Regular Research Article

Family Communication in Long-Term Care During a Pandemic: Lessons for Enhancing Emotional Experiences

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ABSTRACT

Objective: Family visits with residents at long-term care (LTC) facilities have been restricted during the COVID-19 pandemic. The objective was to examine what communication methods, other than in-person visits, during the pandemic were associated with greater positive and lower negative emotional experiences for LTC residents and their family members and friends. Design: Cross-sectional. Setting: Nationally targeted online survey. Participants: One hundred sixty-one community-dwelling adults who had a family member or friend in a LTC facility. Measurements: The Positive and Negative Affect Scale was used to assess participant's own emotions and perceived resident emotions during the pandemic. Questions were asked about nine communication methods other than physical visits (e.g., phone, video-conference, e-mail, and letters) in terms of frequency of use during the pandemic. Sociodemographics, resident health, and facility factors were assessed and used as covariates where indicated. Results: During the pandemic, greater phone frequency was associated with less participant negative emotions (β = −0.17). Greater e-mail frequency was associated with more perceived resident positive emotions (β = 0.28). Greater frequency of letters delivered by staff was associated with more participant negative emotions (β = 0.23). Greater frequency of letters delivered by staff and the postal service were associated with more perceived resident negative emotions (β = 0.28; β = 0.34, respectively). Conclusion: These findings highlight the importance of synchronous, familiar methods of communication like

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the phone and email between families and LTC residents to maintain their emotional well-being when in-person visits are restricted. (Am J Geriatr Psychiatry 2020; 28:1299−1307)

INTRODUCTION

Family visits with long-term care (LTC) residents have been restricted during the COVID-19 pandemic. Although this has been essential in reducing the transmission risk, it has been of great concern to families and friends that their regular communication with residents is limited. Residents rely on face-to-face communication with their family members to feel socially connected and less lonely.[1] Residents with dementia, in particular, rely on contact with their family and friends to make sense of the world,[2] and residents tend to receive better care in LTC when they have a family advocate who is involved with daily activities and interacts with LTC staff.[3] This pandemic is an opportunity to understand how family and friends can stay connected in ways other than in-person visits to maximize the emotional experiences of family, friends, and residents in LTC when in-person visits are not an option.

Even before the COVID-19 pandemic, due to the increasing physical distance of offspring to their older family members[1,4] there has been growing research interest in understanding whether tele-communication practices have beneficial or harmful effects on LTC resident's feelings of social isolation and loneliness.[1] However, no research has examined, in the midst of a pandemic, how different communication methods, other than in-person visits, are associated with family members', friends', and LTC residents' emotional experiences. This is important because greater negative and lower positive emotional experiences have been associated with poor health,[5,6] mortality,[6] lower physical functioning,[5] and cognitive decline[7] in community dwelling older adults; yet no research to our knowledge has examined the emotional experiences of families and residents in the context of LTC. Moving beyond measuring negative clinical psychological outcomes (e.g., depression, anxiety, caregiver burden, social isolation, and loneliness) to a wider array of both negative and positive emotional experiences is an important advance of this study, as recommendations to ameliorate public health problems also require information about what promotes states like happiness and increased energy.[8]

The aim of this study was to examine which types of communication methods, other than in-person visits, were associated with more positive and less negative emotional experiences for family members and friends and LTC residents during the COVID-19 pandemic. Using the gold standard of in-person communication, we sought to investigate if alternative means of communication supported enhanced emotional family member/friend and resident experiences. Based on recent findings published just before the pandemic,[1] theory about functional equivalence of technology in LTC communication,[1] and a large literature demonstrating the importance of social relationships for quality of life across the life-span,[9,10] we proposed three hypotheses: 1) Telephone, video-conferencing, and texting would be associated with more positive and less negative emotions in family members, friends, and LTC residents, as these methods are synchronous methods of communication with functional equivalence to in-person communication[11]; 2) Family members, friends, and residents would receive the most benefit from using the phone, especially, due to comfort with this older form of technology; and 3) Asynchronous forms of communication, such as dropping off items and exchanging e-mail and letters, would not increase positive emotions and reduce negative emotions to the same extent as other methods.

METHOD

Procedure

A self-report online survey was created with Qualtrics survey design program.[12] Participants were recruited through targeted e-mails, social media posts, and Amazon's Mechanical Turk (MTurk) from March 26 to April 29, 2020 during the COVID-19 pandemic.[13] The Institutional Review Board at Yale University approved this study and determined it exempt due to anonymous data collection procedures. Participants were eligible if they were 1) at

least 18 years old, 2) had a family member or close friend in a LTC facility (i.e., any facility that provides rehabilitation, restorative, and/or ongoing skilled nursing care to patients or residents in need of assistance with activities of daily living), and 3) had contact at least once a month with the relative/friend before the COVID-19 visit restrictions. The survey took 20 minutes on average to complete.

Measures

Self-reported and perceived resident emotions during the pandemic

The Positive and Negative Affect Scale[14] assesses 10 positive (e.g., interested, excited, proud) and 10 negative (e.g., distressed, afraid, and hostile) emotions on a scale from 1 (very slightly or not at all) to 5 (extremely). This is the most widely used state emotion measure in health-related research.[14] We asked participants to rate their own and their perceptions of their resident's emotions over the past week. The Cronbach's alphas were 0.89 and 0.88 for the participants' positive and negative emotion items, respectively. The alphas were 0.91 and 0.88 for the participant's perceived resident positive and negative emotion items, indicating high reliability. The means of positive and negative participant emotion scores

were 2.98 (sd = 0.82) and 2.43 (sd = 0.87). The means for perceived resident positive and negative emotions were 2.15 (sd = 0.84) and 2.42 (sd = 0.82). Paired t tests showed that participants' reported significantly greater positive emotions for themselves than for LTC residents (t(159) = 13.86, p < 0.0001).

Frequency of communication methods during the pandemic

Participants were asked how frequently they had used the following nine methods to connect with their relative/friend in LTC over the past week during the pandemic. These included: phone, phone while looking through window at facility, video-conferencing (e.g., FaceTime, Zoom, and Skype), Internet/phone chat (e.g., texting, typing on Facebook messenger), Facebook posts, e-mail, letters directly delivered by staff, letters delivered by post, and dropping off personal items (e.g., photos, meaningful or comfort items). Participants responded on a scale from (5) "more than once a day", (4) "once a day", (3) "more than once per week", (2) "once per week", (1) "less than once per week". There was also an option of "not available to you or your relative". See Figure 1 for the mean frequencies for each method of communication. Frequency scores for each method were

FIGURE 1. Mean frequency of each communication method during COVID-19 for participants who had these methods available. Participants responded on a scale with the following options: (1) "less than once per week", (2) "once per week", (3) "more than once per week", (4) "once a day", and (5) "more than once a day".
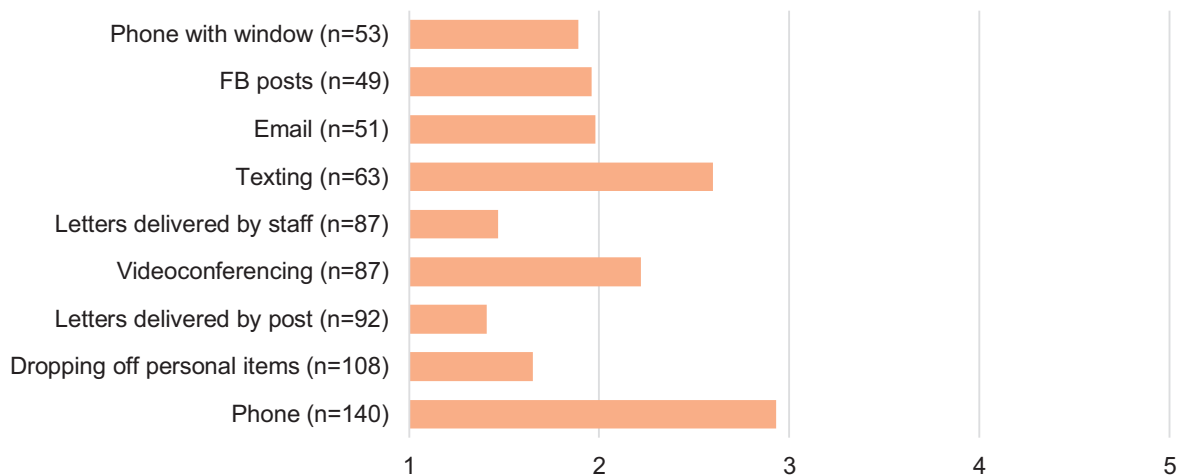
calculated by taking the mean using the five-point scale and excluding cases without this method available.

Participant, resident, and LTC characteristics

To examine as covariates in our main hypothesis testing, we assessed demographics for both participant and residents, health and physical function variables of residents, and LTC characteristics. See Table 1 for the full list of characteristics.

Statistical Analysis

To ensure reliable and valid data, we used the following criteria as guided by prior studies using MTurk as a recruitment source to select our sample.[13] To examine covariates of associations between communication and emotion variables, we ran Spearman correlations and t tests for continuous, ordinal, and binary variables (e.g., gender, physical function) and χ^2 tests for categorical variables (e.g., employment status, marital status). To examine our hypotheses concerning frequency of each communication method in the past week predicting each emotion score, we first ran unadjusted linear regression models and then adjusted models. We reported the unadjusted models as none of the covariates remained significant in the adjusted models.

RESULTS

Data Selection

We received 394 survey responses in total, with 282 of the responses from MTurk workers. Cases from the sample were eliminated because of the following reasons: the presence of duplicate or suspicious open-ended question responses (n = 14), the survey was completed in less than 5 minutes (n = 10), there were conflicting answers to multiple questions (n = 5), and the resident was not in LTC (n = 1). Also, to make more targeted conclusions about family/friends of older adults in LTC in the United States, we eliminated cases in which participants lived outside of the United States (n = 91), had family members/friends in LTC outside of the United States (n = 7), and had family members/friends in LTC who were under

55 years old (n = 105). The final sample for this analysis was 161. As shown in Table 1, MTurk workers and their residents were younger. MTurk workers were more likely to be men, less likely to be White, less educated, less wealthy, and more likely to be full-time employees.

Main Hypothesis Testing

See Table 2 for Spearman correlations with potential covariates that were significantly associated with at least one of the emotion variables and one of the communication methods. No significant covariates remained significant in any of the regression models testing the main hypotheses. Shown in Table 3, and as hypothesized, greater frequency of phone use was associated with less negative participant emotions, and greater use of e-mail was associated with more perceived positive emotions in the LTC resident. In contrast, greater use of letters delivered by staff was associated with more negative emotions in the participant, and more frequent letters delivered by the postal service and staff were associated with more perceived negative emotions in the LTC resident. As shown in the footnote Table 3, effect sizes ranged from R-squared values of 0.03−0.12 for the significant associations.

DISCUSSION

Using communication methods other than in-person visits has been necessary for family and friends of LTC residents during the COVID-19 pandemic. The present findings show that some methods are associated with more positive and less negative emotional experiences for family members, friends, and LTC residents than others. Specifically, greater phone frequency was associated with less negative emotions for family members and friends, and greater use of e-mail was associated with more perceived positive emotions in residents. Letters delivered by staff and post were associated with more negative experiences for family, friends, and residents.

The study findings are in line with a recent study showing that phone use is associated with less resident social isolation and loneliness in LTC.[1] For the most part, our findings and recent findings on this topic fit with the idea that synchronous compared to

TABLE 1. Participant, Resident, and LTC Characteristics, and Emotions for Non-MTurk and MTurk Samples

Participants	Non-MTurk N = 90	MTurk N = 71	Total N = 161
Participant's relationship to LTC resident [a]	Child: 70 (77.7%) Spouse: 4 (4%) Friend: 2 (2%) Sibling: 3 (3%) Grandchild: 6 (6%) Other: 5 (6%)	Child: 38 (54%) Spouse: 2 (3%) Friend: 9 (13%) Sibling: 3 (4%) Grandchild: 14 (20%) Other: 5 (7%)	Child: 108 (67%) Spouse: 6 (4%) Friend: 11 (4%) Sibling: 6 (1%) Grandchild: 20 (12%) Other: 10 (6%)
Age [b]	Mean = 54.19 (sd = 14.18)	Mean = 39.97 (sd = 11.58)	Mean = 47.88 (sd = 14.85)
Gender [c]	Female: 75 (83%) Male: 14 (16%) Not reported: 1 (1%)	Female: 28 (39%) Male: 43 (61%)	Female: 103 (64%) Male: 57 (35%) Not reported: 1 (1%)
Ethnicity [d]	White: 88 (98%) Black: 0 Asian: 2 (2%) Other: 2 (2%)	White: 63 (89%) Black: 7 (10%) Asian: 0 Other: 0 Not reported: 1 (1%)	White: 151 (94%) Black: 7 (4%) Asian: 2 (1%) Other: 2 (1%) Not reported: 1 (<1%)
Latino/a [e]	1 (1%)	7 (10%)	8 (5%)
Education [f]	<Bachelors: 12 (13%) Bachelor's: 23 (26%) >Bachelor's: 55 (61%)	<Bachelors: 15 (21%) Bachelor's: 44 (62%) >Bachelor's: 12 (17%)	<Bachelors: 27 (17%) Bachelor's: 67 (42%) >Bachelor's: 67 (42%)
Employment [g]	Full time: 48 (53%) Part-time: 11 (12%) Retired: 17 (19%) Not employed: 14 (16%)	Full time: 59 (83%) Part-time: 3 (4%) Retired: 2 (3%) Not employed: 7 (4%)	Full time: 107 (66%) Part-time: 14 (9%) Retired: 19 (12%) Not employed: 21 (13%)
Annual household income (US) [h]	≤ $49,999: 9 (10%) $50,000- 99,999: 21 (23%) ≥ $100,000: 57 (63%)	≤ $49,999: 28 (40%) $50,000- 99,999: 34 (48%) ≥$100,000: 9 (13%)	≤ $49,999: 37 (23%) $50,000- 99,999: 55 (34%) ≥$100,000: 66 (41%)
5 most common states	CT: 20 NY: 9 TX: 6 UT: 5 CA: 5	FL: 8 NY: 7 CO: 6 PA: 6 CA: 4	CT: 22 NY: 16 PA: 10 TX: 10 CA, CO, FL: 9
Marital status	Married: 67 (74%) Widowed: 1 (1%) Divorced: 9 (10%) Separated: 1 (1%) Never married: 12 (13%)	Married: 46 (65%) Widowed: 1 (1%) Divorced: 2 (3%) Separated: 1 (1%) Never married: 21 (30%) Not reported: 2 (3%)	Married: 113 (70%) Widowed: 2 (1%) Divorced: 11 (6%) Separated: 2 (1%) Never married: 33 (20%) Not reported: 2 (1%)

Residents	Non-MTurk N = 90	MTurk N = 71	Total N = 161
Age [i]	Mean = 83.51 (sd = 9.22)	Mean = 75.44 (11.32)	Mean = 79.95 (sd = 10.93)
Gender	Female: 53 (59%) Male: 35 (39%) Not reported: 2 (2%)	Female: 40 (56%) Male: 31 (44%)	Female: 93 (58%) Male: 66 (41%) Not reported: 2 (1%)
Ethnicity	White: 86 (96%) Black: 2 (2%) Asian: 1 (1%) Other: 1 (1%)	White: 62 (87%) Black: 7 (10%) Asian: 2 (3%) Other: 0	White: 148 (92%) Black: 9 (6%) Asian: 3 (1.5%) Other: 1 (0.5%)
Latino/a [j]	1 (1%)	5 (7%)	6 (4%)
Education	<Bachelors: 48 (53%) Bachelor's: 19 21%) >Bachelor's: 23 (26%)	<Bachelors: 43 (75%) Bachelor's: 22 (31%) >Bachelor's: 5 (7%) Not reported: 1 (1%)	<Bachelors: 91 (%) Bachelor's: 41 (25%) >Bachelor's: 28 (17%) Not reported: 1 (<1%)
5 most common states	CT: 19 TX: 8 PA: 7 MA: 5 NJ: 5	FL: 8 NY: 7 CA: 5 CO: 5 OH: 5	CT: 19 TX: 12 NY: 11 FL: 10 CA: 9
Marital status	Married: 28 (31%) Widowed: 47 (52%)	Married: 29 (41%) Widowed: 34 (48%)	Married: 57 (35%) Widowed: 51 (50%)

(continued)

TABLE 1. *(continued)*

Participants	Non-MTurk N = 90	MTurk N = 71	Total N = 161
	Divorced: 11 (12%)	Divorced: 5 (7%)	Divorced: 16 (10%)
	Separated: 1 (1%)	Separated: 0	Separated: 1 (1%)
	Never married: 3 (3%)	Never married: 3 (4%)	Never married: 6 (4%)
Health status [scale from (1) excellent) to 5(poor)]	Mean = 3.50 (sd = 1.01)	Mean = 3.48 (sd = 0.97)	Mean = 3.49 (sd = 0.99)
Dementia[k]	Alzheimer's: 21 (23%)	Alzheimer's: 27 (38%)	Alzheimer's: 48 (30%)
	Vascular: 14 (16%)	Vascular: 2 (3%)	Vascular: 16 (10%)
	Frontotemporal: 6 (7%)	Frontotemporal: 0	Frontotemporal: 0
	Other: 16 (18%)	Other: 0	Other: 16 (10%)
	No dementia: 33 (37%)	No dementia: 42 (59%)	No dementia: 81 (50%)
Serious illness[l]	Heart failure: 14 (16%)	Heart failure: 7 (10%)	Heart failure: 21 (13%)
	End stage kidney: 3 (3%)	End stage kidney: 5 (7%)	End stage kidney: 8 (5%)
	Cancer: 1 (1%)	Cancer: 6 (8%)	Cancer: 7 (4%)
	No serious illness: 72 (80%)	No serious illness: 53 (75%)	No serious illness: 125 (78%)
Impairment [means on scale 1 (no impairment) to 4 (severe impairment)]	Vision: 2.18 (sd = 0.90)	Vision: 2.10 (sd=.76)	Vision: 2.15 (sd = 0.84)
	Hearing:.2.23 (sd = 1.07)	Hearing: 2.20 (sd= 1.01)	Hearing: 2.22 (sd = 1.02)
	Fine motor: 2.50 (sd = 1.09)	Fine motor: 2.34 (sd = 1.04)	Fine motor: 2.34 (sd = 1.03)
	Cognitive:2.84 (sd = 1.06)	Cognitive:2.60 (sd = 1.10)	Cognitive: 2.60 (sd = 1.10)
ADLs/IADLs [# of 12]	Mean = 9.24 (sd = 3.34)	Mean = 8.78 (sd = 3.08)	Mean = 9.03 (sd = 3.22)
LTC	**Non-MTurk** N = 90	**MTurk** N = 71	**Total** N = 161
Distance from LTC[m]	<10 miles: 37 (41%)	<10 miles: 17 (24%)	<10 miles: 54 (34%)
	10−59 miles: 25 (28%)	1059 miles: 40 (56%)	10−59 miles: 65 (40%)
	≥60 miles: 28 (31%)	≥60 miles: 14 (20%)	≥60 miles: 42 (26%)
Participant comfortable driving/taking local transportation to LTC?	Yes: 74 (82%)	Yes: 57 (80%)	Yes: 131 (81%)
	No: 16 (18%)	No: 13 (18%)	No: 29 (18%)
		Not reported: 1 (1%)	Not reported: 1 (<1%)
Participant communication frequency with staff prior to pandemic	> once per week: 44 (49%)	> once per week: 24 (34%)	> once per week: 68 (42%)
	Once per week or less: 43 (48%)	Once per week or less: 47 (66%)	Once per week or less: 90 (56%)
	Not reported: 3 (3%)		Not reported: 3 (2%)
Type[n]	Nursing home: 27 (30%)	Nursing home: 32 (45%)	Nursing home: 59 (37%)
	Memory care: 23 (26%)	Memory care: 12 (17%)	Memory care: 35 (22%)
	Assisted living: 30 (33%)	Assisted living: 27 (38%)	Assisted living: 57 (35%)
	Other: 8 (9%)	Other: 0	Other: 8 (5%)
	Not reported: 2 (2%)		Not reported: 2 (1%)
Room arrangement	Private: 63 (70%)	Private: 55 (77%)	Private:118 (73%
	Shared: 27 (30%)	Shared: 16 (23%)	Shared: 43 (27%)
Facility ownership	Non-profit: 15 (17%)	Non-profit: 12 (17%)	Non-profit: 27 (17%)
	For profit 74 (82%)	For profit: 59 (83%)	For profit: 133 (83%)
	Not reported: 1 (1%)		Not reported: 1 (<1%)
Area	Urban: 21 (23%)	Urban: 24 (34%)	Urban: 45 (23%)
	Rural: 11 (12%)	Rural: 12 (17%)	Rural: 33 (20%)
	Suburban: 58 (64%)	Suburban: 34 (48%)	Suburban: 92 (57%)
		Not reported: 1 (1%)	Not reported: 1 (<1%)
Multifacility chain[o]	Yes: 60 (67%)	Yes: 27 (38%)	Yes:87 (54%)
	No: 29 (32%)	No: 43 (61%)	No:72 (45%)
	Not reported: 1 (1%)	Not reported: 1 (1%)	Not reported: 2 (1%)
Capacity	<80 beds: 33 (37%)	<80 beds: 36 (51%)	<80 beds: 69 (43%)
	80-199 beds: 47 (52%)	80-199 beds: 28 (39%) ≥200 beds: 7 (10%)	80-199 beds: 75 (47%) ≥200 beds: 17 (10%)
	≥200 beds: 10 (11%)		
Pay	Medicaid: 27 (30%)	Medicaid: 26 (37%)	Medicaid: 53 (33%)
	Private pay/insurance: 61 (68%)	Private pay/insurance: 45 (64%)	Private pay/insurance: 106 (66%)
	Not reported: 2 (2%)		Not reported: 2 (2%)
Level of lockdown due to pandemic	No visits: 87 (97%)	No visits: 56 (79%)	No visits: 143 (89%)
	Limited visitors: 2 (2%)	Limited # of visitors: 15 (21%)	Limited visitors: 17 (11%)
	"Hired at facility as a sitter 4 −5 days a week": 1 (1%)		"Hired at facility as a sitter 4 −5 days a week": 1 (1%)

(continued)

TABLE 1. (*continued*)

Participants	Non-MTurk N = 90	MTurk N = 71	Total N = 161
Quarantined alone in room[p]	Yes: 35 (39%) No: 48 (53%) Not reported: 7 (8%)	Yes: 41 (58%) No: 23 (33%) Not reported: 7 (10%)	Yes: 76 (47%) No:71 (44%) Not reported: 14 (9%)
How long resident has lived in LTC?	1 year or less: 35 (39%) More than 1 year: 45 (50%) Not reported: 10 (11%)	1 year or less: 36 (51%) More than 1 year: 35 (49%)	1 year or less: 71 (44%) More than 1 year: 80 (50%) Not reported: 10 (6%)
Where was resident before current LTC[q]	Home: 58 (64%) Hospital: 5 (6%) Other facility: 23 (26%) Other: 4 (4%)	Home: 55 (77%) Hospital: 5 (7%) Other facility: 6 (8%) Other: 5 (7%)	Home: 113 (70%) Hospital: 10 (6%) Other facility: 29 (18%) Other: 9 (6%)
Expectations of short stay (21 days or less)	Yes: 6 (7%) No: 82 (91%) Not reported: 2 (2%)	Yes: 8 (11%) No: 61 (86%) Not reported: 2 (3%)	Yes: 14 (9%) No: 143 (89%) Not reported: 4 (2%)

Notes. Resident's information reported by participants. ADLs/IADLs: activities of daily living and instrumental activities of daily living; LTC: long-term care. Significant differences were found between groups using paired t tests and χ^2 tests:
[a] χ^2 (5)=17.69, p = 0.003;
[b] t(158)=6.82, p < 0.001;
[c] χ^2 (1)= 34.61, p < 0.001;
[d] χ^2 (1)=5.57, p = 0.02;
[e] χ^2 (1)= 5.24, p = 0.022;
[f] χ^2 (7)= 35.77, p < 0.001 (based on 8 education groups);
[g] χ^2 (10)= 29.52, p = 0.001;
[h] χ^2 (11)= 57.47, p < 0.001;
[i] t(159)=4.99, p < 0.001;
[j] χ^2 (1)= 3.97, p = 0.046;
[k] χ^2 (1)=9.06, p = 0.003 (based on yes/no dementia status);
[l] χ^2 (1)=4.92, p = 0.027 (group differences only in terms of cancer);
[m] χ^2 (4)= 21.26, p < 0.001;
[n] χ^2 (3)=10.34, p = 0.016;
[o] χ^2 (1)= 13.16, p < 0.001;
[p] χ^2 (1)=6.94, p = 0.008;
[q] χ^2 (3)=8.03, p = 0.045.

TABLE 2. Spearman Correlations with Significant Covariates, Emotions, and Communication Frequencies During COVID-19

	Mturk	P Gender[a]	R Gender[a]	R Age	R Dementia Status
P positive emotion	0.14 (p = 0.09)	−0.03 (p = 0.66)	−0.07 (p = 0.35)	−0.14 (p = 0.08)	−0.14 (p = 0.08)
P negative emotion	−0.23 (**p < 0.01**)	0.12 (p = 0.15)	−0.15 (p = 0.05)	−0.06 (p = 0.43)	0.13 (p = 0.11)
R positive emotion	0.39 (**p < 0.001**)	−0.15 (p = 0.06)	−0.08 (p = 0.35)	−0.25 (**p < 0.01**)	−0.33 (**p < 0.001**)
R negative emotion	0.04 (p = 0.66)	0.03 (p = 0.72)	−0.18 (**p = 0.02**)	−0.19 (**p = 0.01**)	−0.05 (p = 0.54)
Phone	−0.11 (p = 0.20)	0.12 (p = 0.16)	0.13 (p = 0.12)	0.04 (p = 0.61)	−0.08 (p = 0.36)
Phone plus window	0.13 (p = 0.36)	−0.14 (p = 0.32)	−0.48 (**p < 0.001**)	−0.17 (p = 0.22)	−0.20 (p = 0.15)
Video-conference	0.00 (p = 0.99)	0.20 (p = 0.06)	0.05 (p = 0.62)	−0.21 (**p = 0.049**)	0.02 (p = 0.83)
Texting/ internet chat	−0.01 (p = 0.92)	0.10 (p = 0.44)	0.02 (p = 0.88)	−0.31 (**p = 0.01**)	−0.25 (**p = 0.048**)
FB posts	0.18 (p = 0.21)	−0.07 (p = 0.65)	0.06 (p = 0.67)	0.12 (p = 0.41)	0.10 (p = 0.48)
E-mail	−0.21 (p = 0.13)	−0.13 (p = 0.37)	−0.28 (p = 0.05)	−0.23 (p = 0.11)	−0.13 (p = 0.35)
Letters (staff)	0.21 (p = 0.06)	−0.01 (p = 0.93)	−0.04 (p = 0.74)	−0.04 (p = 0.69)	0.02 (p = 0.87)
Letters (post)	0.14 (p = 0.19)	−0.10 (p = 0.37)	−0.23 (**p = 0.03**)	−0.09 (p = 0.41)	−0.05 (p = 0.65)
Dropping off items	0.12 (p = 0.24)	0.14 (p = 0.15)	−0.07 (p = 0.49)	−0.01 (p = 0.95)	−0.03 (p = 0.76)

Notes. P: participant; R: resident. No other characteristics were associated with both the predictor and outcome for each hypothesized association. Bold case indicates a significant p-value.
[a] Gender is coded as 1 = Male and 2 = Female. *df*s ranged from 158 to 160.

TABLE 3. Univariate Regression Model Estimates: Emotion Scores and Frequency of Communication Use During COVID-19

	df	Positive Emotions			Negative Emotions			Perceived Resident Positive Emotions			Perceived R Negative Emotions		
		β	SE	p	β	SE	p	β	SE	p	β	SE	p
Phone	138	0.00	0.06	0.995	−0.17	0.06	0.041[a]	−0.03	0.06	0.721	−.13	0.06	0.144
Phone with window	52	0.24	0.08	0.078	0.13	0.10	0.350	0.19	0.11	0.169	0.07	0.09	0.640
Videoconferencing (e.g., Facetime, Zoom)	86	0.06	0.08	0.561	−0.01	0.09	0.905	0.18	0.08	0.102	−0.09	0.08	0.407
Internet/phone chat (e.g., texting, FB messenger)	62	0.06	0.08	0.630	0.01	0.08	0.968	0.09	0.08	0.464	0.04	0.07	0.762
FB posts	48	0.13	0.09	0.367	−0.06	0.11	0.679	0.17	0.10	0.232	−0.15	0.09	0.305
Email	50	0.22	0.09	0.123	0.19	0.09	0.174	0.28	0.09	0.046[c]	0.26	−0.14	0.070
Letters delivered by staff	86	−0.03	0.08	0.796	0.23	0.10	0.029[b]	0.12	0.09	0.252	0.28	0.09	0.008[d]
Letters delivered by post	91	0.02	0.09	0.837	0.12	0.10	0.251	0.18	0.09	0.084	0.34	0.09	0.001[e]
Dropping off personal items	107	−0.15	0.08	0.111	−0.01	0.10	0.892	0.03	0.09	0.791	−0.05	0.09	0.638

Note. Each analysis was limited to participants and residents who had the communication option available. Covariates (i.e., gender, resident's gender) did not remain significant in any model and thus univariate regression models are presented. T-tests were used to produce p-values in these analyses. Standardized estimates are presented.
[a] R^2 = .03;
[b] R^2 = .06;
[c] R^2 = .08;
[d] R^2 = .08;
[e] R^2 = .12.

asynchronous methods may be preferred, as letters were associated with more negative emotions in our study, although e-mails were an exception. This may reflect that synchronicity is not a binary distinction. E-mail has more synchronicity than letters delivered in the mail if one considers the speed of delivery. Also contrary to the idea that synchronicity alone is the driving mechanism of communication-related positive emotions, video-conferencing was not associated with more positive or less negative emotions. Familiarity of older technology may explain these differences in associations between communication methods and emotional experiences.

Although the effect sizes were small and may be primarily of theoretical importance, clinical implication of these findings is for LTC providers to have established practices or systems where it is easy for residents to use the phone or other technology they find comforting. Support provided to staff to help residents use these communication methods, especially the phone, are recommended. This is in addition to the necessary support to staff with all tasks, especially the given strain on workflow and protective gear during the pandemic.[15] LTC staff are at increased risk of infection by the nature of their job. LTC facilities should prioritize maintaining not only their safety from infection, but also provide staff with support to manage the emotional needs of residents. Although we know of no existing research on this in LTC settings, we would predict having residents with higher quality of life is likely to have positive influences on the quality of life of staff based on the theory of emotion contagion.[16] Better communication also makes for greater transparency between families and staff with potential benefits for improved healthcare decision making.[17] The phone is a relatively easy form of communication to use without specialized technical skills, so staff may find this method the easiest to facilitate.

Limitations of this study include the small sample size, the cross-sectional design, and the high chance of Type I errors with the number of statistical tests performed. During the pandemic many family members and friends of LTC residents have been under great stress due to the infection and death rates of LTC residents. We sought participants' experiences within a short time-frame to provide quick information to researchers and the public about the importance of continuing communication between family

members, friends, and LTC residents. We decided to share our survey on MTurk to increase sample size quickly; however, this resulted in two somewhat distinct subsamples of family/friends of LTC residents when combined with our e-mail and social media recruiting. Despite the differences in the subsamples, we did find significant results supporting our main hypotheses when accounting for MTurk as a potential covariate. Finally, it would have been preferable to obtain responses from residents rather than to rely on family members and friends for their perceptions of resident's emotions.

Taken together, lessons can be learned from the results of this survey during the COVID-19 pandemic concerning what types of communication are most associated with positive and less negative emotional experiences for families, friends, and residents when in-person visits are not an option. LTC facilities may consider having easy-to-use systems in place for residents to communicate with long-distance relatives even in non-pandemic times as well as local family and friends in times of national and international crisis. Maintaining open communication, whether through residents themselves or staff, may be increasingly important in times of uncertainty, such as during a pandemic, to protect the mental health of families and friends.

AUTHOR CONTRIBUTIONS

JKM was responsible for the study design, analysis, and writing the manuscript. TA, SS, AP, ML, CM, JG, RM, and DD collaborated on the study design and provided feedback on the analysis and the writing of the manuscript.

DISCLOSURE

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