

The Impact of COVID-19 in Older People in Portugal: Results from the Survey of Health, Ageing and Retirement (SHARE)



O Impacto da COVID-19 na População Idosa em Portugal: Resultados do Survey of Health, Ageing and Retirement (SHARE)

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ABSTRACT

Introduction: In March 2020, the World Health Organization declared COVID-19 as a pandemic, and Portugal reported its initial cases. In this study, we aimed to determine the impact of COVID-19 on Portuguese individuals aged over 60 years old.

Material and Methods: We performed a cross-sectional study using data from the Survey of Health, Ageing and Retirement in Europe (SHARE 8: COVID-19 Survey). We selected a sample of 1080 noninstitutional Portuguese individuals aged ≥ 60 years.

Results: The study sample consisted of 605 (56%) women and 475 (44%) men, with a mean age of 70 ± 9.1 years. In total, 80% of the participants experienced higher levels of anxiety, 73% felt more depressed and 30% experienced additional sleep problems compared to the period before the pandemic. Interestingly, there were no statistically significant differences between the sexes or the two selected age groups (60 - 74 and over 75 years old) regarding the incidence of these changes. Only 23%, of those that were interviewed maintained their walking routines. In addition, only 8% of the participants continued visiting family members as frequently as before. While 8% of the participants were refused some form of medical treatment, 56% claimed that they experienced healthcare delays. However, only 15% of the participants reported that their health status worsened during the pandemic.

Discussion: The pandemic has had a significant impact on Portuguese individuals aged ≥ 60 years; which is in agreement with the findings of previous international studies. It changed the participants' routines and increased their anxiety and depression levels. Despite the deterioration of healthcare services, most participants did not experience worsening of their health status.

Conclusion: In conclusion, a COVID-19 pandemic had a significant impact on the elderly population, particularly regarding their mental health.

Keywords: Aged; COVID-19; Geriatric Assessment; Mental Health; Portugal SARS-CoV-2

RESUMO

Introdução: Em março de 2020, a COVID-19 foi declarada pandemia pela Organização Mundial da Saúde e Portugal registou os seus primeiros casos. Este estudo visou determinar o impacto da COVID-19 na população portuguesa maior de 60 anos.

Material e Métodos: Trata-se de um estudo observacional transversal que analisa várias variáveis de saúde, comportamentais, sociais e económicas. Utilizaram-se dados do projecto Survey of Health, Ageing and Retirement (SHARE 8: COVID-19 Survey), seleccionando uma amostra de 1080 portugueses não institucionalizados e maiores de 60 anos.

Resultados: A amostra englobou 605 mulheres (56%) e 475 homens (44%), com idade média de $70 \pm 9,1$ anos. No total, 80% dos participantes notou aumento da ansiedade, 73% sentiu-se mais deprimido e 30% considerou que o seu sono piorou em relação ao período anterior à pandemia. Não houve diferenças estatisticamente significativas entre os sexos ou as duas faixas etárias analisadas (60 - 74 e ≥ 75 anos) quanto à incidência destas alterações. No respeitante a saídas de casa, apenas 23% dos entrevistados manteve os hábitos de passeio e 8% manteve as visitas a familiares no seu padrão habitual. Relativamente ao acesso a cuidados médicos, a 8% foi negado algum tratamento e 56% queixou-se do adiamento dos cuidados. Apenas 13% referiu um agravamento do seu estado de saúde durante a pandemia.

Discussão: Este trabalho mostra que esta pandemia impactou a população portuguesa com mais de 60 anos, o que está em linha com o reportado noutros estudos internacionais. Os hábitos alteraram-se, e a ansiedade e depressão aumentaram. Apesar da deterioração dos cuidados de saúde, a maioria dos participantes não notou agravamento do seu estado de saúde.

Conclusão: Em conclusão, a pandemia por COVID-19 teve um impacto significativo na população idosa particularmente no que concerne à sua saúde mental.

Palavras-chave: Avaliação Geriátrica; COVID-19; Idoso; Portugal; SARS-CoV-2; Saúde Mental

INTRODUCTION

COVID-19 was declared a pandemic by the World Health Organization (WHO) in March 2020¹ and the first case was reported in Portugal.² Since then, restrictions

aimed at containing the spread of the new coronavirus were applied. General lockdown was in force for two months (up to mid-May 2020), with a duty to gather at home, closure

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of schools, teleworking obligation when applicable, closure of commercial and catering establishments, among other measures. A progressive lockdown easing plan was carried out in May and June of the same year and there were no significant restrictions between July and August. This study covered the period between June and August 2020, during which the daily number of new cases of infection ranged between 200 and 350.³ All this led to a crisis in health, social and economic sectors, with a significant impact on different levels of society and dimensions yet to be described.⁴

Symptoms of depression, anxiety, irritability and post-traumatic stress disorder were included as the psychological effects of the pandemic, aggravated by lockdowns.⁵ Most studies document rates of anxiety and depression associated with the COVID period, but do not address their variations when compared to the pre-pandemic period. A meta-analysis showed prevalence rates of anxiety, depression and sleep disorders of 33%, 28% and 32%, respectively, corresponding to an increased prevalence when compared to what was previously described.⁶ A German study showed an increase in the prevalence rates of anxiety, depression and psychological distress during the pandemic.⁷ A poorer mental health has been described by 25% of the respondents in another study involving the Hong Kong population.⁸ An US study showed an interesting association between the introduction of restrictive measures and a decrease in mental health symptom queries.⁹ Additionally, the separation from family members for undetermined time, uncertainty associated with conflicting messages from health authorities and a sense of loss of control lead to a sense of imprisonment with dramatic effects on patient's well-being.¹⁰

Patients from all age groups have been negatively affected by this phenomenon,^{11,12} even though some groups of the Portuguese population have been particularly affected,¹³ mainly the elderly population, often with a difficult adaptation to the digital world. In these cases, social exclusion becomes more relevant and can lead to a feeling of double exclusion.¹⁴ In addition, given the higher mortality in the elderly population,¹⁵ it is very relevant understanding the impact of the pandemic. From the available data, we know that the impact is greater in people previously affected by other health conditions.¹⁶

Therefore, knowing the importance of lockdowns in the management of the pandemic, the assessment on how the different aspects of daily life is affected by this situation is certainly very relevant, particularly in this age group, in order to develop alternatives and recommendations addressed to the Portuguese population and especially to the population most affected in terms of mortality.

In this context, this study was aimed at characterising the impact of the COVID-19 pandemic on the Portuguese population aged over 60.

MATERIAL AND METHODS

This was a cross-sectional study with data from a rep-

resentative sample of the non-institutionalised Portuguese population aged over 60 originating from the Survey of Health, Ageing and Health (SHARE). The sample collected in Portugal was based on the Portuguese SNS (*Sistema Nacional de Saúde* - National Health System) users' registry and Portuguese-speaking residents born up to 1960 (for waves 4 and 6 to 8) were randomly selected, as well as their spouses/partners, regardless of the age.

A total of 2,000 patients corresponded to the target sample and an estimated response rate of 60% was considered, in addition to an estimated 10% ratio of non-sampling units and two interviews including around 50% of the households, so that 2,507 patients were included as a gross sample.

The sampling design comprised five stages, following the determination of 22 sub-regions within mainland Portugal and islands; the patient's four-digit postcode was selected within the first stage, parishes in the second stage, seven-digit postcode in the third stage, addresses in the fourth stage and verification of eligibility by age in the fifth stage.

Data were collected by computer-assisted telephone interview, from which only participants able to speak Portuguese were selected and included in the last wave of data collection.

The questionnaire available from http://www.share-project.pt/fileadmin/user_upload/sharew8_corona_questionnaire_pt_PT_20200601.pdf was applied in the interviews.

The University of Minho and the Nova University Lisbon, in cooperation with SHARE-ERIC, were responsible for the implementation of the project in Portugal.

Oral consent was obtained from all participants.

Approval for wave 8 was obtained from the Ethics Board of the Max Planck Society. In Portugal, data collection was approved by the Ethics Committee for Research in Social Sciences and Humanities (CEICSH) of the University of Minho.

Researchers were granted access to the SHARE data through registration and a declaration of ethical commitment.

Further details regarding this database can be accessed online (www.share-project.pt).^{17,18}

Statistical analysis

Stata software (version 14.2; StataCorp, Texas, USA) was used for statistical analysis. Descriptive statistics were presented as ratios (%) for dichotomous variables, mean and standard deviation for continuous variables. Sample calibration was based on the weighting assigned to each participant. Individuals aged 60 and over were selected for this study, since the determination of the initial representative group of patients aged 50 and over was made 10 years ago (2010/2011) and the panel has remained unchanged; therefore, only that population was represented.

In this study, the following variables from the questionnaire were analysed: perception about health status since

the onset of the pandemic (better/worse/equal), leaving home since the onset of the pandemic (yes/no), anxiety (more/less/equal), sadness or depression (more/less/equal), sense of loneliness (more/less/equal) or sleep difficulties since the onset of the pandemic (more/less/equal), respondents testing positive for SARS-CoV-2 (yes/no), respondents admitted to hospital due to SARS-CoV-2 (yes/no), symptoms consistent with Coronavirus infection including cough, fever or breathing impairment (yes/no), death of 'someone close' due to SARS-CoV-2 (yes/no), healthcare delay, cancellation or avoidance since the onset of the pandemic due to fear of becoming infected (yes/no), unemployment attributed by respondents to the pandemic (yes/no) and economic difficulties since the onset of the pandemic, assessed through the question "Considering your total monthly income and of those living with you, would you say that you have enough money by the end of each month with great difficulty, with some difficulty, somewhat easily or easily since the onset of the pandemic?" (with great difficulty/with some difficulty/somewhat easily/easily).

Following this initial descriptive analysis, our group of patients was divided by gender and age group (60 – 74 and over 75, according to a previously proposed definition)¹⁹ and the variables were compared according to these groups, using chi-square or Fisher's tests for non-parametric data.

A *p*-value ≤ 0.05 was considered statistically significant.

RESULTS

From an initial sample of 1,652 patients, 445 were excluded (age <60) and 127 due to unavailable data; 1,080 patients were included in the study [(605 female patients (56%) aged 60-97, mean age 70 ± 9.1 , including 594 (55%) patients aged 60-69, 288 (27%) 70-79, 163 (15%) 80-89 and 35 (3%) >90].

Only four patients have tested positive for SARS-CoV-2, from those having described or knowing someone who presented with symptoms consistent with coronavirus infection (135 patients) and two patients were admitted to hospital. However, 10 patients presented with symptoms consistent with coronavirus infection (cough, fever or breathing difficulties) and 25 have described that 'someone close' had died due to coronavirus infection. Most of the patients (83%) have considered that their health status remained unchanged since the onset of the pandemic, while 15% have considered that this had worsened.

Sixteen percent of respondents were in lockdown since the onset of the pandemic and only 23 percent maintained the same habits of going out for a walk as before. Twenty-nine per cent did not go out for a walk again and 35 per cent of respondents have reduced these habits. Only eight per cent of respondents kept on visiting their relatives with the same regularity as before and more than 80 per cent stopped visiting or visited relatives less regularly.

Eighty percent presented with increased symptoms of anxiety since the onset of the pandemic, while only 19 percent considered that their health status remained un-

changed; 73% acknowledged feeling sadder or more depressed since the onset of the pandemic and 27% described no changes; 30% have presented with more sleep difficulties since the onset of the pandemic and 70% described no changes; 31% of the respondents described as feeling more lonely since the onset of the pandemic; 12% have avoided some medical care due to the fear of being infected, while more than half of the patients (56%) have described delays in their treatments (treatment was even cancelled to 8% of the patients).

Thirty percent of the working patients have lost their jobs due to the pandemic and income loss was described by 59% of these patients.

Gender Comparison (Table 1)

Female respondents have more frequently described a poorer health status (66%; $p < 0.05$), in lockdown (67%; $p < 0.05$), with healthcare avoidance (71%; $p < 0.05$) and with greater income loss (66%; $p < 0.05$) since the onset of the pandemic.

Comparison according to age group (Table 2)

A higher percentage of participants aged 60-74 (60%) have described having lost their job or laid off due to the pandemic ($p < 0.05$), when compared to those aged over 75 and this was the only statistically significant result found in the study.

DISCUSSION

Most respondents have described that their health status remained unchanged, although a delayed medical treatment was described by almost half of the respondents due to the pandemic. In addition, most respondents have stopped visiting their relatives or visited them less regularly and almost half of these did not go out for a walk ever again as before the pandemic or have reduced these habits. A significant increase in symptoms of anxiety and depression disorders has also been described by most respondents since the onset of the pandemic.

Only a minority of respondents have tested positive for SARS-CoV-2 or presented with symptoms consistent with the infection. A 5.7% prevalence rate of infection has been found in this age group until August 2020³ and this underrepresentation of patients with COVID-19 may be related to the fact that this was a group of patients with lower rates of infection when compared to the institutionalised elderly population. In addition, almost half of the respondents have described a delayed medical treatment and about 12% of the respondents have avoided some healthcare due to the fear of becoming infected. However, paradoxically, most respondents have described that their health status remained unchanged. Even though a delayed treatment for different conditions has been described in the international literature,^{20,21} including urgent healthcare, with an impact on mortality, this may have been delayed in time and, therefore, not immediately perceived by our group of patients at the time

Table 1 – Living experience of patients aged over 60 during the pandemic (gender analysis)

	Male	Female	p
Poorer health status since the onset of the pandemic, n (%)	45 (34)	89 (66)	0.008*
Positive test result for COVID-19	1 (25)	3 (75)	0.390
Hospital admission due to COVID-19	0 (0)	2 (100)	0.640
Death of someone close due to COVID-19	13 (52)	12 (48)	0.425
Symptoms consistent with COVID-19	5 (50)	5 (50)	0.385
Home confinement since the onset of the pandemic	67 (33)	134 (67)	0.001*
Anxiety worsening since the onset of the pandemic	125 (35)	236 (65)	0.097
Depression worsening since the onset of the pandemic	94 (30)	217 (70)	0.455
Sleep disorder worsening since the onset of the pandemic	32 (28)	83 (72)	0.191
Delayed medical care due to the pandemic	220 (43)	294 (57)	0.385
Cancellation of medical care due to the pandemic	32 (42)	44 (58)	0.721
Healthcare avoidance	32 (29)	78 (71)	0.001*
Unemployment or lay-off	14 (39)	22 (61)	0.344
Income loss	123 (34)	244 (66)	0.011*

* Statistically significant results ($p < 0.05$)

Table 2 – Living experience of patients aged over 60 during the pandemic (analysis by age group)

	60 – 74 (n = 756)	≥ 75 (n = 324)	p
Poorer health status since the onset of the pandemic, n (%)	82 (61)	52 (39)	0.293
Positive test result for COVID-19	2 (50)	2 (50)	0.227
Hospital admission due to COVID-19	2 (100)	0 (0)	0.449
Death of someone close due to COVID-19	21 (84)	4 (16)	0.055
Symptoms consistent with COVID-19	5 (50)	5 (50)	0.975
Home confinement since the onset of the pandemic	102 (51)	99 (49)	0.000*
Anxiety worsening since the onset of the pandemic	240 (66)	121 (34)	0.965
Depression worsening since the onset of the pandemic	198 (64)	113 (36)	0.498
Sleep disorder worsening since the onset of the pandemic	78 (68)	37 (32)	0.566
Delayed medical care due to the pandemic	346 (67)	168 (33)	0.171
Cancellation of medical care due to the pandemic	51 (67)	25 (33)	0.803
Healthcare avoidance	73 (66)	37 (34)	37 (34)
Unemployment or lay-off	33 (60)	3 (40)	0.000*
Income loss	240 (65)	127 (35)	0.405

* Statistically significant results ($p < 0.05$)

when the survey was applied. The follow-up of this group of patients would provide relevant data to assess whether any change in the patient's health status was acknowledged as related to the limited access to healthcare during the pandemic.

Almost half of the respondents did not go out for a walk again or have reduced this habit. Sedentary lifestyles have a well-known impact on both physical²² and mental health,²³ with a known association between sedentary lifestyles and depression in the elderly population and physical activity is a preventive and curative strategy for depression in these patients.²⁴ Average life expectancy is reduced by sedentary lifestyles and, with a sudden reduction in physical activity, there is a loss of muscle mass at an accelerated rate.²⁵ Therefore, the decrease in physical activity may compro-

mise the future capacity in this elderly population and may eventually lead to a permanent loss of patient autonomy.

Most respondents have described increased symptoms of anxiety and depression disorders since the onset of the pandemic, in line with international studies.²⁶ This may be due to factors already described, including increased loneliness, less socialisation, reduced physical activity and even in fear of the consequences of becoming infected. The elderly population was asked to take specific care, frequently including the provision of essential goods taken to their homes, leading to a lockdown and great changes in routines, with a background of uncertainty. It is also worth mentioning that 22% of those who had a permanent occupation lost their jobs due to the pandemic and that an income loss has been described by more than half of the patients, with a

contribution to the increase in the symptoms of depression and anxiety disorders.²⁷

Most respondents have stopped visiting their relatives or did so less regularly. Social isolation is known to decrease life satisfaction levels²⁸ and is a risk factor for mental disorders in this age group.²⁹ The elderly population feels these measures with greater impact in periods of demanding confinement, since these patients frequently live alone or with another elderly person (namely due to widowhood or with adult children who are already autonomous) and to the decrease in autonomy due to physical or cognitive impairment. In fact, 40% of the respondents have described feelings of loneliness aggravated with the onset of the pandemic.

Study limitations include the fact that the study sample is only representative of those aged over 60 and not from the age of 50 as in other European studies, with a small number of active participants in which the impact of measures including unemployment or lay-off could be more accurately assessed. The absence of validated questionnaires or scales for the assessment of symptoms of anxiety or depression disorders or objective indicators of health status is another limitation. However, the items related to depression, anxiety and sleep disorders were preserved, even though the application of the European geriatric depression scale (Euro-D scale) was not available as in other waves.

CONCLUSION

In conclusion, the pandemic of COVID-19 had a significant impact on this age group, namely in terms of lower access to healthcare, either by avoidance or cancellation, less socialisation and poor lifestyle habits, associated with symptoms of anxiety and depression disorders.

Female patients have described poorer health status re-

lated to lockdown, more frequent healthcare avoidance and more relevant income loss since the onset of the pandemic.

Further studies to assess long-term impact of the pandemic on the elderly population are required, including institutionalised patients, providing additional data on health outcomes.

AUTHOR CONTRIBUTION

LN: Work Conception, data analysis, initial draft.

CC, PCP, BCR, TRS: Participation in the initial draft, critical analysis, final approval.

ADM: Data collection, critical review of statistics and data analysis, critical review of the manuscript, final approval.

DTC: Final review, final approval.

HUMAN AND ANIMAL PROTECTION

The authors declare that this project complied with the regulations that were established by the Ethics and Clinical Research Committee, according to the Helsinki Declaration of the World Medical Association.

DATA CONFIDENTIALITY

The authors declare that they have followed the protocols of their work centre on the publication of patient data.

CONFLICTS OF INTEREST

The authors declare that there were no conflicts of interest in writing this manuscript.

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REFERENCES

- Skoda EM, Bäuerle A, Schweda A, Dörrie N, Musche V, Hetkamp M, et al. Severely increased generalized anxiety, but not COVID-19-related fear in individuals with mental illnesses: a population based cross-sectional study in Germany. *Int J Soc Psychiatry*. 2021;67:550-8.
- Direção Geral da Saúde. Comunicado de casos de infeção por novo coronavírus (COVID19). [consultado 2021 mar 14]. Disponível em: <https://covid19.min-saude.pt/wp-content/uploads/20>.
- Direção Geral da Saúde. Relatório de situação. [consultado 2021 mar 12]. Disponível em: https://covid19.min-saude.pt/wp-content/uploads/2020/08/161_DGS_boletim_20200810.pdf.
- O'Connor R, Hotopf M, Worthman C, Perry H, Tracey I, Wessely S, et al. Multidisciplinary research priorities for the COVID-19 pandemic - authors' reply. *Lancet Psychiatry*. 2020;7:e44-5.
- Rubin G, Wessely S. The psychological effects of quarantining a city. *BMJ*. 2020;368:m313.
- Luo M, Guo L, Yu M, Jiang W, Wang H. The psychological and mental impact of coronavirus disease 2019 (COVID-19) on medical staff and general public - a systematic review and meta-analysis. *Psychiatry Res*. 2020;291:113190.
- Bäuerle A, Teufel M, Musche V, Weismüller B, Kohler H, Hetkamp M, et al. Increased generalized anxiety, depression and distress during the COVID-19 pandemic: a cross-sectional study in Germany. *J Public Health*. 2020;42:672-8.
- Choi E, Hui B, Wan E. Depression and anxiety in Hong Kong during COVID-19. *Int J Environ Res Public Health*. 2020;17:3740.
- Jacobson N, Lekkas D, Price G, Heinz M, Song M, O'Malley A, et al. Flattening the mental health curve: COVID-19 stay-at-home orders are associated with alterations in mental health search behavior in the United States. *JMIR Ment Health*. 2020;7:e19347.
- Brooks S, Webster R, Smith L, Woodland L, Wessely S, Greenberg N, et al. The psychological impact of quarantine and how to reduce it: rapid review of the evidence. *Lancet*. 2020;395:912-20.
- Gloster A, Lamnisos D, Lubenko J, Presti G, Squatrito V, Constantinou M, et al. Impact of COVID-19 pandemic on mental health: an international study. *PLoS One*. 2020;15:e0244809.
- Guessoum S, Lachal J, Radjack R, Carretier E, Minassian S, Benoit L, et al. Adolescent psychiatric disorders during the COVID-19 pandemic and lockdown. *Psychiatry Res*. 2020;291:113264.
- Pombo S, Câmara-Pestana P, Marinho ANF. How portuguese people deal with Covid-19 pandemic? Immediate impact of lockdown. *Psicol Saúde Doenças*. 2020;21:558-70.
- Seifert A. The digital exclusion of older adults during the COVID-19 pandemic. *J Gerontol Soc Work*. 2020;63:674-6.
- O'Driscoll M, Ribeiro Dos Santos G, Wang L, Cummings D, Azman A, Paireau J, et al. Age-specific mortality and immunity patterns of SARS-CoV-2. *Nature*. 2021;590:140-5.
- Venkatesh A, Edirappuli S. Social distancing in covid-19: what are the mental health implications? *BMJ*. 2020;369:m1379.
- Börsch-Supan A. Survey of health, ageing and retirement in Europe (SHARE) wave 8. COVID-19 survey 1 interview date. Published online 2020. doi:10.6103/SHARE.W8CAINTDBETA.001
- Börsch-Supan A. Survey of Health, Ageing and Retirement in Europe (SHARE) Wave 8. COVID-19 Survey 1. [consultado 2021 jun 17]. Disponível em: <http://www.share-project.org/special-data-sets/share->

- corona-survey.html.
19. Ouchi Y, Rakugi H, Arai H, Akishita M, Ito H, Toba K, et al. Redefining the elderly as aged 75 years and older: proposal from the Joint Committee of Japan Gerontological Society and the Japan Geriatrics Society. *Geriatr Gerontol Int*. 2017;17:1045-7.
 20. Miyagami T, Uehara Y, Harada T, Watari T, Shimizu T, Nakamura A, et al. Delayed treatment of bacteremia during the COVID-19 pandemic. *Diagnosis*. 2021;8:327-32.
 21. Czeisler M, Marynak K, Clarke K, Salah Z, Shkya I, Thierry J, et al. Delay or avoidance of medical care because of COVID-19-related concerns - United States, June 2020. *MMWR Morb Mortal Wkly Rep*. 2020;69:1250-7.
 22. Santini Z, Jose P, York Cornwell E, Koyanagi A, Nielson L, Hinrichsen C, et al. Social disconnectedness, perceived isolation, and symptoms of depression and anxiety among older Americans (NSHAP): a longitudinal mediation analysis. *Lancet Public Health*. 2020;5:e62-70.
 23. Walker E, McGee R, Druss B. Mortality in mental disorders and global disease burden implications: a systematic review and meta-analysis. *JAMA Psychiatry*. 2015;72:334-41.
 24. Ciucurel C, Iconaru EI. The importance of sedentarism in the development of depression in elderly people. *Procedia Soc Behav Sci*. 2012;33:722-6.
 25. Huber B, Schlichtiger J, Drey M, Steffen J, Brunner S. Change of the physical activity scale for the elderly (PASE) score after COVID-19 outbreak. *J Sports Med Phys Fitness*. 2021 (in press). doi: 10.23736/S0022-4707.21.12453-3.
 26. Machado-Lima A, Alonso A, Gozzo D, Zanca G, Brech G, Montiel J, et al. Self-perception of changes in routines in adults and older adults associated to social distancing due to COVID-19-A study in São Paulo, Brazil. *Front Psychol*. 2021;12:607559.
 27. Brenner M, Bhugra D. Acceleration of anxiety, depression, and suicide: secondary effects of economic disruption related to COVID-19. *Front Psychiatry*. 2020;11:592467.
 28. Passos L, Prazeres F, Teixeira A, Martins C. Impact on mental health due to COVID- 19 pandemic: cross-sectional study in Portugal and Brazil. *Int J Environ Res Public Health*. 2020;17:6794.
 29. Courtin E, Knapp M. Social isolation, loneliness and health in old age: a scoping review. *Health Soc Care Community*. 2017;25:799-812.