REVIEW ARTICLE

COVID-19 Outbreak Restrictions on Daily Activities and Its Psychological Impact on Elderly: A Scoping Review

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ABSTRACT

Following the novel coronavirus (COVID-19) outbreak, restrictions imposed to curb the virus spread may affect the elderly population. Therefore, a scoping review was conducted to map the daily activities restrictions and the psychological impacts on the elderly. Articles from five databases, including Web of Science, Scopus, Cochrane Library, Science Direct, and Google Scholar were retrieved that used "disease outbreaks" or "infectious disease outbreaks" and "elderly" or "older adult" or "geriatric" or "old age", which provide relevant insight on the restrictions and psychological impacts on the elderly, published throughout this COVID-19 pandemic until July 2021. Twenty-one eligible articles were included and summarised using thematic analysis. Restrictions throughout the pandemic may, directly and indirectly, impact the elderly's psychological wellbeing and vary according to their age, gender, previous history of mental illness, comorbidities, and social support. Therefore, the strength of association between each variable should be identified to facilitate healthcare providers in managing the impact of COVID-19 on the elderly population.
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INTRODUCTION

Many countries are recovering from the novel coronavirus (COVID-19) pandemic. Despite mixed opinions from the experts (1-3), pandemic restrictions were gradually relaxed worldwide. However, the pandemic restrictions' expensive cost warrants urgent emphasis on all sectors, including the healthcare sector. Thus far, evidence indicated that the elderly was one of the most affected populations due to the pandemic restrictions (4, 5). The elderly population had the highest infection, hospitalisation and mortality rate (4, 6, 7). Furthermore, following the golden age, the elderly were often associated with increased psychological needs to achieve successful ageing (8). These needs were usually addressed by promoting their health and wellbeing through maintaining healthy nutritional intake, lifestyles, physical functioning and social functioning (9-11).

Since the COVID-19 outbreak, approximately 7.1 billion people have been affected due to the travel restriction imposed by more than 130 countries (12). Despite objections to the prolonged travel restrictions and doubt on its effectiveness, this restriction was believed to be necessary to slow down the spread of COVID-19 to other countries (12, 13), especially since the virus mutated and more variants were identified that may or may not be effectively combated by the current vaccination program (14-16). Besides travel restrictions, quarantine and social distancing were imposed to reduce the human-to-human transmission of COVID-19 (17, 18). However, these measures may not effectively curb the spread of COVID-19 (19). Hence, other measures were necessary to complement the existing restrictions, including wearing a proper facemask, frequently washing hands and face, and rigorous contact tracing (20-22).

The restrictions imposed to curb the virus spread may have implications for the elderly population, including their activities and routines. Prior to the pandemic, activity restrictions among the elderly were detrimental to their health and well-being (23, 24). For example, the elderly with higher activity restrictions had a higher risk of falls, social isolation, and depression (23, 24). Moreover, higher activity restrictions were associated with poorer life satisfaction (25). Hence, it is crucial to explore the restriction of daily activities among the elderly following the pandemic restrictions.

Additionally, almost one year after combating the pandemic, a theoretical review was conducted to explore the possible psychological impact of the pandemic (4). However, fewer studies covered in this previous review limit the understanding of potential psychological implications worldwide. Furthermore, after almost two years, COVID-19 showed no sign of defeat, thus leading to prolonged restrictions that may impart detrimental psychological impacts on the elderly. Hence, there is a need to specifically identify the implications following the pandemic restrictions concurrent with the elderly's increased psychological needs. Therefore, this scoping review aimed to map the pandemic restrictions and the psychological impacts on the elderly.

METHODS

A scoping review was done according to the guideline by Arksey and O'Malley (26) and PRISMA extension for scoping review (27). Both guidelines were relevant to provide a structured methodology and comprehensive reporting of a scoping review.

Identifying the Research Questions

There were many restrictions following the pandemic. However, some restrictions may affect the elderly while the others were not related. This review aimed to answer the following PICOS questions: (i) What are the pandemic restrictions on the elderly population? (ii) What are the psychological impacts of pandemic restrictions on the elderly population and their prevalence compared to other age groups? In this review, the population (P) focused on was the elderly. No intervention (I) was reviewed, but the pandemic's restrictive measures were the independent variable. Furthermore, if available, comparison (C) with other age groups or before and after the pandemic will be reviewed. The outcomes (O) focused in this review were related to daily activities restrictions and psychological status. The daily restrictions reported must be concurrent to exploring the elderly psychological status following the pandemic to capture daily activities restrictions correlated with their psychological status. Finally, all types of study design (S) were explored to capture a broad perspective of the daily activities and psychological impacts following the imposed pandemic restrictions.

Identifying Relevant Studies

MQMS and SR conducted the identification of studies. The Web of Science, Scopus, Cochrane, Medline (Ovid) and Google Scholar databases were searched in July 2021 using the main terms "disease outbreak" or "infectious disease outbreak" and "elderly" or "older adult" or "geriatric" or "old age" and "psychology". Potential articles were also identified from the reference in the screened articles. The identification process conducted by MQMS and SR was shown in Figure 1. No new relevant articles were found from cross-reference and hand searching.

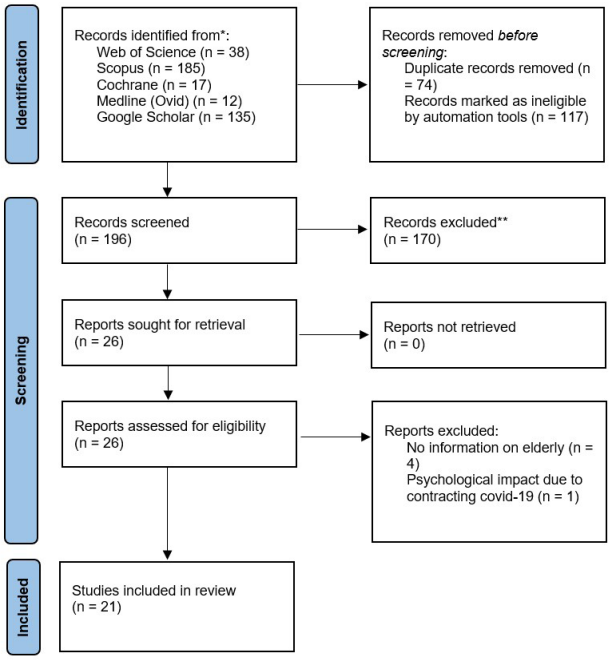

Figure 1: The search processes. The scoping review identified 387 hits, with 21 articles after the screening process.

Selection of Studies

MQMS and SR conducted the selection of studies. The inclusion criteria in this scoping review were: (i) published original articles throughout this COVID-19 pandemic; (ii) full text available in English; and (iii) provide relevant highlights on the pandemic daily activities restrictions and/or psychological impacts on the elderly population or general population that included the elderly. However, articles with daily activities restrictions and psychological issues among the elderly but not related to the pandemic restrictions were excluded in this review.

Charting the Data

The data was charted by MQMS and AZCD and summarised in Table I according to the author, year, participants, country, age, study design, data collection period, outcome measures and findings relevant to this review.

Collating, Summarising and Reporting the Results

All authors conducted the analysis, and the results were

Table I: Articles summary

First author, year	Participants, country	Age	Design	Data collection	Questionnaire(s)/outcome measure(s)	Daily activities restrictions	Psychological impact
Barzilay, 2020 (36)	3042, USA and Israel	≤30-70+	Cross-sectional study	During total lockdown	COVID-19 Resilience Survey, Generalised Anxiety Disorder Questionnaire (GAD-7), Patient Health Questionnaire (PHQ-2)	-	Elderly was associated with lower likelihood of anxiety, but not depression.
Bernabe-Valero, 2021 (42)	302, USA	18-60+	Cross-sectional study	During total lockdown	Gratitude Questionnaire (G-20), Ten-Item Personality Inventory (TIPI), Revised Purpose in Life Questionnaire (PIL-R), Brief Scale of Religiosity (BSR), Positive and Negative Affect Schedule (PANAS)	-	The older the age, the lower the negative affect (better well-being).
Boateng, 2021 (44)	199, Ghana	18-65+	Retrospective cohort study	Before and during total lockdown	World Health Organisation (WHO)-Five Well-Being Index, Boredom Proneness Scale (short form), GAD-7,	-	The older the age, the smaller the changes in boredom and well-being following the pandemic. The elderly had higher well-being scores than other age groups.
Bonati, 2021 (38)	20158, Italy	18-66+	Cross-sectional study	During total lockdown	COVID-10 Peritraumatic Distress Index (CPDI)	-	More than 39% of the elderly group experienced mild to severe psychological distress including depressive, anxiety and physical symptoms.
Czeisler, 2021 (46)	1157, Australia	18-65+	Prospective cohort study	During prolonged lockdown	COVID-19 Outbreak Public Evaluation (COPE) Initiative	-	Older adults had significantly lower prevalence of adverse mental or behavioural health conditions.
De Micco, 2021 (41)	94, Italy	±65	Retrospective cohort study	Before and during total lockdown	Unified Parkinson's Disease Rating Scale (UPDRS), The Schwab and England Scale (S&E Scale), Non-Motor Symptom Scale (NMSS), Montreal Cognitive Assessment (MOCA), Beck Depression Inventory (BDI), Parkinson Anxiety Scale (PAS), Apathy Evaluation Scale (AES), Parkinson Fatigue Scale (PFS), Epworth Sleepiness Scale, Parkinson's Disease Questionnaire (PDQ-39)	-	The psychological impact of lockdown on elderly with Parkinson's disease (PD) was significantly associated with their anxiety level, treatment-related motor complications, quality of life before the pandemic and the period of lockdown.
Feeney, 2021 (28)	1342, USA	±70	Cross-sectional study	During total lockdown	COVID-19 related surveys*	The lockdown reduced the elderly with PD's physical activity and increased the used of telehealth.	More than half of the elderly with PD reported anxiety, feeling depressed, reduced interest or pleasure in daily activities or have sleep difficulties.
Ferreira, 2021 (40)	904, Portugal	18-60+	Cross-sectional study	During total lockdown	GAD-7, EQ-5D-5L	-	Elderly was one of the groups that experienced the highest level of anxiety.
Ferrucci, 2021 (37)	10025, Italy	≤34-65+	Cross-sectional study	During total lockdown	COVID-19 related surveys*	-	Elderly group has the lowest prevalence of anxiety, fear, anger, sadness and concern compared to other age groups.
Giebel, 2021 (33)	377, United Kingdom	18+ with Dementia/ 65+	Prospective cohort study	During total lockdown (multiple period)	Index of Multiple Deprivation (IMD), Service Usage Surveys*, Personalised Health Questionnaire (PHQ-9), GAD-7, Short Warwick-Edinburgh Mental Well-Being Scale (SWEMWBS)	The social support services dropped following lockdown.	There was a downward trend of anxiety but an upward trend of depression throughout the total lockdown.
Janiri, 2020 (48)	134, Italy	65+	Retrospective cohort study	Before and during total lockdown	Motor examination section of UPDRS, disease stage by Hoehn and Yahr (H&Y), COVID-19 psychological impact survey*	-	More than 20% elderly with PD presented with subjective worsening of psychiatric symptoms.

(Continue.....)

Table I: Articles summary (Continued....)

First author, year	Participants, country	Age	Design	Data collection	Questionnaire(s)/outcome measure(s)	Daily activities restrictions	Psychological impact
Lee, 2020 (34)	279, Hong Kong	65+	Retrospective cohort study	Before and during total lockdown	Medical record (admission and sociodemographic), Cumulative Illness Rating Scale for Geriatric	There was a reduction in outpatient attendance, nurses' home visit and the increasing need for inpatient care among elderly with dementia.	There was an increase in psychogeriatric admissions following the COVID-19 outbreak that was not related to the seasonal variation especially among elderly living in the residential care homes.
Lo Coco, 2021 (45)	3876, Europe	18-72	Cross-sectional study	During total lockdown	Fear of COVID-19 Scale, Three-Item Loneliness Scale	-	In countries with a mild spread of infection, the elderly experienced more symptoms of loneliness.
López, 2020 (47)	878, Spain	60-80	Cross-sectional study	During total lockdown	The Family APGAR, Brief Resilience Coping Scale (BRCS), Gratitude Subscale of the Values in Action Inventory of Strengths-Short Form, The Acceptance and Action Questionnaire-II (AAQ-II), Ryff's Psychological Well-Being Scale	-	The old-old group (71-80 years old) had similar psychological well-being with the young-old group (60-80) with both groups were not significantly affected by the COVID-19.
Manini, 2021 (31)	94, Italy	±83	Cross-sectional study	During prolonged lockdown	COVID-19 related surveys*, Neuropsychiatric Inventory (NPI)	Most elderly with dementia continued receiving visits from their family members throughout the lockdown.	The elderly with dementia experienced a slight increase, but clinically irrelevant in behavioural and psychological symptoms of dementia (BPSD) including apathy, irritability, agitation, aggression, and depression.
Orhan, 2021 (32)	81, Netherlands	±66	Retrospective cohort study	Before and during total lockdown	Young Mania Rating Scale (YMRS), Beck Anxiety Inventory (BAI), Social Participation Scale (SPS), Pearlin Mastery Scale, Revised NEO Personality Inventory, COVID-19 related surveys*	Their lifestyle may be less affected by the COVID-19 restrictions.	The elderly showed fewer psychiatric symptoms (depression and anxiety) during the COVID-19 than before the pandemic.
Shan Wong, 2020 (35)	583, Hong Kong	≥60	Retrospective cohort study	Before and during total lockdown	De Jong Gierveld Loneliness Scale (DJGLS), PHQ-9, GAD-7, Insomnia Severity Index (ISI), medical records	Medical appointments' attendance reduced 3 months following the pandemic.	Elderly with multimorbidity had significant increases in loneliness, anxiety and insomnia following the COVID-19 pandemic.
Tamilmani, 2021 (29)	102, Not Specified	50-65+	Cross-sectional study	During total lockdown	COVID-19 awareness and impact surveys*	The elderly experienced routine changes including daily walks and social participation with their peers.	Almost half of the elderly experience depressive symptoms.
Thyrian, 2020 (30)	141, Germany	64-98	Retrospective cohort study	Before and during total lockdown	COVID-19 impact surveys, PHQ-2, GAD-7	There were significant decreases in their social activities, healthcare services' utilization and medical appointments' attendance. However, there was an increase in telephoning their peers and gardening.	There was no increment in depressive symptoms among the elderly with cognitive impairment.
Venugopal, 2020 (39)	453, India	18-60+	Cross-sectional study	During total lockdown	General Health Questionnaire (GHQ-2)	-	More than 40% of the elderly experience severe psychological distress.
Zhou, 2021 (43)	1278, China	≤70-80+	Cross-sectional study	During total lockdown	Psychological Questionnaire for Emergent Event of Public Health (PQEEPH)	-	The elderly experienced mild negative emotions during the COVID-19 lockdown.

*Non-standardised questionnaire/outcome measures

summarised in Table I using thematic analysis. MQMS and SR discussed the findings thru several face-to-face meetings and the findings were then verified by NFAR, MKSY and AZCD. There was no data collection during the discussion. The findings were discussed in two pre-set themes namely; (i) daily activities restrictions during the pandemic and (ii) psychological impacts of the pandemic restrictions on the elderly.

RESULTS

Twenty-one articles met the inclusion criteria. All included articles were quantitative studies, including cross-sectional studies (n=12), retrospective cohort studies (n=7) and prospective cohort studies (n=2), with most of the data gathered from the European continent (n=11), dominated by Italy (n=5). Most studies collected the data during the total lockdown period (n=12), while some retrieved the data before the total lockdown and compared it with the data following total lockdown (n=7), and two studies gathered the data during the prolonged lockdown. The sample size ranged from 81 to 20158 participants. Eleven articles were specific to the elderly, while ten articles described the impact on the general population, including the elderly.

Various outcome measures were utilised to identify the psychological impact of COVID-19's restrictions. Generalised Anxiety Disorder Questionnaire (GAD-7) and Patient Health Questionnaire (PHQ-2/9) were frequently used to assess anxiety (n=6) and depression (n=4), while some studies utilised non-standardised assessments (n=4).

Theme 1: Daily Activities Restrictions on Elderly (n=8)

Measures to curb the COVID-19 outbreak reduced outdoor physical activity among the elderly (28, 29) but increased indoor physical activity such as gardening (30). Furthermore, social participation among the elderly showed significant decreases (29, 30). However, most elderly continued receiving visits from their family members throughout the lockdown (31) and keeping in touch with their peers using mobile phones (30). The elderly with bipolar disorder may be less affected by the COVID-19 restrictions as their lifestyle was susceptible to changes (32). Furthermore, healthcare and social support services were dropped following the lockdown (30, 33, 34), followed by a downtrend in attendance of medical appointments (30, 34, 35). However, due to the pandemic restrictions, the use of telehealth increased (28). The summary of specific daily activities restrictions on the elderly can be seen in Table II.

Table II: Daily activities restrictions among elderly that were related to their psychological health status

First author, year	Leisure & recreation	Health management	Social participation
Feeney, 2021 (28)	X	X	
Giebel, 2021 (33)		X	
Lee, 2020 (34)		X	
Manini, 2021 (31)			X
Orhan, 2021 (32)			X
Shan Wong, 2020 (35)		X	
Tamilmani, 2021 (29)	X		X
Thyrian, 2020 (30)	X	X	X

Theme 2: Psychological Impacts of Pandemic Restrictions on Elderly

Subtheme 1: Anxiety (n=10)

This review found mixed findings on anxiety due to the pandemic restrictions among the elderly. Some studies reported decreased or lowered likelihood of anxiety during the total lockdown (32, 33, 36, 37), while other studies reported mild to severe anxiety (28, 38, 39), and the elderly was one of the groups with the highest level of anxiety (40). Besides, anxiety symptoms were significantly increased among the elderly with multimorbidity such as diabetes, hypertension, heart disease and high cholesterol (35). Additionally, anxiety level before the lockdown was significantly associated with the psychological impacts among the elderly with Parkinson's disease (41).

Subtheme 2: Depression (n=8)

Following the total lockdown, some studies reported decreased or less likelihood of depressive symptoms (30, 32, 36), while other studies reported mild to severe depressive symptoms (28, 29, 38) and an upward trend of depression (31, 33). However, there was only a slight increase in depression, which was clinically irrelevant (31).

Subtheme 3: Other psychological issues (n=12)

Following the total lockdown, the elderly experienced mild negative emotion (42, 43) and small changes in boredom (44) but significant increases in loneliness (35, 45), insomnia (28, 35), and reduced interest (apathy) to participate in daily activities (28, 31). However, the elderly reported lower adverse mental or behavioural health conditions than the other age group and were not significantly affected by the COVID-19 restrictions (37, 46, 47). Contrarily, some studies reported an increase in adverse mental or behavioural health conditions (31, 48) and an increase in psychogeriatric admissions that were not related to a seasonal variation, especially among institutionalised elderly (34). The summary of specific psychological issues explored can be seen in Table III.

DISCUSSION

This scoping review aimed to map daily activities restrictions and the psychological impacts of the pandemic restrictions on the elderly. Following the pandemic restrictions, the reduction in outdoor physical activity may be detrimental to the elderly as physical activity level was associated with their physical and mental health (49-51). However, despite increasing

Table III: Psychological impacts explored among the elderly following pandemic restrictions

First author, year	Anxiety	Depression	Affect	Boredom	Loneliness	Insomnia	Apathy	Irritability	Agitation	Aggression	General, unspecified
Barzilay, 2020 (36)	X	X									
Bernabe-Valero, 2021 (42)			X								
Boateng, 2021 (44)				X							
Bonati, 2021 (38)	X	X									
Czeisler, 2021 (46)											X
De Micco, 2021 (41)		X									
Feeney, 2021 (28)	X	X				X	X				
Ferreira, 2021 (40)	X										
Ferrucci, 2021 (37)	X		X								
Giebel, 2021 (33)	X	X									
Janiri, 2020 (48)											X
Lee, 2020 (34)											X
Lo Coco, 2021 (45)					X						
Lopez, 2020 (47)											X
Manini, 2021 (31)		X					X	X	X	X	
Orhan, 2021 (32)	X	X									
Shan Wong, 2020 (35)	X				X	X					
Tamilmani, 2021 (29)		X									
Thyrian, 2020 (30)		X									
Venugopal, 2020 (39)											X
Zhou, 2021 (43)			X								

indoor physical activities, participation in outdoor activities was crucial to improving their vitamin D level and immune system (50, 52). In addition, World Health Organisation (WHO) recommended at least 150-300 minutes of moderate-intensity aerobic physical activities or at least 75-150 minutes of vigorous-intensity aerobic physical activities throughout the week, including physical activities focused on functional balance and strength (53). These recommendations were crucial for the elderly to maintain their endurance, stability and strength and reduce the risk of all-cause mortality, especially throughout this pandemic (53).

The reduction in social participation among the elderly was associated with lower social support, more depressive symptoms and poorer cognitive functions (54, 55). However, this review also captured an increasing trend among the elderly to socialise with their peers using mobile phones. Although contrary to conventional social participation, using mobile phones and socialising through social media with their peers showed promising effects on improving their social participation (56). Subsequently, improving social participation will be beneficial as it was often associated with lowered odds of depression and higher life satisfaction among the elderly (54, 57)

Nevertheless, some elderly's lifestyles, including physical and social activity, were not affected as their lifestyles were less susceptible to change than the younger age group (32). This may be due to fewer daily activities variation consisting mostly of indoor activities. Thus, the restrictions following the lockdown measures were less apparent to some elderly and minimal routine changes were required. However, this review found few daily activities restrictions explored concurrent with psychological status, hence warrants further exploration on broader scopes of daily activities, including basic daily activities, productivity and sleep.

The elderly were often associated with an increased need for healthcare services (58). However, this review found that the pandemic restrictions reduced the frequency of accessing healthcare and social services. Therefore, it appeared that the increased use of telehealth was necessary to adapt and overcome the pandemic restrictions on healthcare access. However, while telehealth was proven beneficial, there were many barriers to using telehealth, such as the cost, literacy in technology, and internet coverage (59). Furthermore, the elderly in developing and underdeveloped countries had poorer acceptance of the use of telehealth than the elderly in developed countries (60-63). Hence,

conventional healthcare services were crucial, especially in developing and underdeveloped countries.

This review found contradictory psychological impacts of pandemics across the globe. However, the findings do not rule out the need to manage the psychological impacts of pandemic restrictions among the elderly. To curb the spread of COVID-19, WHO recommended that people avoid places that are closed, crowded, and in close contact with other people (64). As the elderly were more vulnerable to severe COVID-19 complications (5), they had to abide by these recommendations at the cost of limiting their outdoor physical activities and social participation. These limitations will deteriorate their mental health, especially in developing symptoms of anxiety and depression (65).

The contradicting psychological impacts may also be due to the differences in demographics, previous history of mental illness, comorbidities and social support. For example, studies found that female elderly had higher psychological distress than male elderly (9, 66, 67). In addition, the elderly with a previous history of mental illness, comorbidities and poor social support were more likely to experience higher psychological distress (68-70). However, further investigation is needed to understand the strength of each variable in affecting the psychological well-being of the elderly.

This scoping review provides an overview of the daily activities' restrictions and psychological impacts of the pandemic restrictions on the elderly population across the globe. While there were contradicting findings in the literature, this study highlighted possible variables or concerns to be acknowledged by healthcare practitioners, especially since the COVID-19 pandemic is not over yet. Therefore, this review also warrants future qualitative studies on the in-depth understanding of the psychological impact of pandemic restrictions among the elderly to capture rich and thick insights that may enhance healthcare services delivery towards the client-centred practice. In addition, restrictions in daily activities may be detrimental to the elderly mental health status, suggesting comprehensive care by the healthcare practitioners that focus on adaptation and coping strategies for daily activities participation, successful ageing, and personalised mental health needs and care.

The COVID-19 pandemic affects the countries differently (71). This may account for the differences in the psychological impacts; hence, it needs further exploration. Furthermore, although thoroughly selected articles were included in this study, some limitations were apparent as articles other than in English and other databases may not be included, followed by the rapid growth of literature throughout this pandemic. In addition, fewer published studies from continents other than Europe were available, especially in Africa, Asia, and South America. Thus, the interpretation of this review may not be generalisable to all populations and warrants further exploration from continents other than Europe.

CONCLUSION

This scoping review found that the elderly population was restricted in their daily activities following the COVID-19 restrictions. In addition, restrictions throughout this pandemic may, directly and indirectly, impact the elderly's psychological wellbeing, including anxiety, depression, apathy, loneliness, and negative affect. These psychological impacts vary according to their demographic, previous history of mental illness, comorbidities, and social support.

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