support for the positive association between altruism and forgone care during the COVID-19 pandemic. By doing so, the study contributes to understanding how altruism relates to health care utilization, the factors associated with forgone care, and the potential health consequences of altruism. These results have potential implications for public health and health policy, as they help clarify which people are more likely to forgo care. To the extent that forgone care reduces demand, it may help relieve health care systems during a crisis, but it may also cause adverse health and financial effects at the individual and societal levels in the long run. Future research should examine both consequences, as well as the motives underlying this association.

Abbreviations

ECOS European Covid Survey
GP General practitioners

Supplementary Information

The online version contains supplementary material available at https://doi.org/10.1186/s12889-026-30486-7.

Supplementary Material 1: Additional file 1. Detailed description of study measures. (.pdf).

Supplementary Material 2: Additional file 2. Sample characteristics and representativeness. (.pdf).

Supplementary Material 3: Additional file 3. Results of robustness tests. (.pdf).

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Authors' contributions

JJ: Conceptualization, Formal analysis, Writing – original draft, Writing – review & editing. IS: Data curation, Writing – review & editing. JS: Data curation, Funding acquisition, Writing – review & editing.

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Data availability

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

Declarations

Ethics approval and consent to participate

Ethical approval for this study was granted by the Ethics Committee of the University of Hamburg Business School, as researchers from the University of Hamburg were responsible for data collection. The study was performed in accordance with the Declaration of Helsinki. Informed consent to participate was obtained from all individual participants before they started the survey.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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