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# Older People's Nonphysical Contacts and Depression During the COVID-19 Lockdown

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## Abstract

**Background and Objectives:** With the goal of slowing down the spread of the SARS-CoV-2 virus, restrictions to physical contacts have been taken in many countries. We examine to what extent intergenerational and other types of nonphysical contacts have reduced the risk of increased perceived depressive feelings during the lockdown for people aged 50+.

**Research Design and Methods:** We implemented an online panel survey based on quota sampling in France, Italy, and Spain in April 2020, about 1 month after the start of the lockdown. Our analyses are based on logistic regression models and use post-stratification weights.

**Results:** About 50% of individuals aged 50+ felt sad or depressed more often than usual during the lockdown in the 3 considered countries. Older people who increased or maintained unchanged nonphysical contacts with noncoresident individuals during the lockdown were at a lower risk of increased perceived depressive feelings compared to those who experienced a reduction in nonphysical contacts. The beneficial effect of nonphysical contacts was stronger for intergenerational relationships. The effects were similar by gender and stronger among individuals aged 70+, living in Spain and not living alone before the start of the lockdown.

**Discussion and Implications:** In the next phases of the COVID-19 pandemic, or during any future similar pandemic, policy makers may implement measures that balance the need to reduce the spread of the virus with the necessity of allowing for limited physical contacts. Social contacts at a distance may be encouraged as a means to keep social closeness, while being physically distant.

**Keywords:** Coronavirus, Intergenerational relationships, Mental health, SARS-CoV-2, Social contacts

The negative consequences of the coronavirus disease 2019 (COVID-19) pandemic are also likely to include worsening people's mental health, particularly in its early stage which also resulted in strict lockdown measures (Brooks et al., 2020).

Risk of death due to COVID-19 clearly increases with age (Guan et al., 2020), but within age groups, pre-existing health conditions represent a key risk factor (Clark et al., 2020). Yet, older people have been portrayed

as a homogeneously vulnerable group, which resulted in increased ageism and intergenerational tension (Ayalon, 2020). For instance, policy actors and media have encouraged especially older people to limit their travel, movements, and physical interactions (Ayalon, 2020), putting them at a particular high risk of isolation.

Over the last years, social contacts at a distance have increased also among older people, for example through

digital forms (Peng et al., 2018; Quadrello et al., 2005), and during the lockdown, they may have been particularly crucial to buffer the negative mental health consequence of reduced physical interactions.

This study examines to what extent older people that increased or maintained unchanged their nonphysical contacts, for example, via (mobile) phones, during the lockdown have suffered less in terms of perceived feelings of depression compared to their peers who decreased nonphysical contacts. We focus on changes in nonphysical contacts with noncoresident individuals as lockdown restrictions could not limit physical contacts among coresiding individuals. We further examine the differential effects of changes in intergenerational and other types of contacts (e.g., with friends). The study is based on a timely survey carried out during the lockdown period in France, Italy, and Spain, the first non-Asian countries where the pandemic has spread.

### The COVID-19 Lockdown and Its Consequences on Individuals' Lives

The necessity to contain the spread of the SARS-CoV-2 virus has raised important challenges for governments and societies that adopted different policy measures. Because physical closeness is a necessary condition for SARS-CoV-2 transmission via droplets (Huang et al., 2020), under the coronavirus state of alarm people have been advised to maintain distance from each other and stay at home. France, Italy, and Spain have been among the first countries outside Asia to be strongly hit by the pandemic (Ceylan, 2020) and to implement strict nationwide lockdowns to reduce the contagion (see Hale et al., 2020 for details on the outbreak responses).

One of the most evident and widespread indirect consequences of the pandemic due to the lockdown restrictions is the reduction in physical interpersonal contacts, which in turn may negatively affect mental health. Intergenerational interactions have been considered a crucial factor in contributing to the spread and lethality of COVID-19 across different areas (Bayer & Kuhn, 2020). Although recently it has been shown that evidence on the macro-level association between intergenerational relationships and COVID-19 cases and lethality is not clear-cut (Arpino et al., 2020), public opinion and policy discourses have been focused particularly on reducing contacts between older people and their (grand)children. As an example of this discourse, Ayalon (2020) reports a statement by the Israeli Ministry of Defense: "the single most important insight is to separate old people from young people. The single most lethal combination cocktail is when grandma meets her grandchild and hugs him." Therefore, intergenerational physical contacts have been drastically reduced during the lockdown, as our data show (see Supplementary Table S1). However, given the largely documented benefits of intergenerational relationships, and social relations more generally, the reduced social interactions due to the

lockdown may have generated a considerable increase in perceived depressive feelings among older people.

### Intergenerational and Other Social Relationships and Older People's Mental Health During the COVID-19 Lockdown

A volume of research, both in social sciences and biomedicine, has found that human relationships are fundamentally important for mental health, revealing that depression is influenced by a lack of social interactions and support from social networks (e.g., Cozolino, 2014; Umberson et al., 2010).

Given that intergenerational family contacts constitute a large part of older people's overall relations (Ajrouch et al., 2001; Dykstra, 2018), they have received special attention in the gerontological literature. However, other types of contacts have also been found to have positive effects on mental health (Antonucci et al., 2014; Nyqvist et al., 2013).

The role of social interactions for mental health can be understood within the Stress Process Model (Pearlin et al., 1981; Pearlin et al., 2005). Support provided by relatives, friends, etc. can act as coping resources by preventing stressful situations in normal daily life from accumulating and eventually transforming into depressive symptoms. Help received may result to be particularly needed and useful in special negative situations, for example, after a partner's death, in order to cope with their negative impact (e.g., Carr, 2020). One can deal with the stressors generated by the negative event or situation by increasing social contacts with relatives and friends that can provide both emotional support and assistance with practical needs. According to these exemplificative mechanisms, social relations may theoretically produce protective effects on mental health.

Many researchers have hypothesized the COVID-19 pandemic will produce negative effects on mental health both directly and indirectly (e.g., Brooks et al., 2020; Pfefferbaum & North 2020; Sheffler et al., 2020; Whitehead & Torossian, 2020). Using the terminology of the Stress Process Model, the COVID-19 pandemic can be thought of as an extraordinary generator of new *eventful stressors* (Pearlin et al., 1981; Pearlin & Skaff, 1996), that is, negative discrete events, such as the death of a relative due to the virus. Negative consequences of the pandemic also include *nonegocentric events* (Aldwin 1990) that occur in the lives of others to whom a person is close, such as one's child losing their job due to limitations imposed to economic activities during the lockdown. According to the notion of "stress proliferation" (Pearlin, 1989; Pearlin et al., 2005), new stressors directly or indirectly created by COVID-19 may also amplify pre-existing stressors, particularly *chronic stressors* (Pearlin et al., 1981), for example, related to illnesses. Plus, uncertainty about the future evolution of the pandemic and related restrictive measures implies *anticipatory stressors*

that may negatively impact on current mental health even if the individual present situation is not problematic (Pearlin & Biernman, 2013).

In the stressful COVID-19 context (Park et al., 2020; Pfefferbaum & North 2020), limitations to physical interpersonal interactions may have subtracted a relevant coping resource, limiting emotional and instrumental support, thus exacerbating mental health issues. However, social relationships maintained at a distance may have (partially) compensated the detrimental effects of physical distancing. The widely popular use of (mobile) phones makes interactions at a distance easier. Older people too have increasingly adopted digital forms of communications, for example, via social media or instant messaging applications (Peng et al., 2018; Quadrello et al., 2005; van der Wardt et al., 2012). In this respect, the intergenerational relationships literature emphasized its multidimensionality that does not exclusively involve physical contacts (Bengtson & Roberts, 1991; Tomassini et al., 2004). Associational solidarity may include phone calls also in digital form that are cheaper and offer the possibility of video interactions, allowing to manifest affect in a way that resembles physical contact (Peng et al., 2018; Quadrello et al., 2005). Positive effects of nonphysical contacts on older people's mental health have been reported in previous studies (e.g., Szabo et al., 2019). The limited existing research that compared the effect of physical and nonphysical contacts on mental health found similarly beneficial effects for both types of relationships (e.g., Roh et al., 2015).

## Research Questions

Against the background of the previous discussion about the consequences of COVID-19 lockdown and the role of social relationships in older people's mental health, the key research question this paper seeks to answer is: "what is the relationship between changes in nonphysical contacts during the lockdown and older people's perceived depressive feelings?" Given the above discussion about the stressful context of COVID-19 and previous evidence on social contacts, we expect that nonphysical contacts during the lockdown played a key role for reducing the occurrence of depressive feelings. More specifically, we expect a lower probability of increased perceived depressive feelings among older people who have increased or maintained unchanged nonphysical contacts during the lockdown compared with those who have decreased nonphysical contacts.

We also examine whether the association between perceived depressive feelings and changes in nonphysical intergenerational contacts is similar to that with other types of contacts. Theoretically, as discussed above, both types of contacts are expected to produce benefits on older people's mental health. However, given that intergenerational contacts among older people represent

a large part of the overall contacts and that they have been particularly put under strain during the lockdown, we expect stronger beneficial effects of increased and unchanged intergenerational contacts than for other contacts.

It has been argued that vulnerabilities to COVID-19 are expected to be heterogeneous within the population, so the short- and long-term consequences of the COVID-19 crisis are likely to vary (Mikolai et al., 2020). Therefore, we explore heterogeneities in the relationship between depressive feelings and nonphysical contacts within the older people population by gender, age, country, and coresidence (living alone or not).

## Research Design and Methods

### Study Population

We implemented an online survey representative of the population aged 18+ in France, Italy, and Spain. In this study, we focus on the subsample of individuals aged 50+. The data have been collected through the online market survey platform Lucid, which offers high-quality representative samples (Coppock & McClellan, 2019). As recommended in online survey research, we kept the questionnaire very short to minimize nonresponses and false responses (Revilla & Ochoa, 2017). Therefore, we set up a 10-min questionnaire focused on changes in physical and nonphysical contacts during the lockdown. We also collected information on perceived depressive feelings at the time of the survey and perceived changes in depressive feelings since the start of the lockdown. The survey was carried out in each country in the respective official language and most of the questions were drawn from validated European surveys (specifically: European Social Survey, Generations & Gender Survey, and Survey of Health, Ageing and Retirement in Europe).

The target sample was of 3,000 individuals per country. When restricting the sample to 50-plus individuals, the sample size reduced to 1,473 for France, 1,511 for Italy, and 1,223 for Spain (total  $N = 4,207$ ; 46.46% of the initial sample). Data were collected between April 14 and April 24 2020, during the lockdown. The first nationwide lockdown restrictions were implemented around mid-March in all three countries analyzed (Italy: March 10, Spain: March 14; France: March 17).

Although the sampling was not probabilistic, Lucid targeted representativeness on age, gender, education, and region of residence within each country. Moreover, we used post-stratification weights to minimize deviations from the benchmark population. We used the STATA package "ipfweight" (Bergmann, 2011) to generate weights through an iterative procedure that performed stepwise adjustments of the weights until it had achieved, within countries, the margins of three population distributions: region of residence, age and gender, age, and education.

## Dependent Variable

The dependent variable is a measure of changes in perceived depressive feelings during the lockdown. More specifically, respondents were asked whether they felt sad or depressed “more,” “equally,” or “less” often than usual (or not depressed at all) during the COVID-19 lockdown. Given that few respondents (2.5%) reported an improvement in their depression status (“less often than usual”), the variable has been dichotomized taking value 1 if they reported to have felt sad or depressed more often than usual and 0 otherwise. In a robustness check, reported in [Supplementary Table S3](#), we excluded from the analyses those who reported “less often than usual,” obtaining very similar results.

## Explanatory Variable

### Nonphysical contacts

Individuals were asked about changes in their nonphysical (e.g., phone, WhatsApp, Facebook) contacts during the COVID-19 lockdown with noncoresident individuals. We considered a categorical variable: respondents “increased,” “decreased” (reference), or maintained “unchanged” the frequency of nonphysical contacts with parents, children, and/or grandchildren since the entry into force of the first nationwide restrictions due to the COVID-19 pandemic (“intergenerational contacts” hereafter). Another categorical variable measured whether respondents “increased,” “decreased” (reference), or maintained “unchanged” the frequency of nonphysical contacts with other persons (“other contacts” hereafter).

### Control Variables

Control variables include sociodemographic variables such as respondents’ gender, age, country of residence, economic situation (identified as the closest description to: “living comfortably on present income”; “coping on present income”; “finding it difficult on present income”; “finding it very difficult on present income”), and the availability of kin (parents, children, and/or grandchildren). We also controlled for the level of education (three levels based on the International Standard Classification of Education—“low” is defined as below secondary education, “medium” as up to high school, and “high” refers to a university education or above) and for whether respondents were employed in the pre-COVID-19 period. In addition, we included two health-related variables with regard to the period antecedent to COVID-19 pandemic: respondents’ self-perceived health (0 if very good or good; 1 if fair, poor or very poor) and a dummy variable taking value 1 if respondents reported suffering from any chronic diseases (such as, heart disease, hypertension, stroke, or cancer) and 0 otherwise.

In a robustness check ([Supplementary Table S2](#)), we also added two variables accounting for events experienced during the COVID-19 pandemic, obtaining similar results.

A set of dummy variables account for whether respondents have experienced each of the following changes in their lives during the lockdown: “reduction in physical activity”; “worsened relationship with partner”; “worsened relationship with other people”; “suffered income loss”; “lost job”; “difficulties with organizing work or study from home”; “death of a relative or friend due to Coronavirus”; “a relationship or friend was infected”; “had more time to spend with family”; “made new friends”; “re-established a relationship with a relative or friend”; and “my life was not affected a big deal.” An additional variable accounts for the severity level with which the region where respondents live was hit by the pandemic. Specifically, we identified three levels of “severity” corresponding to the tertiles of the distribution of Case-Fatality Rates (CFR) of COVID-19 at the regional level (NUTS-2, Nomenclature of Territorial Units for Statistics, which is a geographical system, according to which the territory of the European Union is divided into hierarchical levels). As a robustness check, the analysis reported in [Supplementary Table S4](#) includes variables measuring changes in physical contacts as a control. Results were very similar to those obtained with the main specification.

## Statistical Analyses

Descriptive analyses have been conducted to show the distribution of the analytic sample’s main characteristics. Then, we used logistic regression models to examine associations between changes in nonphysical contacts and the probability of increased perceived depressive feelings during the lockdown. Post-stratification weights were used in all the analyses.

In order to explore the possible heterogeneity in the effect of changes in intergenerational and/or other contacts during the pandemic on depressive feelings, we added to the main model (Model 1) interaction terms between changes in contacts and a dummy variable accounting for whether the respondent was living with someone else at the start of the lockdown period (Model 2), gender (Model 3), age (Model 4), and country (Model 5). Average marginal effects (AMEs) have been computed to complement regression tables, as well as predicted probabilities that are reported graphically in [Supplementary Figures S1–S3](#).

## Results

Descriptive findings are reported in [Table 1](#). Overall, 44% of individuals aged 50+ have felt sad or depressed more often than usual during the lockdown, displaying a great heterogeneity by gender and country. On average, increased perceived depressive feelings was relatively more frequent among women compared to men (51% vs 36%, data not shown) and in Spain (48%; vs 44% in Italy and 41% in France).

**Table 1.** Descriptive Statistics (%)

Variables	Categories	Total	France	Italy	Spain
Perceived depressive feelings	Worsen depression	44.33	41.30	43.82	47.94
Nonphysical contacts					
Intergenerational	Increased	45.40	48.49	42.03	45.95
	Unchanged	43.38	43.60	47.65	38.49
	Decreased	11.22	7.91	10.31	15.56
Other contacts	Increased	53.01	46.52	53.56	58.98
	Unchanged	33.08	42.67	26.29	27.54
	Decreased	13.91	10.81	17.17	13.48
Age (mean)		64.43	64.53	64.63	64.10
Gender	Women	51.74	51.58	51.91	51.71
Educational level	High	14.38	14.78	19.81	8.02
	Medium	70.62	51.04	73.67	87.12
	Low	15.00	34.18	6.52	4.87
Employment status before COVID-19 pandemic	Employed	34.17	30.31	36.98	35.00
Income before COVID-19 pandemic	Living comfortably on present income	19.47	16.12	17.92	24.57
	Coping on present income	50.52	60.63	47.32	43.77
	Finding it difficult on present income	22.35	19.28	26.26	21.20
	Finding it very difficult on present income	7.66	3.98	8.50	10.46
Self-rated health	Poor	45.60	46.11	44.78	45.98
Chronic condition	Yes	56.31	55.37	60.67	52.50
Kin alive	Partner	64.75	61.76	68.57	63.57
	Children	74.05	71.63	73.31	77.29
	Grandchildren	33.84	41.75	32.26	27.57
	Parents	30.03	34.29	27.55	28.43
Living with at least one coresident	No	82.45	72.57	86.22	88.33
Experiences during COVID-19 pandemic	Reduction in physical activity	49.54	37.82	46.79	64.44
	Worsened relationship with partner	6.94	3.62	7.52	9.67
	Worsened relationship with other people	9.30	5.05	11.14	11.59
	Suffered income loss	25.53	14.94	30.51	30.81
	Lost job	3.23	1.74	3.89	4.01
	Difficulties with organizing work or study from home	6.74	4.60	8.12	7.40
	Death of a relative or friend due to Coronavirus	8.84	3.24	9.81	13.46
	A relative or friend was infected	15.30	11.13	12.00	23.15
	Had more time to spend with family	30.32	13.85	41.44	34.82
	Made new friends	2.69	1.98	2.81	3.28
	Re-established a relationship with a relative or friend	12.63	8.26	14.51	15.00
	My life was not affected a big deal	21.50	31.09	19.34	14.36
	None of the above	6.03	9.59	5.36	3.14
Number of COVID-19 cases in the region of residence	First tertile	31.53	62.70	26.45	5.42
	Second tertile	33.17	37.22	20.13	43.35
	Third tertile	35.30	0.00	53.42	51.20

Note:  $N = 4,207$ . Post-stratification weights are used.

Source: Intergen-covid online survey. Data were collected between 14 and 24 April 2020.

With regard to changes in nonphysical contacts with noncoresident individuals, weighted descriptive statistics show that 45% of older individuals increased their contacts with parents, children, and/or grandchildren while the 53% increased contacts with other persons, such as friends. Increased nonphysical intergenerational contacts

was slightly more prevalent in France (48%; vs 46% in Italy and 42% in Spain), while the highest percentage of increased other contacts was found in Spain (59%; vs 54% in Italy and 47% in France). A slightly higher percentage of women reported increased nonphysical contacts of both types (54%) with respect to men (52%) (data not shown).

Table 2 displays results from multivariate logistic regression models testing the association between changes in intergenerational and/or other contacts and increased perceived depressive feelings during the COVID-19 lockdown. To ease the interpretation of results, Supplementary Figure S1 shows the predicted probabilities of increased depression.

Model 1 tests the two types of contacts separately. Respondents who have increased the frequency of

intergenerational nonphysical contacts during the lockdown were about 13 percentage points less likely to report increased perceived depressive feelings compared to those who reduced contact frequency (Supplementary Figure S1;  $p < .001$  see Table 2). Moreover, unchanged frequency of intergenerational contacts reduced the probability of increased perceived depressive feelings of about 22 percentage points ( $p < .001$ ). An increased frequency of other types of contacts did not have a statistically significant

**Table 2.** Association Between Changes in Intergenerational and/or Other Contacts and Perceived Depressive Feelings During the COVID-19 Lockdown

Variables	Model 1	
	$\beta$ (SE)	AMEs (SE)
Increased intergenerational contacts (ref. decreased)	-0.571*** (0.171)	-0.134*** (0.039)
Unchanged intergenerational contacts (ref. decreased)	-0.944*** (0.166)	-0.220*** (0.038)
Increased nonintergenerational contacts (ref. decreased)	-0.113 (0.130)	-0.026 (0.030)
Unchanged nonintergenerational contacts (ref. decreased)	-0.409*** (0.137)	-0.093*** (0.031)
Constant	0.0351 (0.241)	
Observations	4,207	4,207

Notes: AMEs = average marginal effects.  $N = 4,207$ . Post-stratification weights are used. Control variables not shown (see Supplementary Table S2). Robust SEs in parentheses.

Source: Online survey implemented by the authors. Data were collected between April 14 and April 24, 2020.

\* $p < .1$ . \*\* $p < .05$ . \*\*\* $p < .01$ .

**Table 3.** Association Between Changes in Intergenerational and or Other Contacts and Perceived Depressive Feelings During the COVID-19 Lockdown by Co-residence Status

Variables	Model 2			
	Living alone		Living with at least one co resident	
	$\beta$ (SE)	AMEs (SE)	$\beta$ (SE)	AMEs (SE)
Increased intergenerational contacts (ref. decreased)	-0.175 (0.498)	-0.040 (0.114)	-0.641*** (0.180)	-0.149*** (0.041)
Unchanged intergenerational contacts (ref. decreased)	-1.024** (0.508)	-0.233** (0.115)	-0.942*** (0.172)	-0.218*** (0.039)
Increased nonintergenerational contacts (ref. decreased)	-0.297 (0.318)	-0.064 (0.069)	-0.0807 (0.143)	-0.018 (0.033)
Unchanged nonintergenerational contacts (ref. decreased)	-0.011 (0.328)	-0.002 (0.072)	-0.508*** (0.149)	-0.115*** (0.033)
Constant	-0.191 (0.636)		0.0447 (0.263)	
Observations	674	674	3,533	3,533

Notes: AMEs = average marginal effects.  $N = 4,207$ . Post-stratification weights are used. Control variables not shown. Robust SEs in parentheses.

Source: Online survey implemented by the authors. Data were collected between April 14 and April 24, 2020.

\*\*\* $p < .01$ .

effect compared to a reduction in this type of contacts, while unchanged frequency of contacts is associated with a reduction in the probability of increased perceived depressive feelings of about 9 percentage points (Supplementary Figure S1;  $p < .001$ ; see Table 2).

The association between changes in non-physical contacts and perceived depressive feelings was differentiated by living arrangement. Indeed, predicted probabilities drawn from Model 2 (Table 3; Supplementary Figure S2) show that, compared with respondents who decreased intergenerational contacts

during the lockdown, those who increased them were less likely to experience increased perceived depressive feelings if they had at least one co-resident (AME =  $-0.149$ ;  $p < .001$ ). However, having unchanged frequency of intergenerational contacts was slightly more important for respondents living alone, who show a reduction in the probability of increased perceived depressive feelings of about 23 percentage points ( $p < .01$ ). Among older people having at least one coresident, unchanged frequency of other types of contacts during the lockdown was associated with a significantly lower

**Table 4.** Heterogeneity in the Association Between Changes in Intergenerational and/or Other Contacts and Perceived Depressive Feelings During the COVID-19 Lockdown: Gender, Age, and Country

Variables	Model 3		Model 4		Model 5	
	$\beta$ (SE)	AMEs (SE)	$\beta$ (SE)	AMEs (SE)	$\beta$ (SE)	AMEs (SE)
Increased intergenerational contacts (ref. decreased)	-0.571*** (0.191)	-0.132*** (0.039)	-0.624*** (0.192)	-0.124*** (0.040)	-1.044*** (0.348)	-0.122*** (0.037)
Unchanged intergenerational contacts (ref. decreased)	-0.896*** (0.185)	-0.218*** (0.038)	-0.950*** (0.180)	-0.209*** (0.039)	-1.713*** (0.333)	-0.210*** (0.036)
Increased non-intergenerational contacts (ref. decreased)	-0.005 (0.152)	-0.028 (0.032)	0.0436 (0.164)	-0.034 (0.032)	0.0703 (0.257)	-0.032 (0.030)
Unchanged non-intergenerational contacts (ref. decreased)	-0.368** (0.161)	-0.096*** (0.033)	-0.0895 (0.170)	-0.101** (0.033)	-0.530* (0.300)	-0.115*** (0.031)
Gender: female (ref. male)	0.765*** (0.291)	0.137*** (0.019)	0.595*** (0.0831)	0.137*** (0.019)	0.592*** (0.0830)	0.136*** (0.019)
Age 60–69 (ref. 50–59)	-0.0425 (0.093)	-0.009 (0.021)	0.221 (0.296)	-0.007 (0.021)	-0.0322 (0.0939)	-0.007 (0.021)
Age 70+	-0.159 (0.146)	-0.036 (0.033)	0.0614 (0.396)	-0.032 (0.034)	-0.143 (0.150)	-0.032 (0.034)
Country: Italy (ref. Spain)	-0.0806 (0.114)	-0.018 (0.026)	-0.0826 (0.113)	-0.018 (0.026)	-0.771* (0.394)	-0.012 (0.026)
Country: France (ref. Spain)	-0.137 (0.124)	-0.031 (0.028)	-0.133 (0.124)	-0.030 (0.028)	-0.746* (0.404)	-0.025 (0.027)
Increased intergenerational contacts * Female	0.0187 (0.318)	0.151*** (0.030)				
Unchanged intergenerational contacts * Female	-0.0662 (0.307)	0.123*** (0.029)				
Increased non-intergenerational contacts * Female	-0.224 (0.269)	0.123*** (0.027)				
Unchanged non-intergenerational contacts * Female	-0.102 (0.279)	0.145*** (0.035)				
Increased intergenerational contacts * 60–69			0.0921 (0.300)	0.002 (0.032)		
Increased intergenerational contacts * 70+			0.195 (0.443)	-0.024 (0.046)		
Unchanged intergenerational contacts * 60–69			0.006 (0.288)	-0.016 (0.029)		
Unchanged intergenerational contacts * 70+			0.152 (0.438)	-0.032 (0.045)		
Increased non-intergenerational contacts * 60–69			-0.310 (0.253)	-0.010 (0.028)		
Increased non-intergenerational contacts * 70+			-0.278 (0.364)	-0.014 (0.043)		

Table 4. Continued

Variables	Model 3		Model 4		Model 5	
	$\beta$ (SE)	AMEs (SE)	$\beta$ (SE)	AMEs (SE)	$\beta$ (SE)	AMEs (SE)
Unchanged non-intergenerational contacts * 60–69			–0.417 (0.260)	–0.034 (0.035)		
Unchanged non-intergenerational contacts * 70+			–0.661* (0.380)	–0.099* (0.052)		
Increased intergenerational contacts * Italy					0.637 (0.431)	–0.045 (0.092)
Increased intergenerational contacts * France					0.856** (0.428)	–0.035 (0.040)
Unchanged intergenerational contacts * Italy					1.143*** (0.415)	0.068* (0.038)
Unchanged intergenerational contacts * France					1.190*** (0.411)	0.039 (0.040)
Increased non-intergenerational contacts * Italy					–0.135 (0.319)	–0.026 (0.034)
Increased non-intergenerational contacts * France					–0.489 (0.343)	–0.075** (0.038)
Unchanged non-intergenerational contacts * Italy					0.045 (0.367)	0.008 (0.054)
Unchanged non-intergenerational contacts * France					0.013 (0.372)	0.033 (0.050)
Constant	–0.0497 (0.266)		–0.125 (0.269)		0.472 (0.364)	
Observations	4,207	4,207	4,207	4,207	4,207	4,207

Notes: AMEs = average marginal effects.  $N = 4,207$ . Post-stratification weights are used. Control variables not shown. Robust SEs in parentheses.

Source: Online survey implemented by the authors. Data were collected between April 14 and April 24, 2020.

\*\* $p < .05$ . \*\*\* $p < .01$ .

probability of increased perceived depressive feelings compared to individuals who decreased the frequency of these contacts (AME =  $-0.115$ ;  $p < .001$ ).

Finally, we explored the potential heterogeneity of findings due to respondents' demographic characteristics such as gender, age, and the country of residence (Model 3, Table 4; Supplementary Figure S3). Although women were significantly more likely than men to have experienced an increase in depression during the lockdown, gender did not significantly moderate the association between changes in non-physical contacts and increased perceived depressive feelings ( $p > .1$ ). However, we found that having unchanged non-physical contacts of other type was particularly important in reducing the likelihood of increased depression for the oldest individuals (Model 4, Table 4; Supplementary Figure S3d). Indeed, among individuals aged 70+, those who did not change their nonintergenerational contacts during the lockdown reduced their probability of increased perceived depressive feelings of about 10 percentage points compared with those who decreased the frequency of such contacts. Finally, our findings show meaningful differences in the association between changes in nonphysical contacts and depression based on the respondents' country of residence (Model 5, Table 4; Supplementary Figure S3e and f). More specifically, the beneficial effects of intergenerational contacts were stronger in

Spain. For example, unchanged frequency of intergenerational contacts reduced the probability of increased perceived depressive feelings as compared to decreased frequency of contacts both in Spain and Italy, but the effect was about 6 percentage points larger in Spain ( $p < .1$ ).

## Discussion and Implications

This paper focuses on mental health indirect consequences of the COVID-19 outbreak due to the policy responses that, although necessary to contrast the diffusion of the virus, have imposed restrictions to interpersonal physical contacts. In particular, we examined the effect of changes in nonphysical intergenerational and other types of contacts on the likelihood of increased perceived depressive feelings during the lockdown. Empirical analyses, focused on individuals aged 50+, were based on original data from an online survey conducted in France, Italy, and Spain in April 2020, about 1 month after the implementation of the first nationwide lockdown measures.

Our data point to a worrying impact of lockdown measures on mental health: we estimate that about 50% of individuals aged 50+ felt sad or depressed more often than usual during the lockdown in the three considered countries. Mental health deterioration was found particularly frequent among women. We also show that, as a consequence



of the lockdown, the great majority of individuals in all countries reduced physical contacts, both intergenerational and of other types. However, we also found a similar increase in nonphysical relations, i.e., physical distancing has come with more social closeness at a distance.

The main contribution of this study was to examine to what extent nonphysical contacts were able to buffer the negative impact on perceived depressive feelings due to the lockdown. We found that older people who increased or maintained unchanged nonphysical contacts with noncoresident individuals during the lockdown were at a lower risk of increased perceived depression as compared to their counterparts who experienced a reduction in nonphysical contacts. This beneficial effect of nonphysical contacts was found both for intergenerational and other contacts, although the effects were stronger for the former.

Comparing those who increased nonphysical contacts with older people who did not change their frequency, our analyses indicate that those who maintained their level of nonphysical contacts have suffered less in terms of increased perceived depressive feelings. This result, confirmed when we used “unchanged nonphysical contacts” as the reference category (not shown), may be due to the fact that increased frequency of contacts, especially during a stressful period such as the COVID-19 lockdown, might also bring relational conflicts, which are known to negatively influence mental health (Bengtson et al., 2002), thus partially reducing the overall positive effect of increased nonphysical contacts. Additionally, worries connected to own and loved ones’ COVID-19 infection and the need of more support during the lockdown might have motivated an increase in nonphysical contacts.

Gender was the only dimension, among the four considered, that did not display heterogeneous effects. While women suffered more than men in terms of increased risk of depressive feelings, the benefits of increased nonphysical contacts as a buffer of stress caused by the lockdown have been similar for both genders.

Among the 50+ population, we did find evidence of heterogeneity by age. This result is consistent with existing studies arguing that middle-aged and older adults generally tend to maintain positive emotional well-being by regulating negative emotions caused by COVID-19 (Carney et al., 2020). However, the positive effects of increased or unchanged frequency of contact increase with age.

France, Italy, and Spain were among the first three countries seriously hit by the COVID-19 pandemic outside of Asia. Our data show that increased perceived depressive feelings among older people during the lockdown is a serious concern in all three countries. Increased or unchanged nonphysical contacts have reduced the risk of mental health deterioration in these countries, but it benefitted especially older Spanish adults. This may be due to the fact that the lockdown measures implemented in Spain were particularly restrictive (e.g., time slots for walks and physical exercise outdoor) and corresponded to a growth rate of COVID-19 cases even more rapid than in the other countries.

Social contacts at a distance were particularly crucial in Spain to cope with the abrupt changes in daily life. Finally, the analyses point at different results by living arrangement. For older people living alone, we only found a statistically significant lower probability of increased perceived depressive feelings for those who maintained intergenerational contacts unchanged. Those who coresided with at least one other person follow the general pattern of results. The weaker evidence for an association between changes in nonphysical contacts and increased perceived depressive feelings for older people living alone may be due to the fact that, on average, they were already substantially more depressed than their counterparts living with others before the start of the lockdown (data not shown but available upon request).

All in all, our study demonstrates strong consequences of the lockdown in terms of increased perceived depressive feelings and reduced physical contacts among older people. However, nonphysical contacts have increased or have been maintained unchanged in most of the cases and this had a positive effect on reducing the risk of increased depression. This result is consistent with studies on the positive effects of social connectedness on mental health (e.g., Antonucci et al., 2014).

## Limitations and Future Research

Given the need of keeping the questionnaire as short as possible for our online survey (Revilla & Ochoa, 2017), we were not able to account for some aspects that may be explored in future research. First, our data did not include information on quality of relationships and conflicts before and during the pandemic. Second, we were not able to account for the degree of changes in the frequency of contact. Future studies, using new surveys with a retrospective design or nationally representative surveys implemented during the COVID-19 lockdown, may account for these aspects.

Another limitation of the data set is related to the fact that online surveys can only target the population with an internet connection. Although our sample was made representative of the older population in terms of key sociodemographic characteristics, working with online surveys may induce a selection in the sample. It might be that older people who were connected to the internet during the lockdown were more able to increase or maintain social contacts at a distance, thus benefitting more from nonphysical contacts during the lockdown. This is an interesting avenue for future research.

## Implications

Since the start of the COVID-19 pandemic, the debate around social contacts, in general, and intergenerational contacts, in particular, has focused on the risks of transmission of the virus due to (physical) contacts. This debate overlooked the fundamental role of social contacts as a source of emotional and instrumental support. Theoretically, this support may even favor compliance with

the restrictions imposed during the lockdown and post-lockdown phases, thus limiting the spread and lethality of COVID-19 (Arpino et al., 2020). Our results also point to the fact that intergenerational and other types of contacts may buffer the negative consequences of lockdown on mental health. Thus, policy interventions should take into account that interpersonal contacts are not just a potential vehicle of transmission of the virus, but also a source of support and that contacts, even those entertained at a distance via (mobile) phones or the internet, may help counterbalance the negative consequences on mental health due to policy responses to the outbreak.

This has two implications: First, in the next phases of the COVID-19 pandemic, or during any future similar pandemic, policy makers may implement measures that balance the need to reduce the spread of the virus with the necessity of allowing for limited physical contacts also with people not living together, as also proposed by Block et al (2020). Second, social contacts at a distance may be encouraged to keep social closeness, while being physically distant. However, not everyone in the population has the same chances to keep contacts at a distance, especially through digital tools such as video calls and instant messaging that more closely resemble physical interactions as compared to traditional phone calls (Peng et al., 2018). Therefore, policy makers should consider investments in reducing the digital divide also as a way of reducing the negative impact of lockdown restrictions that might be eventually necessary to implement in the future.

To conclude, given that social contacts do not necessarily require physical copresence, and that at the same time physical copresence does not imply social contacts, our results on the importance of nonphysical contacts suggest to policy makers, organizations and media to replace the term “social distancing” with the more appropriate term “physical distancing” when referring to the measures devoted at limiting the risk of transmitting the virus.

## Supplementary Material

Supplementary data are available at *The Gerontologist* online.

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## Conflict of Interest

None declared.

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