Dreaming

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The COVID-19 pandemic and the restrictive measures taken against the spread of the contagion can be considered as traumatic events having a major impact on mental health. Dreams after undergoing traumatic experiences could "replay" traumatic scenes or have a para-therapeutic role that facilitates connections between a traumatic event and associated emotions. However, the studies carried out thus far in the field of sleep and dreams during the COVID-19 pandemic have mostly focused on sleep disorders, emotional tones, and contents of dreams. The aim of the present study was to explore, from a qualitative–quantitative perspective, the contents of dreams and the functions of dreaming during the COVID-19 pandemic. A sample of 1,095 subjects who decide to recount their dreams, during the early phase of the COVID-19 outbreak, was involved. A part of the Mannheim Dream questionnaire was also examined, considering both dream recall and the attitudes toward the dreams—both meaningful and transformative—as indicators of the dreaming process. A cluster analysis was performed on dream narratives through the T-Lab software. In all, 4 thematic clusters emerged: Escape From the Threat; The Work of Mourning, Unrecalled Dreams; COVID-19: As Manifest Content. The factorial mapping organized 3 vectors of meaning, representative of the function of dreaming: Remembering, Repeating, and Working Through; From

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Traumatic Content to Problem-Solving Strategy; From the Safe-Guardian of Sleep to the Safe-Guardian of Dream Waking continuity. The dreaming process shows functions of integration and processing of memories but also that a decrease in dream recall can act as a defense and have a crucial role in mental life. Clinical implications are discussed.

The COVID-19 outbreak (World Health Organization [WHO], 2021) has become a global threat to health and well-being. Italy was the first Western country to be badly affected by the pandemic and to date has recorded a total of 2,141,201 people infected and 74,985 deaths (National Institute of Health, 2021).

From a psychological point of view, the confinement measures, including lockdown, home isolation, and social distancing—all unprecedented events—have become traumatic experiences that have severely impacted mental health (Marazziti et al., 2020). To date, several studies have shown an increase in psychological distress, the generalized spread of anxiety and depression (Prete et al., 2020; Wang et al., 2020; Zandifar & Badrfam, 2020), and an increased risk of post-traumatic stress disorder onset (Casagrande et al., 2020). Higher levels of psychopathological symptoms were found in samples of the Italian population due to the country's increased levels of fear and uncertainty (Mazza et al., 2020; Schimmenti, Billieux, et al., 2020; Schimmenti, Starcevic, et al., 2020). Throughout the COVID-19 pandemic, preliminary studies have shown that changes in the sleep–wake rhythm, as well as the impairment of one's habits during quarantine, are configured as risk elements regarding sleep quality (Franceschini, Musetti, et al., 2020), sleep regulatory processes, and sleep disorders (Pappa et al., 2020; Salehinejad et al., 2020). From insomnia to hypersomnia, and from nightmares to the misuse of sleep medications, the phenomenon has been reported and treated in a far greater number of people whose lives have been turned upside down by fear and social isolation (Altena et al., 2020; Cellini et al., 2020; Huang & Zhao, 2020; Kutana & Lau, 2021). Moreover, literature has dealt with the impact that the pandemic has had on dream content and their emotional tone, including that of nightmares (Mota et al., 2020; Nielsen et al., 2006; Sandman et al., 2013).

Within *pandemic dreams*, a higher number of words referring to emotions such as anger and sadness along with a greater positive correlation with symptoms such as social isolation and cognitive impairment have been found (Schredl & Bulkeley, 2020). Regarding the contents of dreams, novel and commonly shared dream contents have been identified as failures to socially distance, coronavirus contagion, personal protective equipment, dystopia, apocalypse (Pesonen et al., 2020), and virus-related imagery (MacKay & DeCicco, 2020). In general, research has reported that the dreams most affected by the pandemic are women's dreams, with higher levels of negative emotions and sensory impressions particularly in the range of people who know someone infected with COVID-19 or deceased from COVID-19 (Iorio et al., 2020; Scarpelli et al., 2021).

In pandemic dreams, the hypothesis of dreaming–waking life continuity, which states that dream contents reflect waking life (Domhoff, 1996; Schredl & Piel, 2006),

is widely confirmed because it is possible to think that the subjective impact of catastrophic life events such as the COVID-19 pandemic could be reflected in people's dream content subject to isolation measures (Barrett, 2001, 2020; Iorio et al., 2020).

In a classical psychoanalytic theory (Freud, 1900, 1915–1917), rather than dreams being considered as an expression of content to be investigated, which refers to a latent desire, they should be considered as an index of mental functioning in accordance with Bion's (1962) theory, focused on the elaboration of an emotional experience (Grotstein, 2000; Margherita et al., 2015, 2017, 2020). Considering dreaming as a form of unconscious emotional thinking—a process that continues both throughout the day as well as the night, psychopathology became an expression of *undreamed dreams* (Ogden, 2007) and the concept of "transformations in dreaming" a model of the therapeutic process (Ferro, 2009).

The importance of dreaming as a mental activity that regulates, integrates, and repairs psychic processes is highlighted in the rich interdisciplinary and transversal dialogue between models that range from psychoanalysis to cognitivism and neuroscience (Ferro, 2002; Fonagy et al., 2012; Fosshage, 1983; Hartmann, 1984, 1996; Solms, 1995). In particular, dreams can assume a traumatolytic function, which indicates a specific attempt to provide a solution for the traumatic event (Ferenczi, 1932) with a para-therapeutic role.

When considering the COVID-19 pandemic as a traumatic experience that individuals have to face, we can refer to the literature that has discussed dreams following traumatic events. In regard to the function that dreams have in relation to the trauma, the dream could be a repetition or an elaboration of the original traumatizing experiences and those that contribute to the elaboration of the traumatic memory (Adams-Silvan & Silvan, 1990; Lansky & Bley, 1995; Spoormaker & Montgomery, 2008; Varvin et al., 2012).

The relevance of dream recall is recognized in the literature to be influenced as much by the salience of the dream as by individual differences (Duke & Davidson, 2002; Eichenlaub et al., 2014; Schredl, 2007). Studies related to trauma suggest that traumatic experiences increase dream recall (Punamäki, 1997; Valli et al., 2006). The same findings are also seen in studies related to the COVID-19 outbreak, especially for those whose health or job has been negatively impacted by the pandemic (Schredl & Bulkeley, 2020; Scarpelli et al., 2021).

However, thus far, the literature has focused on what people have dreamt about during the COVID-19 pandemic (MacKay & DeCicco, 2020), mostly using thematic analysis or the dream content scale such as Hall and Van de Castle's (1966) coding system based on analysis that lead back the themes to predetermined categories. Therefore, the study of the function of the dreaming process during the COVID-19 pandemic has not yet been explored.

We opted to investigate the function of dreaming through dreams narrative using a quantitative–qualitative analysis (Lancia, 2004, 2008) focused on the exploration of the links between the text and its parts.

This kind of analysis with T-Lab, which has been carried out in previous studies on sleeping (Franceschini, Fante, et al., 2020) and dreaming (Gennaro et al., 2020; Margherita et al., 2015, 2017), is particularly useful for the aims of this study.

In our approach, the dream narration is different from the dream report because the dream narration explores connections, links, and associations that a dreamer makes on a dream during the narration (Margherita et al., 2015, 2017,

2020; Margherita & Gargiulo, 2018; Martino et al., 2019). To keep the dreamer's perspective in a broad sense, we have also considered some components of dream cognition such as dream recall and attitudes toward dreams.

Aims

The aim of this study was to explore the process of dreaming during the COVID-19 pandemic from a qualitative–quantitative perspective, with a focus on the period of enforcement of the government decree law known as "I stay at home," which imposed restrictive measures on the population to curb the spread of the virus.

We focused on dreams' contents and functions and also on the subjective experience of consciousness in the dream. In addition to the analysis of dream narratives, both dream recall and the attitudes toward dreams have been considered as indicators of the dreaming process.

Methodology

Procedure and Participants

The study is part of a larger research project called "Resilience and COVID-19: How to React to Perceived Stress. Effects on Sleep Quality and Daytime Behavior/ Thoughts" promoted by the University of Parma; University of Messina; Catholic University of Milan; University of Milan, La Statale; and University of Naples, Federico II.

The data were collected from March 10, 2020 ("First phase"—total lockdown) to May 4, 2020 ("Second phase"—end of lockdown) by means of a self-administered questionnaire delivered via Internet survey, university communications channels, and online forums or WeChat groups.

Ethical authorization was obtained from the Ethics Committee of the Center for Research and Psychological Intervention of the University of Messina. The study was conducted according to the Code of Ethics of the Italian Psychological Association and the American Psychological Association.

In the study, from a large sample of 3,857 subjects, a subsample of 1,095 subjects, who decided to recount their dreams, made during the early phase of the COVID-19 outbreak, was examined. Participants, of which 81% are female and 19% are male, had completed the questionnaire with their sociodemographic information, data relating to COVID-19, dream recall, and dream narrative. Of the total of dreamers, 53% are between 18 and 30 years old, 15% are between 31 and 40 years old, 25% are between 41 and 60 years old, and 7% are over the age of 60. The inclusion criteria were being of adult age, speaking Italian, and living in Italy during the COVID-19 lockdown. All the participants gave their informed consent and were assured anonymity.

Material

The sociodemographic variable of gender was investigated. A voluntary description of a dream during the period of the COVID-19 pandemic by means of

the following open task was asked: If you want, in the space below, you can describe a dream you had during this period of confinement at home. Feel free to describe it as you see fit. Starting from the method proposed by Domhoff and most used in the literature (The Most Recent Dream technique; Domhoff, 1996, 2003), this choice of method was the result of the specific interest in exploring the text in a broad sense, including any form of content, from the dream narratives up to the actual difficulties of dreaming.

The Mannheim Dream questionnaire (MADRE; Schredl et al., 2014; Settineri et al., 2019) is 20-item self-report questionnaire useful for evaluating dream experiences and related phenomena. According to the objectives, the current study focused on three items (i.e., [1] How often have you recalled your dreams recently?; [12] How much meaning do you attribute to your dreams?; [17] How often do your dreams help you to identify and solve your problems?]), examining mental states related to dream activity and attitudes toward dreams. Dream recall, meaningfulness, and problem solving dreams were used as an index of the perception of trasformative dreaming's potential.

In view of the previous literature, Item 1 was dichotomized to discriminate between subjects with high or low dream recall frequency (Scarpelli et al., 2021): dream recall (yes; answer: almost every morning; several times a week; about once a week) and dream recall (no; answer: two or three times a month; about once a month; less than once a month; never). Similarly, Item 12 was dichotomized to identify if the subject attributes meaning to their dreams: meaningfulness (yes; answer: somewhat, totally) and meaningfulness (no; answer: not at all; not much, partially). Item 17 was dichotomized to distinguish if according to the subject, dreams helped them to identify and solve their problems: "problem-solving dreams yes" (several times a week; about once a week; two to three times per month; about once a month); "problem-solving dreams no" (two to four times a year; about once a year; less than once a year; never).

Data Analysis

To analyze the dream narratives, we used T-Lab (Lancia, 2004, 2008) a quali–quantitative software, based on statistical algorithms, for automatic text analysis that identifies, based on a comparison of different lexical profiles, the dimensions of meaning and the different themes present in the text. The dream narratives were grouped together as one corpus of text and prepared for the analysis (Table 1). The analyses were conducted on the transcripts in the original language (Italian), and the outputs (the results) were translated into English by a native English speaker for this article.

The software analyzes the texts as a single corpus of data (Denzin & Lincoln, 1994), identifies the choice of lexis, looks at co-occurrence, and performs a comparative analysis. An elementary context unit (e.c.u.; sentences, paragraphs, or short texts characterized by the same patterns of keywords) and a waterfall analysis, to plot these data as active variables on the factorial map using a multiple correspondence analysis, were conducted. The final output summarizes shared concerns into significant thematic clusters (Reinert, 1995) as a contextual field of meanings shared by participants (Reinert, 1995) that allows us to build up "a thread" in the discourse. Lexical units (words) included in the analysis are the result of a selection process

Table 2
Description of Cluster

Clusters with the percentage of variance	Lemma that mainly characterizes the cluster based on the value of χ^2	Example of representative sentences of the cluster
(1) Escape From the Threat (consisting of 344 e.c.u. out of a total of 1,298, which equals 26.5%).	Run (41.13), arrive (39.85), wake up (29.35), eye (24.31), awake (23.98), I (22.81), child (18.63), scream (17.04), run out (15.26), black (13.48), door (13.06), bed (12.70), labyrinth (10.24), to hide (9.83), to breathe (8.99), to end (8.96), accidents (8.27), shadow (7.03), policeman (7.03), suddenly (6.34), street (5.94), alone (5.77), kill (5.62).	Someone was chasing me, I was looking for a hiding place in the various rooms of the house, I was telling everyone not to say where I was. The house was where I lived as a child. In the end, the man who was searching for me manages to open the door, he is my dad, he would like to hurt me (22.346).In a maze, I ran with the feeling I was being chased, when I arrived at the exit they stopped me saying that I had taken the wrong road. Mind you, I had to get back into the maze with the feeling of still being watched (20.484).
(2) The Work of Mourning (composed of 335 e.c.u. out of a total of 1,298, equal to 25.81%).	Dream (282.09), die (74.69), sea (44.40), lose (35.49), death (33.34), mother (26.90), father (24.39), son (20.12), degree (19.94), leave (17.41), marry (11.83), daughter (11.25), examination (11), travel (10.92), mate (9.65), wife (9.65), positive (9.65), real (8.94), nephew (8.70), feeling (8.70), uncle (8.55), pregnant (7.32).	I dreamed I saw a girl I haven't thought of at all for many years, she was dead. During dreaming, I was being chased by the evil one and I don't know why. (70.623)I dreamed of my uncle, who died a few months ago, who committed suicide by throwing himself off the balcony. (66.634)
(3) Unrecalled Dreams (composed of 328 e.c.u. out of a total of 1,298, equal to 25.27%).	Remember (466.85), dream (210.85), look at (39.58), recurrent (33.01), remember (24.04), forget (23.98), sleep (21.06), memory (18.48), usually (16.48), history (14.97), details (13.18), mind (13.18), to describe (12.23), look (12.12), nightmare (11.45), emotion (9.09), health (9.00), work (7.76), anxiety (7.55), care (5.99), infect (5.99).	In this period of confinement, I do not remember any particular dream. (171.340)I can't remember a dream I've had lately. (151.403)
(4) COVID-19: As Manifest Content (consisting of 291 e.c.u. out of a total of 1,298, equal to 22.42%).	People (297.64), dear (105.41), mask (44.50), friend (38.20), miss (26.94), quarrel (22.67), hug (22.06), far (17.21), meeting (16.24), city (16.21), subway (15.08), sky (13.84), know (13.65), affection (12.06), environment (12.06), square (10.95), air (8.10), day (8.10), feel (8.07), palace (6.58), quarantine (6.07), fatigue (6.04).	During a meeting between friends, all wearing masks, a dear friend tells me: and we don't say goodbye? We take off our masks and hug each other. Once finished, I approach, among the many people, two other friends and say: then you as well: I take off my facemask (they don't) and give him a kiss on the cheek. (74.737).I was walking in a central square in Milan, surrounded by other people, I was going to take the underground train I would normally take train, prior to the emergency, and I was serene. I wonder if there might be too many people around me, I realize that I don't have a mask, that nobody has it, and I start to fret. (61.090)

aimed at creating a list of words called "key words." Each cluster consists of a set of e.c.u. and is described through a set of keywords that, ranked according to the decreasing value of χ^2, indicates that the typicality of each of them within the cluster is associated with semantic value (Lancia, 2004). This allows us to reflect on and interpret the meaning of individual words with reference to a number of e.c.u., analyzing them in the context in which they are used. The meaning of a word is known only through its relationship with the context, that is, through its distribution within a portion of text (Greimas, 1983; Rastier et al., 2002).

Through the projection of the clusters on the factorial plane, it is possible to observe and interpret the relationships (e.g., oppositions and closeness) between the different threads that emerge and understand the factors that link them. The position of the clusters and variables on the graph indicates their semantic relevance and the vectors of the possible connections between different elements.

A cluster analysis was then carried out, based on the position on the factorial axes, starting with those that were more statistically significant. Each cluster was labeled, and the most significant lemmas, based on the χ^2 values for each, were noted in decreasing order. The threshold value of significance of χ^2 for each lemma is 3.84, $p \leq .05$. Factorial mapping of the clusters enables the observation and interpretation of the relationships (i.e., opposition or closeness) between the different threads that emerge and facilitates the understanding of the factors linking them.

From MADRE questionnaire, we used dream recall (yes, no), meaningfulness (yes, no), and problem-solving dreams (yes, no) as active variables, whereas sex was used as a passive variable. Active variables are those that actively participate in the identification of the factorial space and therefore contribute to the determination of the factors considered.

Results

The entire corpus of text is characterized by 40,675 occurrences, 6,506 of which are distinct forms. In all, 1,400 e.c.u. and 4,263 lemmas were identified within the corpus.

In reference to the indicators of the dreaming process (dream recall, meaningfulness, and problem-solving dreams), 72% of dreamers declared that they frequently remember their dreams, whereas 22% declared they do not remember them. Regarding meaningfulness, 51% of the subjects attributed meaning to their dreams, whereas 49% did not. Finally, with respect to problem-solving dreams, 30% of participants recognized that dreams helped them to identify and solve their problems, whereas 70% of dreamers did not recognize this function.

From the cluster analysis, four core themes emerged with an interpretive label assigned (Table 2): *Escape From the Threat* (Cluster 1), *The Work of Mourning* (Cluster 2), *Unrecalled Dreams* (Cluster 3), *COVID-19: As Manifest Content* (Cluster 4).

In the lower right-hand quadrant of the factorial map, we find Cluster 1 called "Escape From the Threat." The majority of the lemmas within this cluster referred to verbs of movement and activities related to dangerous situations characterized by negative emotions that describe a threat for the subject. The dreamer was often

Table 1
Preliminary Organization of the Text Corpus

Lemmatization	The forms of the verbs are brought back to their present infinitive forms, the nouns and adjectives to their singular masculine form, and articulated prepositions to their article-less form.
Disambiguous	It is an operation by which ambiguous semantic cases are solved, in particular, those cases that deal with homographs whose graphic form is the same but with a different meaning.
Lexicalization	To turn the unit into string phrases consisting of two or three words that refer to a unitary meaning.
Cleaning the vocabulary	Words from empty or insignificant, such as the abbreviations techniques, proper names. Articles and conjunctions are deleted.

involved as a frightened child. Fear could be also connected to the possibility of being abruptly awakened.

In the upper left-hand quadrant of the factorial map is the cluster named "The Work of Mourning." Here, the dream faces the anguish generated by emotional losses. The cluster describes the integrative dimension of dreaming, which connects several split representations. Moreover, it is interesting to note that within this cluster, all the dichotomous variables are represented female and male, problem-solving dreams (yes, no) meaningfulness (yes, no), dream recall (yes, no).

In the upper left-hand quadrant of the factorial map, we find the third cluster called "Unrecalled Dreams." The lemmas of Cluster 3 describe how it is impossible to move from the dreams, an unconscious integrative process, to dream memory and to conscious dream narrative. Here, in fact, the variable dream recall (no) is present, along with the variable male.

In the lower right-hand quadrant of the factorial map is the fourth cluster called "COVID-19: As Manifest Content." The cluster aggregates some references to life under confinement measures, in particular, lemmas referring to relationships and physical contact with others are present. The other is both feared and desired. Sensations and emotions are less linked to internal dimensions and more to external ones.

Through the projection of the clusters on the factorial plane, it is possible to observe and interpret the relationships (e.g., opposition or closeness) between the different threads that emerge and understand the factors, as classification principle, that link them.

Considering the clusters factorial projection on the axes, three meaning vectors were identified that guided the interpretation of the subjects' narrative themes within their discourses, that is, of their world project: *Remembering, Repeating, and Working Through; From Traumatic Content to Problem-Solving Strategy; From the Safe-Guardian of Sleep to the Safe-Guardian of Dream Waking Continuity.*

The horizontal axis (x-Axis), called *Remembering, Repeating, and Working Through* paraphrasing Freud (1914) shows a polarity between the Clusters 2 and 3 and the dream recall (no), meaningfulness (no), and problem-solving dreams (no) variables on one side, and Clusters 1 and 4 and the dream recall (yes),

meaningfulness (yes), and problem-solving dreams (yes) variables on the other side. As can be seen from the diagram, the plane opposes the cluster of the lack of access to memory (Cluster 3) and the elaboration of past experience (Cluster 2) to the impact of the presence of the pandemic has with its threats, anxiety, and concerns (Clusters 1 and 4).

The vertical axis (y-Axis), called *From Traumatic Content to Problem-Solving Strategy* shows the opposition between Clusters 1 and 4, meaningfulness (no) and problem-solving dreams (no), dream recall (yes), and Clusters 2 and 3, meaningfulness (yes) and problem-solving dreams (yes).

This axis, that goes from the bottom to the top of the factorial plan, describes the way in which the mind works and the experience of the pandemic through dreams, from the repetition and the scenic representation of the experience (The COVID-19 Cluster and the Emotional Threat Cluster) to transformative dimensions (The Cluster of Processing and Cluster of Lack of Access to Consciousness).

Clusters related to the outermost emotional dimensions of fears (Clusters 1 and 4) were associated with dream recall as well as with the difficulty of recognizing the significance of the dream (meaningfulness and problem-solving dreams functions), whereas the other Clusters (2 and 3) were related to the inner world, recognizing the importance of the dream.

The transversal axis (z-Axis), called *From the Safe-Guardian of Sleep to the Safe-Guardian of Dream Waking Continuity* focused on the dream–waking life continuity and opposes Clusters 1 and 3 and the dream recall (no) and problem-solving dreams variables with Cluster 2 and high dream recall. Here, the absence of dream recall seems to be linked to an emotional threat, both in conscious and unconscious terms.

Looking at the factorial plan, two quadrants without clusters emerged. The upper right quadrant collects the projection of the dream recall, meaningfulness, and problem-solving dreams variables in positive modality. From our perspective, we could interpret this as a representation of the state of consciousness of the dreamer, in which, while recognizing the importance and value of the dream in conscious terms, narratives did not appear (Figure 1).

Discussion

Starting from a psychodynamic perspective that looks at the function of dreaming as the modality through which the psyche provides meaning to the emotional experience, clusters and trajectories will be discussed.

The cluster named *Escape From the Threat* illustrates the representation of the outside (the external environment) as a threat, presenting negative and distressing emotions. Primary affects such as fear, terror, and severe aggressions appear.

The dreamer, in a passive role, is represented as a frightened child who runs away from a persecutor. The emotional undertones are the ones that are typical of the nightmares.

The covered semantic area is similar to "self-state dreams" that "portray the dreamer's dread vis-à-vis some uncontrollable tension-increase or his dread of the dissolution of the self" (Kohut, 1977, p. 109).

The word *awake* highlights another danger: the interrupted process of dreaming during the traumatic impacts of the COVID-19 pandemic experience. This

Figure 1
Factorial Plane
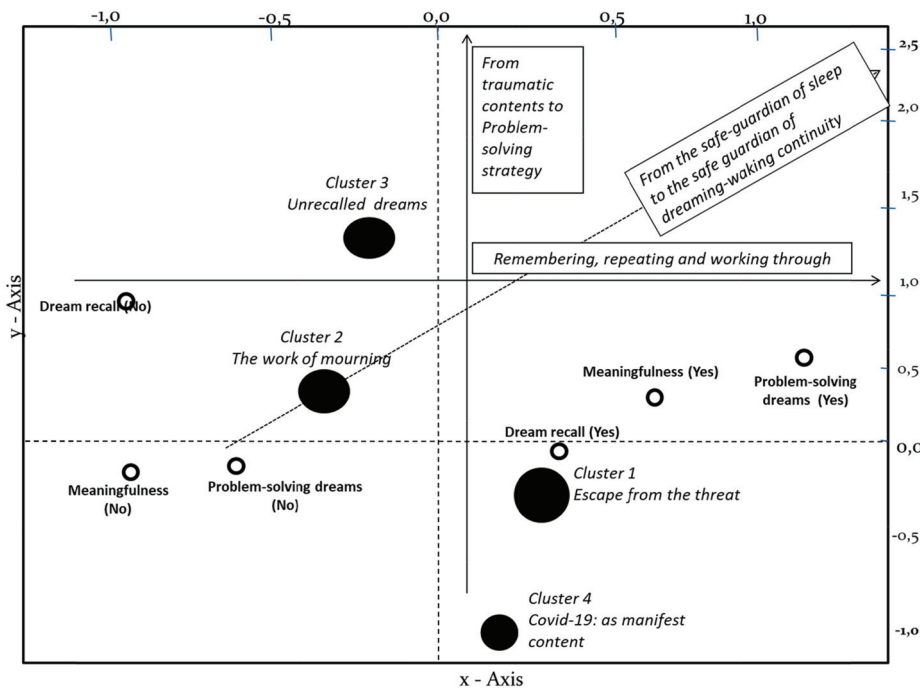
cluster could be linked to the maintenance and restorative function of dreams high-lighted by Fosshage (1983), where mental activity in dreams can serve to affect *regulation* and to *restore* some psychic configurations and processes.

In the cluster named *The Work of Mourning*, the major aspects of dream processing are highlighted. Representations of the past placed in the unconscious memory are linked to experiences that have proven to be more useful for psychic balance and integrity. This is the cluster of bonds, where the dreamer's ego meets the other through the emotion of loss, real or imaginary. This implements a growth process that allows the psyche to adapt to change (travel, examination, marriage). The integration function of dreaming is highlighted here; in fact, all dichotomous variables fall in this cluster, linking representational dissociation while also underlining the importance of the dimensions in transversal terms.

Cluster 3, *Unrecalled Dreams*, describes the space in which the memory of the dream is lacking and the consciousness does not construct a narrative through images. The presence of the variable male gender suggests that, as stated in previous literature, men remember and narrate dreams less than women (Mangiaruga et al., 2018; Settineri et al., 2019).

Cluster 4, *COVID-19: As Manifest Content*, through its lemmas describes the environment and the situation in which we live under the confinement measures, with particular importance given to the way in which relationships have been transformed. Current events and settings linked to the pandemic are relived and repeated, and the desire for

contact is expressed in apparent terms. Here, the present is the predominant temporal dimension.

In this cluster, we can find thought-like contents rather than dream-like contents (Foulkes, 1994). Moreover, this is in line with literature that shows how waking day concerns about COVID-19 may be affecting an individual's dream imagery (MacKay & DeCicco, 2020; Mota et al., 2020). Different dimensions of fears and desires from these clusters emerged as well.

Previous studies, in fact, have shown that experience of fears during the COVID-19 pandemic are organized on the psychological level around dialectical domains (bodily, interpersonal, behavioral, cognitive) that coexist with own counterparts, such as fear of significant others/fear for significant others, fear of the body/fear for the body (Schimmenti, Billieux, et al., 2020; Schimmenti, Starcevic, et al., 2020).

Considering the variables and the cluster factorial projection on the axes, the different dream functions related to the conscious dreamer position were discussed. Our results confirm the crucial importance of the relationship between dream and memory (Stickgold et al., 2001) suggested by the link between Cluster 2, which is that of elaboration, and Cluster 3, that of the lack of memory. In fact, on the one hand, the results showed the value of recovery and the actualization of unconscious memories that change the perception of a traumatic reality through better adaptation. On the other hand, the results showed the foreclosure of memory as a defense strategy of the mind to protect itself. In this sense, Cluster 2, *Unrecalled Dreams*, in which the variable dream recall (no) falls, does not describe the absence of dreams but the absence of dream recall from a waking life point of view.

Through the association between the dream cognition variables and clusters, the analysis of the factorial plane shows two ways of reading dream recall that we can call: dream recall function. If we look at dream recall from the point of view of consciousness and thinking about dreaming (z-Axis), the lack of dream recall appears to be a possible mental strategy for dealing with the element of suffering that the COVID-19 experience imposes. If, on the other hand, we shift our attention to the "unconscious" or implicit level (x-Axis and y-Axis), the lack of dream recall is associated with greater emotional processing dimensions.

Bion's model (1962) showed through the concept of *waking dream thought* how dreaming is an activity that takes place not only in the state of sleep but also in waking life when the unconscious dream work transforms the emotional experiences.

Therefore, our results confirmed the function of dreams to work through traumatic experiences, whether the dreams are recalled or not (Hartmann, 1995; Hartmann & Brezler, 2008).

About it both dreaming with its narrative reorganization (De Luca Picione & Freda, 2016; De Luca Picione et al., 2018) as well as the absence of dream recall (that leaves the dream on an unconsciuos level) could be opportune mental problem-solving strategies aimed at preserving the continuity between dreaming and waking.

Moreover, from our point of view the observation of the dreaming–waking transition allows to understand the dreamer's strategy to deal with the disturbing emotional experience. This area might be explored exactly within the dialogue among contemporary psychoanalysis, cognitivism, and neuroscience, as studies on the implicit memory (Baddeley et al., 2009; Mancia, 2006), as well as clinical cases (Musetti, 2020), have already demonstrated.

Limitations

A limitation of the study is its cross-sectional design, which limits the generalizability of the conclusions. Another limitation concerns the selective use of the MADRE questionnaire, a tool designed to evaluate different aspects of the dream experience. In our study, we chose to only use some dream variables (dream recall; meaningfulness and problem-solving dreams), those that allowed us to observe the functions of the dream and the attitudes toward the dreams. Furthermore, data about the participants' dreams before the COVID-19 outbreak are lacking. Instead, one of the study's strengths is the possible integration of qualitative–quantitative aspects.

Conclusion

Our findings show how dreaming during the pandemic outbreak has not only one but several possible functions. Dream narratives enable the expression of emotions, memories, and concerns linked with catastrophic life events, with a para-therapeutic function. Some transformations of the emotional experience of the pandemic at a symbolic level, even in dreams with explicit references to the COVID-19 outbreak, emerged, highlighting differences with repetitive posttraumatic dreams.

The so-called "traumatic dreams" do not emerge in our work. In fact, in the state of sleep, the pandemic experience, currently lived, is repeated in some trasformative way.

The link between the dreaming process and the dreaming–waking transition allows us to understand the dreamer's strategy to deal with the disturbing emotional experience. Our study also underlines that the decrease of dream recall can be interpreted not as a sign of a "traumatized psyche" but, mainly, as an adaptive mental functioning.

An integrative approach on dream contents, structures, and functions could play an important role in the clinical assessment of mental health to study more deeply the difficulties of dreaming and sleeping as well. Future research to link the role of dreaming in all pandemic phases with psychological well-being and clinical and psychopathological issues is required.

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