

REVIEW

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Eating disorders during the COVID-19 pandemic: scoping review of psychosocial impact

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Abstract

Background The outbreak of the COVID-19 pandemic in early 2020 drastically changed the daily lives of the entire population. Despite being efficient in helping to avoid deaths and prevent the collapse of the healthcare system, social distancing can lead to unfavorable outcomes in the physical and mental health of the population, in particular, those diagnosed with eating disorders. This scope review aimed to analyze the scientific production on the psychosocial impact of the COVID-19 pandemic on people with eating disorders, in the subtypes anorexia nervosa and bulimia.

Method This is a scope review, based on a rigorous method based on the PRISMA strategy. The indexed databases PubMed, LILACS, PsycINFO, Web of Science, SciELO, CINAHL, and Embase were consulted. After screening 387 records, 19 studies were included in the review.

Results The results were subdivided into four thematic categories: (1) repercussions of confinement on daily life, in which the impacts of social distancing on daily life are presented, such as greater contact with the family and sudden changes in routine; (2) impacts on the treatment performed for eating disorders, underlining the effects of discontinuity of face-to-face treatments; (3) consequences for mental health, highlighting the consequences of the uncertain period for psychological distress; and (4) effects on symptoms of eating disorders, emphasizing the consequences of the pandemic for the symptoms of anorexia and bulimia.

Conclusion We concluded that the confinement and uncertainties of this period accentuated preexisting symptoms, arousing feelings of helplessness and loneliness, especially because they were patients who were more susceptible to routine changes and fragilization of social support networks. Strengthening the personal support network is especially important, as well as investing in strengthening the bond between family members and health services, which points to future research.

Keywords Anorexia nervosa, Bulimia, Eating disorders, Scope review, Literature review, COVID-19

Background

The outbreak of the COVID-19 pandemic in early 2020 drastically changed the daily lives of the entire population, especially after the implementation of sanitary measures aimed at containing the high transmissibility of the virus. Social distancing and domestic confinement were the measures which most affected people's daily lives among the adopted strategies. These non-pharmacological strategies were widely used by public health, in combination with the use of a face mask and

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frequent hand hygiene, especially in the first wave when the vaccine was not yet available. Despite being efficient in helping to avoid deaths and prevent the collapse of the healthcare system, social distancing can lead to unfavorable outcomes in the physical and mental health of the population [1, 2]. In fact, with the pandemic, mental health became an area which began to attract more attention from specialists, governments, and health professionals in general [3–5].

Although the population as a whole is susceptible to the consequences of an uncontrolled pandemic, its impacts are disproportionate on different social groups [5]. Some are more vulnerable to drastic routine changes and necessary adjustments in lifestyle [6], as is the case of the population that already had a history of mental health distress [7]. The pandemic has also been associated with poorer quality of care provided to the public [8].

Among individuals with a history of mental disorders, those diagnosed with eating disorders (EDs), especially the anorexia nervosa (AN) and bulimia nervosa (BN) subtypes, are likely to present complications of their clinical condition when compared to the pre-pandemic period. EDs are characterized as serious disturbances in eating behavior which are persistent, compromising physical and psychosocial health [9]. A central dimension of AN-BN is the belief that a person's worth is directly linked to their ability to control weight and eating, which represents an additional challenge during a pandemic and domestic confinement. This study explores the hypothesis that affected people face additional difficulties in adjusting to changes in habits required by the new social context configured by the health emergency.

EDs are considered disabling and potentially lethal. Scientific literature and clinical observations suggest that the etiology is multifactorial and includes neurobiological vulnerability, personality functioning, family relationship dynamics, and sociocultural environmental factors in its symptomatological configuration [10, 11]. In addition, they have a psychological profile characterized by severe body image distortion, perfectionism, inflexible eating behavior, intense affective reactivity, low self-efficacy, impaired self-esteem, feelings of loneliness, and pathological introversion [12]. This symptomatological constellation can weaken the social support network, reducing the possibilities of emotionally maturing and dealing with frustrations and sudden changes in their lives [12–14].

Thus, a sudden change in routine, a climate of generalized uncertainty, and interruption of daily activities make patients susceptible to uncontrolled manifestations and impulsive acts, functioning as triggers for compulsive behaviors. In addition to compulsive eating, the fact of having to remain at home for a prolonged period of time can accentuate the fragility of the social support network,

resulting in an increased feeling of social isolation, loneliness, and a lack of social support from people they can rely on [15].

The fact that they stay longer at home also affects family relationships. Rigid family interaction patterns are one of the risk factors for maintaining ED symptoms [16]. Thus, more intense interaction with family members in the new context that the pandemic instigates can have negative consequences on the well-being of people with AN and BN, as well as their family caregivers [17].

People diagnosed with EDs require continuous and intensive care supported by a therapeutic plan designed and implemented by a multidisciplinary health team [18]. It is worth remembering that social isolation measures forced medical teams to transpose what was possible to remote formats in a massive and emergency adherence to telemedicine. Discontinued treatment produces ruptures which weaken the therapeutic bond, especially in patients who are already characterized by marked relational difficulties, such as people with anorexia and bulimia [17]. In addition, it is known that certain comorbidities can increase the risk of serious complications, and in the case of patients who are immunocompromised or in poor health (for example, due to a high degree of malnutrition), the chances of negative outcomes from COVID-19 infection can be accentuated.

Thus, studies hypothesize that discontinued or intermittent care, together with the sudden changes in daily habits and the instability resulting from the emergence of a new and fearful infectious-contagious disease, may have contributed to worsening the symptoms of people with AN and BN in this new scenario [19]. In view of these issues, the following research question was formulated: How does social isolation impact people diagnosed with an ED? Therefore, this study was designed to better understand the magnitude of these impacts and aims to analyze the scientific production of the psychosocial impact of the COVID-19 pandemic on people with AN and BN.

Methods

This is a documentary, descriptive, and retrospective study. It is a scoping review, which consists of a systematic study of the literature with the objective of mapping the key concepts that support a field of research, clarifying the definitions and/or conceptual limits about a theme in a given context [20, 21]. This type of documentary study is useful for examining the emerging evidence, especially when it is still unclear what more specific questions can be raised [21]. This characteristic, as well as the greater flexibility of unconventional materials that can be included, make the scoping review a pertinent method for the pandemic situation [22].

This study followed the systematization proposed by Arksey and O'Malley [20] consisting of five steps: (1) identification of the research question, (2) identification of relevant studies, (3) study selection, (4) data mapping, and (5) data grouping, analysis, and summary. The guiding question of this study was elaborated according to the PCC strategy [21]. The acronym can be broken down into the following: population (people with EDs), concept (physical and mental health), and context (COVID-19 pandemic). Using this strategy, we created the following guiding question for the review: What are the psychosocial repercussions of the COVID-19 pandemic (Cont) on the physical and mental health (Conc) of patients with AN-BN (P)?

Still, under the direction given by the PCC, the search strategy was established using the following descriptors in English and in Portuguese available in the Descriptors in Health Sciences (DeCS) and in the Medical Subject Headings (MeSH): (P)—eating disorders, feeding and eating disorders, appetite disorder, anorexia nervosa, anorexia, and bulimia nervosa; (Conc)—therapeutic, therapies, treatment, *psicoterapia*, psychotherapy, therapeutic relationship, *aliança*, treatment satisfaction, dropout, mental health services, and *equipe de assistência ao paciente*; and (Cont)—COVID-19, pandemics, COVID-19 pandemic, SARS-CoV-2, *quarentena*, quarantine, *distanciamento físico*, and physical distancing. The final line or track was created with the Boolean operators AND between each of the acronyms and OR between the different descriptors of each one, namely ((P1 OR P2 OR P3...) AND (Conc1 OR Conc2 OR Conc3...) AND (Cont1 OR Cont2 OR Cont3...)).

Data collection was carried out on February 7 and 8, 2022, in the following databases: PubMed, LILACS, PsycINFO, Web of Science, SciELO, CINHALL, and Embase, selected for their relevance. The searches were carried out through the *Portal de Periódicos CAPES/MEC*, with institutional access via the Virtual Private Network (VPN) of the university to which the researchers are linked, University of São Paulo (USP).

The eligibility criteria for study selection were defined as follows: articles that addressed the psychosocial effects of the pandemic on patients diagnosed with ED, published from the end of 2019 (overall initial start time of the pandemic) until February 2022. This period was chosen because of the interest in knowing the acute impact of the early stages of the COVID-19 pandemic on people with ED. The exclusion criteria adopted were thesis, dissertation, book, chapter, abstract, letter to the editor, editorial, review, commentary, and articles which did not contemplate the guiding question or that were written in a language other than Portuguese, English, or Spanish. We also chose to exclude studies focusing on people who

do not meet the diagnostic criteria for EDs or with other ED diagnoses other than AN or BN.

The studies were selected and evaluated by two independent reviewers (BBM and MAS). The results were compared in order to validate the selection of the study corpus using the kappa index, which showed satisfactory agreement between the evaluators. The articles were retrieved in full, and the data were tabulated. The non-quantitative contents of the corpus were systematized using the NVivo software program and organized into categories according to the thematic analysis assumptions [23].

Results and discussion

The search in the index databases resulted in a total of 387 articles, which were filtered according to the defined selection, eligibility, and inclusion parameters, producing a corpus of 19 records included in the study. The results obtained in each step can be seen in the flowchart (Fig. 1), prepared according to the PRISMA guidelines.

Description of articles included in the study corpus

It is important to outline some characteristics of the journals in which the articles in this review were published in order to offer an overall view of the results. Most (68.4%, $n=13$) are specialized journals focusing on EDs: *Journal of Eating Disorders* [24–27], *International Journal of Eating Disorders* [28–30], *Eating and Weight Disorders* [31, 32], *Journal of the Eating Disorders Association* [33], and *European Eating Disorders Review* [34, 35].

The other articles were published in general journals in the field of mental health (*JMIR Mental Health* [36], *Journal of Paediatrics and Child Health* [37]), psychiatry (*Frontiers in Psychiatry* [38]), and psychotherapy (*Research in Psychotherapy* [39]). Three other articles were published in nutrition journals: *Nutrients* [40, 41] and *Appetite* [42]. It is noteworthy that no article was found in psychology journals. All selected journals and articles are published in English. This result may have been influenced by the keywords used and the selected databases, although we used two Latin American databases in our search (LILACS and SciELO).

Regarding the country of origin of the research and using the institutional affiliation of the first author as a criterion, we observed that 52.6% ($n=10$) are from European countries: Italy [31, 32, 39], Spain [34, 40], Germany [29, 35], Portugal [25], and Austria [41]. Moreover, four articles are from the USA [27, 30, 36, 37], another four are from the UK [24, 33, 38, 42], and one is from Canada [26].

Research analysis showed that 52% ($n=10$ studies) of the studies sought to measure improvement or worsening of the clinical condition of patients and evaluated in

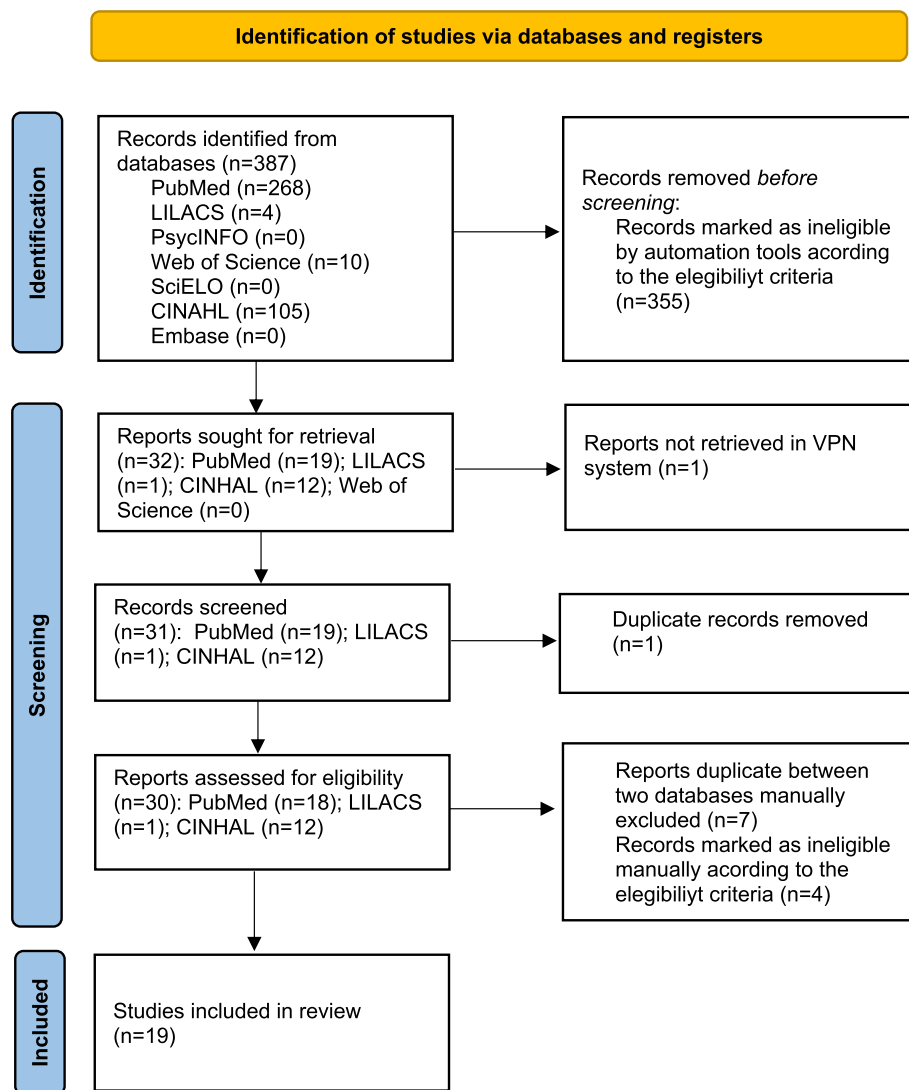


Fig. 1 PRISMA diagram of the study selection process

terms of frequency of symptoms directly related to dysfunctional eating behavior and/or measures of mental health. Of the total, 78% ($n=9$) investigated which factors contributed or not to patients facing the challenges of the pandemic moment. Six studies have a quantitative design [27, 29, 31, 34, 35, 40], six were conducted with a qualitative approach [26, 33, 36, 37, 41, 42], five used a mixed method [24, 25, 30, 38, 39], and two are longitudinal studies [28, 32].

Samples ranged from 10 to 1021 subjects, with a total of 3600 participants in all analyzed studies. Only two studies included patients and family members [33, 41], while the majority ($n=17$, 89.5%) were restricted to investigating patients. Of these, the studies developed by Brown et al. [42] and Termorshuizen et al. [30] included

people with self-reported ED, which limits the reliability of the sample and the generalizability of the results. No study evaluated the perception of the health team or professionals.

The studies by Spettigue et al. [26] and Springall et al. [37] are documentary and used databases (clinical records) of specialized services for data collection. Albano et al. [39], McCombie et al. [38], and Nutley et al. [36] collected data on online platforms or social networks. Questionnaires applied through a digital platform predominated regarding the instruments used, which could contain closed and open questions, batteries of standardized instruments to assess mental health measures, dysfunctional eating behavior, and treatment evaluation. One study [25] used a telephone interview.

A total of 11 articles of the 19 studies were published in 2020 and eight in 2021. The general characteristics of the studies which compose the corpus of this review were organized (Table 1), systematizing information such as objective, study design, sample, data collection (instruments), level of evidence (LE), and the main results of each article. LE was measured according to the classification proposed by Phillips et al. [43], with the following strata being found: 2b, which is the level corresponding to cohort studies (including lower quality randomized clinical trials); LE 2c, which presents the observation of therapeutic results; LE 4 (case reports); and LE 5, which concerns expert opinion devoid of critical evaluation or based on basic matters. Most ($n = 11$, 57.8%) of the studies have LE 2c.

The following can be mentioned as the main limitations of the studies: studies with small samples, difficulties in adopting more rigorous methodological controls due to social distancing restrictions, and the use of online questionnaires with people with only a presumed diagnosis (self-declared), which can compromise the sample homogeneity. The non-quantitative results were organized according to the prevailing content into four thematic categories: (1) repercussions of confinement on everyday life, (2) impacts on the treatment performed for EDs, (3) mental health consequences, and (4) effects on ED symptoms.

Repercussions of confinement in everyday life

The analyzed studies highlight that one of the main changes perceived by people with EDs was the sudden transformation of everyday life. The studies by Machado et al. [25] and Clark Bryan et al. [33] highlight that most patients stated that their routine was drastically impacted by coronavirus containment measures. One consequence of this substantial modification concerns the social interaction of people with EDs. A previous study [13] points to the importance of the social support network for maintaining the psychological well-being of people with EDs. This network shrunk or was abruptly disadvantaged during the confinement period. Albano et al. [39], Branley-Bell and Talbot [24], Brown et al. [42], Clark Bryan et al. [33], Monteleone et al. [31], Schlegl et al. [29], Vitagliano et al. [27], and Zeiler et al. [41] highlight the negative consequences of social isolation, such as the difficulty in accessing the support network, especially outside the family. A participant in the study by Branley-Bell and Talbot [24] reports: "Not seeing those close to me who would recognise my losing weight and deterioration has put me under less pressure to challenge my ED" (p.5).

According to the analyzed studies, the health crisis scenario may have deepened the feeling of loneliness, which was already a common manifestation in this population

[14]. Brown et al. [42] highlight the speech of a participant: "existential loneliness felt incredibly desperate and really quite painful" (p. 4).

In addition, spending more hours indoors means more time spent with the family. Albano et al. [39] found that many reports of difficulties in expressing feelings were found in the posts made by people with ED during confinement, as well as a feeling of being the target of critical judgment by the family in relation to their symptoms. One of the participants shared the message: "It's almost time for lunch and I'm very scared. I don't want to eat, but I don't know what to tell my parents. [...] But now I'm at home because of COVID-19. I feel trapped I don't know at all how to get out of this bad situation that has been dragging on for years" (p. 268). On the other hand, some reports also expressed the pleasant feeling of receiving support with the more constant presence of family members.

The ambivalence regarding greater proximity to family members during the confinement period was also identified in the qualitative study by Zeiler et al. [41]. The authors point out that the tension in family relationships was a relevant stressor for patients. However, the deprivation of other means of coexistence meant that family members were also recognized as the main support network for people with EDs in the most critical periods of social distancing. Termorshuizen et al. [30] also highlight the connection with family members as an important helping factor in the new context of restrictions imposed by COVID-19.

Another support network that proved to be feasible in the acute moment of confinement was the virtual communities established in social networks [35, 39]. For the authors, discussion forums and online groups function as spaces for sharing experiences, feelings, and ways of dealing with symptoms in the pandemic.

In contrast, greater use of social networks during this period may have been a factor in the worsening of symptoms, according to studies by McCombie et al. [38] and Branley-Bell and Talbot [24], with greater exposure to messages which can be considered triggers for EDs, as can be seen in the following statement: "There is a lot going around social media such as putting on weight during COVID-19 due to not doing as much and that is really triggering for people like myself" (p. 8) [24]. According to Moraes, Santos, and Leonidas [44], indiscriminate access to online content available in digital media has emotional reverberations in people with EDs, in addition to providing distorted and inconsistent information about ideals of health, weight loss, and diets, which can stimulate the obstinate search for the idealized body.

Other changes were noticed in everyday life, such as the difficulty in maintaining the pre-pandemic exercise

Table 1 Characterization of the studies selected for analysis according to author and year of publication, objective, methodological design, sample, instruments, level of evidence (LE), and main results

Author/year	Objective	Method/sample	Instruments	LE	Main results
Baenas et al. (2020) [40]	Explore changes observed during the lockdown in people from European and Asian countries diagnosed with EDs	Quantitative; 829 people diagnosed with EDs (unspecified) recruited from a specialized service	COVID-19 Isolation Scale (CIES)	2c	There was a worsening of ED symptoms in the sample, with variations according to the individual context, age and subtype
Branley-Bell and Talbot (2020) [24]	Analyze the impact of the COVID-19 pandemic on people with EDs	Mixed; 129 people with EDs (unspecified), aged 16–5 years, 94% women, recruited online	Online questionnaire with open and closed questions	2c	The changes imposed by the pandemic proved to be a risk for worsening ED symptoms, triggering feelings of loss of control, loneliness, and depressed mood
Castellini et al. (2020) [28]	Assess the impact of COVID-19 on patients diagnosed with EDs	Longitudinal (before and during the lockdown); 74 patients with ED (AN-BN) recruited from a specialized service and 97 individuals in the control group	Online questionnaire with closed questions	2b	Worsening of symptoms, such as increased compensatory behaviors and binge eating, as well as PTSD symptoms
Clark Bryan et al. (2020) [33]	Assess how COVID-19 has impacted patients with AN and their parents/caregivers	Qualitative; 21 patients with AN and 28 family members recruited from a specialized service	Semi-structured interviews	4	Reduced access to health services, changes in routine, and higher anxiety levels were the most significant difficulties for patients and their families
Fernández-Aranda et al. (2020) [34]	Analyze symptomatological changes resulting from social isolation and patients' acceptance of telemedicine	Quantitative; 121 patients with EDs (unspecified) recruited online	COVID Isolation Eating Scale (CIES)	2c	Increased symptomatology of EDs during confinement. Patients with AN presented the most difficulty with telemedicine
Machado et al. (2020) [25]	Analyze the impact of lockdown measures on a group of people with ED	Mixed; 102 patients with EDs (unspecified) recruited from a specialized service	Telephone interviews and questionnaire with closed questions	2c	Participants felt that the pandemic had impacted their routines in terms of eating and exercising. Association between pandemic and increase in ED symptoms, impulsivity, and difficulty in emotional regulation
McCombie et al. (2020) [38]	Understanding the psychological and behavioral processes of people with ED during the COVID-19 pandemic	Mixed; 32 people with ED (unspecified) recruited online	Online questionnaire with open questions	2c	Worsening of ED symptoms related to social isolation, depressed mood, anxiety, routine disorganization, and use of social media
Schlegl et al. (2020a) [29]	Explore the impacts of COVID-19 on patients with AN	Quantitative; 159 patients with AN recruited from a specialized service	Online questionnaire with closed questions	2c	AN-related symptoms were used by patients as dysfunctional mechanisms to deal with the impact of the pandemic
Schlegl et al. (2020b) [35]	Investigate the impacts of COVID-19 on patients with BN	Quantitative; 55 patients with BN recruited from a specialized service	Online questionnaire with closed questions	2c	Patients reported an increase in the frequency of binge eating and purging, in addition to a worsening of their quality of life

Table 1 (continued)

Author/year	Objective	Method/sample	Instruments	LE	Main results
Termorshuizen et al. (2020) [30]	Assess the first impacts of COVID-19 on people with self-reported EDs	Mixed; 1021 people with self-reported ED (unspecified) recruited online	Online questionnaire with open and closed questions	2c	COVID-19 was associated with increased anxiety and challenges related to managing ED symptoms, such as increased food restriction and binge episodes
Albano et al. (2021) [39]	Understand the impact of the first wave of the pandemic on people with self-reported EDs	Mixed; 244 posts and 3603 comments posted by 1971 people (86% women)	Posts available on online forums	4	Increased anxiety, feelings of anger, and negativity related to emotional, cognitive, and interpersonal aspects
Brown et al. (2021) [42]	Explore the impact of COVID-19 on people with EDs	Qualitative; 10 people with self-reported EDs (unspecified) recruited online. Age between 24 and 38 years	Interviews conducted online	4	The lockdown was perceived as a catalyst for ED symptoms by some participants and as a motivation to recover by others, depending on contextual variables
Monteleone et al. (2021) [31]	Explore which factors contributed to the worsening of symptoms in patients with EDs during the pandemic	Quantitative; 320 people diagnosed with ED (unspecified), recruited from a specialized service	Online questionnaire	2c	The following factors were relevant to the worsening of symptoms: weakened therapeutic relationship, isolation, and less social support
Nisticò et al. (2021) [32]	Explore the prevalence of anxiety and depression symptoms in people with ED compared to a control group of healthy people during the lockdown period	Longitudinal (6 months); 59 patients with EDs (unspecified) and 47 (control group) recruited from a specialized service	Online questionnaire containing scales: Depression, Anxiety and Stress Scale-21 items (DASS-21), Impact of Event Scale-Revised (IES-R), and the Perceived Stress Scale (PSS)	1b	Patients with EDs experienced higher levels of stress, depression, anxiety, and the impact of the stressful event compared to the control group. They also had symptoms of PTSD
Nutley et al. (2021) [36]	Characterize the perceptions of people with EDs about the influences of the pandemic on their symptoms	Qualitative; <i>N</i> unspecified	Search online forums	4	The impacts of COVID-19 on routine were associated with worsening mental health and increased symptoms of EDs. Virtual communities were used to seek help and support
Spettigue et al. (2021) [26]	Examine characteristics of adolescents who developed EDs during the COVID-19 pandemic and compare them with those who already had symptoms a year earlier	Qualitative (documentary); 48 patients with ED (unspecified). Average age: 14.6 years	Patient charts and documents, such as clinical reports and medical records	2c	People with EDs developed after the start of the pandemic showed greater medical instability and need for hospitalization compared to those who were already undergoing treatment before
Springall et al. (2021) [37]	Explore the effect of the pandemic on adolescents with EDs	Qualitative (documentary); 457 patients with ED (unspecified)	Patient charts and documents, such as clinical reports and medical records	2c	The restrictions imposed by the pandemic were considered triggers for EDs, demanding greater attention from the health team
Vitagliano et al. (2021) [27]	Examine how people with EDs perceived the impacts of the COVID-19 pandemic	Quantitative; 89 patients with ED (unspecified) recruited online	Online questionnaire with closed questions	2c	Participants were concerned about the worsening of ED symptoms triggered by routine changes, as well as feelings of anxiety, depression, and isolation

Table 1 (continued)

Author/year	Objective	Method/sample	Instruments	LE	Main results
Zeiler et al. (2021) [41]	Investigate the impacts of COVID-19 on patients with EDs	Qualitative; 13 AN patients (aged 13–18 years) and 10 family members recruited from a specialized service	Semi-structured interview	4	Changes in routine, evaluated as positive (more time available) and negative (lack of social support and interruption of treatment; less motivation to improve, uncertainty) stood out in the participants' speeches

Source: elaborated by the authors

and diet routine, as reported by Branley-Bell and Talbot [24], Brown et al. [42], Machado et al. [25], and Schlegl et al. [29]. This possibly accentuated the difficulties in controlling impulsivity and emotional regulation [12].

The longer time at home also brought some benefits in the view of three studies. The study by Termorshuizen et al. [30] identified more time dedicated to self-care, while the study by Zeiler et al. [41] detected the feeling of being able to “take it easy,” “go slower,” and thereby have more free time for themselves. Albano et al. [39] mention the possibility of learning to develop self-compassion, which has a special meaning for people who normally deprive themselves of pleasures or who adhere to self-destructive practices, such as self-mutilation.

Impacts on the treatment performed for EDs

Another significant change experienced by people with EDs during the pandemic was the discontinuity or transition of treatment to the online modality, which may have hindered access, adherence, and frequency of consultations, as highlighted in the studies by Branley-Bell and Talbot [24], Brown et al. [42], Castellini et al. [28], Clark Bryan et al. [33], Machado et al. [25], Monteleone et al. [31], Schlegl et al. [29], Spettigue et al. [26], and Springall et al. [37]. These data are relevant, since there is well-established evidence that people with EDs find it difficult to adhere to treatment [45].

Given this, it is necessary to understand the facilitating and limiting factors potentiated by this change in detail. Among the factors which hindered the transition to the new care modality, Albano et al. [39] and Zeiler et al. [41] identified damage to the professional-patient bond, which was shaken, as well as a break in the treatment routine. According to both studies, these factors weakened the motivation to receive specialized help during the pandemic, emphasizing the importance of ensuring a good therapeutic alliance to maintain treatment [46].

The distance between the health team and patients and their families is also evident in the study by Clark Bryan et al. [33]. Patients with EDs reported difficulty in managing their symptoms, relying only on medical help in the remote format. In the voice of one of the interviewed patients: “For the first week I got phone calls really regularly which was really good, I’d say they managed to keep up those phone calls since lockdown and they do really help. [...] but they’re not the same as receiving face-to-face support” (p. 829). Parents also reported difficulties in helping their children with the treatment online: “They’ve suddenly got to weigh themselves and for those who have avoided that for a long time, and suddenly having to do it... very, very scary” (p. 831).

Despite these barriers, Zeiler et al. [41] highlight the opportunities offered by teletherapy. Schlegl et al. [29, 35]

and Fernández-Aranda et al. [34] agree that telemedicine strategies were effective during the confinement period. For Schlegl et al. [29, 35], one of the strategies that proved to be the most effective was organizing the routine with an introduction of pleasant activities, as well as forming a network of virtual contacts.

Baenas et al. [40], Machado et al. [25], and Springall et al. [37] point to the lack of more effective support for people with EDs in this period with so many adaptations in their treatment, which demands more frequent actions from the health team. We can also mention the need, advocated by Branley-Bell and Talbot [24], for a more incisive approach in remote treatments to limit the negative impacts of COVID-19 on people’s symptoms. There is a need to seek creative solutions to establish the transition to the remote modality, as well as the importance of increasing communication between patients, family members, and professionals during this period [47, 48].

Mental health consequences

When comparing a sample of people with EDs with a control group, Nisticò et al. [32] observed that the clinical group achieved significantly higher results for stress, depression, and anxiety levels. These levels remained high compared to the control group, even after the easing of the lockdown measures, demonstrating that the negative effects on mental health persist after the mitigation of the stressful event. Vitagliano et al. [27] corroborated this data, showing that high anxiety, depression, and feelings of isolation levels were associated with the restrictive measures imposed by the pandemic on people with EDs.

Other studies [28, 32] also highlighted post-traumatic stress disorder (PTSD) symptoms. Castellini et al. [28] found that patients with BN have higher levels of these symptoms compared to people diagnosed with AN and conjectured that such symptomatic manifestations may be related to early trauma and insecure attachment, which is the most characteristic type of attachment in these patients.

The recurrence of negative feelings was also captured by qualitative studies. By analyzing the use of words in posts shared in open groups hosted on the Facebook digital social network by people with ED, Albano et al. [39] drew attention to the greater number of comments that expressed anxiety, fear and feelings of negativity, especially in those posts that directly alluded to the COVID-19 pandemic. They also mentioned concerns about events which could affect the participants’ mental health, such as loss of hope, fear of the future, need for control and emotional enclosure [39]. A study describes the dysphoric feelings experienced by a person with an ED during the quarantine based on their reports: “I’m just

really sad. As for my ED, I keep struggling with the same relapses over and over again [...] I feel disgusting! I don't know what to do at this point, I feel so alone" (p. 6) [36].

It is relevant to note that the fear of death (own and loved ones) only appeared in the study by Castellini et al. [28], considering the corpus of our review. This data calls our attention and makes us a question: What is it like to be faced with the possibility of contracting a potentially fatal disease for these people who already live so close to the thin line that sometimes separates life and death? What meanings do they construct for their vulnerability to COVID-19?

The fear of contracting the virus was present in two qualitative studies and in both cases being related to an increase in pressure or motivation to adhere to a less restrictive diet. Branley-Bell and Talbot [24] reproduce the report of a young patient with AN: "My mother is particularly concerned about me because I "do not give my body enough energy to overcome the virus" if I contracted it, and she wants me to eat more because of this"(p.4). Clark Brayan et al. [33] highlight the statement of another patient: "Your immune system is really weakened because of an eating disorder and for me, I don't want that anymore so I'm feeling really motivated to kind of improve my physical health as much as possible" (p. 830).

Effects on ED symptoms

More intense use of compensatory behaviors or exacerbation of pre-existing symptoms was reported in the studies by Baenas et al. [40], Brown et al. [42], Castellini et al. [28], Fernández-Aranda et al. [34], Machado et al. [25], Monteleone et al. [31], Schlegl et al. [29, 35], Spettigue et al. [26], Springall et al. [37], Termorshuizen et al. [30], and Vitagliano et al. [27]. Although a worsening of symptoms was detected by all the articles which compose the corpus of this review, it seems to vary according to the cultural context, individual characteristics such as age, ED diagnosis, and social support received, among other contextual factors, as highlighted by Baenas et al. [40].

Castellini et al. [28] and Termorshuizen et al. [30] point out that patients more frequently used the resource of resorting to compensatory maneuvers, such as intensifying physical exercises during the period of social distancing. Branley-Bell and Talbot [24] emphasize the increased sense of loss of control, which is one of the most common and prominent manifestations in patients with EDs, in addition to changes in the relationship with food and a higher frequency of ruminative behavior during the period. The studies conducted by Baenas et al. [40], Castellini et al. [28], Schlegl et al. [35], and Termorshuizen et al. [30] report that people with BN had their symptoms

exacerbated, with more binge eating episodes followed by purging compared to the pre-pandemic period.

In line with these findings, in studies which used an analysis of posts by people with EDs shared in online groups, Albano et al. [39], McCombie et al. [38], and Nutley et al. [36] highlighted reports that the symptoms of people with EDs worsened or returned during this period. Albano et al. [39] highlight the concern of people with EDs in managing meals, in particular, during lockdown periods, during which they were subjected to the watchful eye of family members. The authors also found abuse of physical exercises performed at home as compensatory behavior.

Spettigue et al. [26] also point to the reality of those who sought help for the first time during the pandemic period. About 40% of the sample analyzed by Spettigue et al. [26] identified COVID-19 and the measures adopted for its containment as triggers for symptoms of EDs which had not previously appeared. In addition, people who started treatment for EDs during the pandemic were significantly more likely to require more hospitalization and to have less stability in using and adapting to medication. Regarding patients in remission, Castellini et al. [28] underline the prevalence of symptom recurrence after lockdown measures. In the same direction, Termorshuizen et al. [30] found fear of symptom recurrence in the context of COVID-19 in people with a history of ED prior to the pandemic.

In summary, there is an effective risk of EDs appearing or getting worse in the midst of the pandemic. Monteleone et al. [31] relate a worsening of symptoms, as measured in their study, with the lower quality of the therapeutic alliance achieved in the new care modalities offered, in addition to the fear of contagion and the adverse effects of social isolation, as well as reduced social support offered by family and friends. Posts by people with EDs analyzed by Albano et al. [39] and McCombie et al. [38] offer empirical support to this hypothesis. From the report of people with EDs, isolation, anxiety, less structure of health services to support these new modalities, changes in routine, and greater exposure to media and digital social networks were factors listed as determinants for worsening symptoms. In turn, Machado et al. [25] associate worsening of EDs with the dynamics of symptoms associated with psychopathology, such as difficulties with impulse control and emotional regulation.

It is possible to perceive from the critical reading of the analyzed studies that there is already a consensus in the studied literature regarding feelings of anxiety, fear, and insecurity experienced by people with EDs in the pandemic period. At the same time, there was a decrease in the support network, especially those made up of

extra-family groups, such as educational (schools, universities), health, and religious institutions, as well as in the work environment (among others).

On the other hand, the presence of the family appeared in an ambivalent way: both as a stressor and as part of the patients' significant support network. In turn, the escalated use of technology also seemed to be an alternative for continuing the treatment of these people in the heartbreaking scenario of the pandemic. Despite this, difficulties were detected regarding adherence to the treatment favored by telemedicine, which demands specific research which examines the impacts of the massive and abrupt use of these resources.

In addition, the following health behaviors highlighted in the studies and the healthy mechanisms used to deal with the challenges of the pandemic stand out: more efficient organization of routine, which now includes self-care practices, moments of rest and free time, and the possibility of talking with others, including about EDs, seeking and recognizing the support that people around or present virtually can offer.

This scoping review was developed to understand and map the physical and mental health situation of people with EDs in the context of the COVID-19 pandemic. Figure 2 presents a summary of the research results which compose the corpus of this study, interweaving the thematic categories found. The four axes of the conceptual map enable "mapping" the main concepts which

support the studied field, which is the purpose of a scoping review.

In elaborating Fig. 2, we also seek to emphasize that the thematic axes in the perspective of Braun and Clarke [23] are not watertight or mutually exclusive, in addition to defining that the possible exacerbation of symptoms is one of the aspects which needs to be quickly identified by health professionals in patients with EDs during the pandemic. We defend the search for a comprehensive, and at the same time based on scientific evidence, look at the unique situation of each person affected by EDs in a moment of strong threat and vulnerability.

Conclusions

This retrospective documentary study analyzed the psychosocial effects of the COVID-19 pandemic and related containment measures on people with EDs (AN and BN). The analyzed studies point out that the impact of the pandemic on EDs is remarkable. The confinement and the resurgence of uncertainties accentuated the pre-existing symptoms and vulnerabilities of patients, who proved to be more susceptible to the negative effects of routine changes. Intensified symptoms proved to be a possible mechanism to deal with the various transformations and uncertainties that patients were going through.

As expected due to the limitations imposed on conducting research during the height of the pandemic, the studies showed low methodological sophistication.

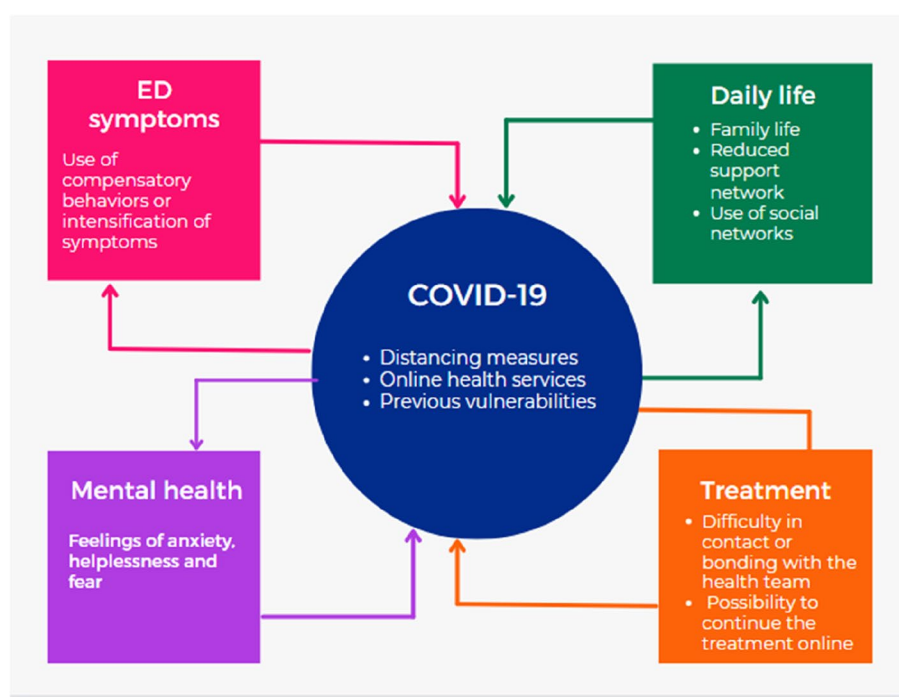


Fig. 2 Conceptual map

It is concluded that they should be seen as exploratory studies carried out in the heat of the moment with their inherent limitations, but which can provide clarification that will favor directions for future studies with more robust designs in order to guide the effective management of symptoms in a crisis situation.

The results also demonstrate that the pandemic has highlighted the importance of strengthening and diversifying social support networks composed of extra-family membership groups, family members, and institutional services in the well-being and health of people with AN and BN. The specialized treatment centers themselves are important support sources which are part of the personal social support network. This gives us clues as to which paths future research and interventions in the area can follow, focusing on these networks, and to strengthen them in times of greater fragility and remote contact.

This study could contribute to a critical gathering of scientific evidence regarding the repercussions of the pandemic on the lives of people with EDs, which will possibly last for a long time. The analysis of the results helps guide clinical practice and care actions implemented by specialized health institutions. Further studies are suggested in order to investigate the perspectives of family members and health teams on this transition, especially showing the Brazilian and Latin American reality, which was not represented in the studied corpus, indicating a gap to be filled in the future.

Abbreviations

AN	Anorexia nervosa
BN	Bulimia nervosa
COVID-19	Coronavirus disease
DeCS	Descriptors in Health Sciences
EDs	Eating disorders
LE	Level of evidence
MeSH	Medical Subject Headings
PRISMA	Preferred Reporting Items for Systematic Reviews and Meta-Analyses
PTSD	Post-traumatic stress disorder
VPN	Virtual Private Network

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Authors' contributions

All authors contributed to the study conception and design. Material preparation, data collection, and analysis were performed by BBM and EAO and reviewed and validated by MAS. The first draft of the manuscript was written by BBM, and all authors commented on previous versions of the manuscript. The authors read and approved the final manuscript.

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Availability of data and materials

Data sharing is not applicable to this article as no datasets were generated or analyzed during the current study.

Declarations

Ethics approval and consent to participate

Informed consent and ethics approval are not applicable to this article, since it is a scoping review.

Consent for publication

This manuscript—whether in its entirety or any part of its contents—is not currently under consideration for publication in another journal. All authors declare authorizing publication in this journal.

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