

Dreaming in the Time of COVID-19: A Quali-Quantitative Italian Study

Ilaria Iorio, Massimiliano Sommantico, and Santa Parrello

University of Naples Federico II

Based on the continuity hypothesis of dreaming with waking life, we have studied the effects of isolation on the dreams of Italian persons, during the time of the COVID-19 pandemic. The present study included a sample of 796 subjects (73.2% women; ages 18–79 years, $M = 30.3$, $SD = 12.8$). Participants were asked to complete a dream questionnaire, as well as to report their most recent dream, by responding to specific questions related to the content of their dream (e.g., realism/bizarreness, positive vs. negative emotions, emotional intensity and tone). Results indicate the following: Female participants were higher recallers than men and reported higher emotional intensity and a predominantly negative emotional tone of their dreams, as well as higher negative emotions and sensory impressions in their most recent dreams; 159 dreams (20%) included explicit COVID-19 references; participants knowing people affected by or who have died of COVID-19 report higher emotional intensity and sensory impressions in their most recent dreams; and the most recent dreams have been set in external locations and have presented strong negative emotions, especially with respect to dangerous, violent, and frustrating situations. In sum, the findings of this study indicate that the method of quali-quantitative dream content analysis is a very informative approach for studying the effects of significant contextual and catastrophic events, such as COVID-19 pandemic, on people's inner lives.

Keywords: dreams, COVID-19 pandemic, isolation, negative emotions, traumatic events

In January 2020, the Chinese Center for Disease Control and Prevention reported that a new coronavirus (SARS-CoV-2) was identified as the causative agent of the respiratory disease later called COVID-19. In March 2020, the World Health Organization declared the spread of COVID-19 no longer an epidemic

 Ilaria Iorio,  Massimiliano Sommantico, and  Santa Parrello, Department of Humanities, University of Naples Federico II.

The authors declare that they have no conflict of interest. The study complied with the American Psychological Association ethical standards in the treatment of human research participants and conformed to the provisions of the 1964 Helsinki declaration and its later amendments. Informed consent was obtained from all individual participants included in the study. All authors contributed in the same way to conceive the study and its design, to draft the manuscript, and to interpret the data. All authors read and approved the final manuscript.

Correspondence concerning this article should be addressed to Massimiliano Sommantico, Department of Humanities, University of Naples Federico II, via Porta di Massa 1, 80133 Naples, Italy. E-mail: sommanti@unina.it

confined to certain geographical areas, but a pandemic spread all over the planet. Since then, the data regarding contagions (and deaths) in the world have been steadily increasing, affecting 208 countries or regions. Italy is one of the European countries most affected by the pandemic, with 218,268 confirmed cases and 30,395 deaths (the data at the time of writing).

COVID-19 contagion occurs from person to person with ease, and even people with few symptoms or without symptoms can be contagious. For this reason, the main defense against contagion, in the absence of vaccines, is social distancing. To face the pandemic, the Italian government extended restrictive measures initially adopted only for the regions identified as “red zones” (localities that sustained community transmission) throughout the whole country. These measures, in addition to very strict quarantine measures for infected people and for those who have come into contact with them, include, among others: (a) the prohibition of all forms of gathering people in public places; (b) the suspension of all sporting activities in public or private locations; (c) the suspension of teaching activities of any order and degree, with online teaching preferred; (d) the closure of museums; (e) the suspension of commercial retail activities, except for the sale of food and basic necessities; (f) the suspension of all catering activities (including bars, pubs, restaurants, ice cream parlors, pastry shops); (g) the suspension of activities relating to personal services (including hairdressers, barbers, beauticians); and (h) a maximum use of smart-working methods. At the end of March, the Italian government decided to suspend the majority of industrial and commercial production and to prohibit all persons from leaving home, except for proven work needs, emergency, or for health reasons. In these cases, a self-certification attesting the reasons for moving from home was required, and numerous checks were carried out by the police to verify its truthfulness. These measures were still in force during the present study.

Such a drastic form of social isolation has never been seen historically. All citizens, of all ages and social conditions, were asked to drastically change their daily lives, interrupting relationships and activities, and staying at home. Only those who carry out essential work remained exposed to danger, especially doctors and nurses, who have in some cases died. A general climate of concern, therefore, quickly sprang up, linked both to the fear of the disease and to the fear of the economic consequences of inactivity. It is, therefore, not excessive to define this period as traumatic, during which mental health services recorded both a worsening of the symptoms of various people with past problems and a generalized spread of anxiety and depression (Wang, Zhou, & Zong, 2020; Zandifar & Badrfam, 2020).

Indeed, recent studies (Brooks et al., 2020; Pappa et al., 2020) have highlighted that the quarantine–isolation related to the COVID-19 pandemic is associated with increased psychological distress (especially in terms of symptoms of posttraumatic stress disorder), anxiety, and depression. Furthermore, several studies (Altena et al., 2020; Cellini, Canale, Mioni, & Costa, 2020; Huang & Zhao, 2020; Sher, 2020) have especially focused on sleep disorders or poor sleep quality related to the consequences of quarantine–isolation, such as, between others, changes in sleep timing, the smart working, as well as the lack of rest and regular physical exercise. In particular, Xiao, Zhang, Kong, Li, and Yang (2020) have demonstrated a positive association between perceived reduction of the social capital (a sum of social trust,

belonging, and participation) during the quarantine–isolation, higher stress, higher anxiety, and poorer sleep quality.

Based on the continuity hypothesis of dreaming, which states that dream content reflects waking life (Domhoff, 1996; Schredl & Piel, 2006), it is possible to think that the subjective impact of catastrophic life events such as the COVID-19 pandemic could be reflected in the dream content of people subject to isolation measures. Indeed, findings in the literature of dream studies, as related to war conflicts, to catastrophic and/or traumatic events (Barrett, 2001; Hartmann & Basile, 2003; Rosen, Reynolds, Yeager, Houck, & Hurwitz, 1991; Schredl & Piel, 2006), as well as to waking concerns or threats (Bradshaw, Lafrenière, Amini, Lortie-Lussier, & De Koninck, 2016; Davidson & Lynch, 2012; Hartmann, 2011; Mathes & Schredl, 2016), show that these events have a strong impact on dreams due to their emotional salience, thus influencing dream content.

In a similar way, according to classical psychoanalytic thinking (Adams-Silvan & Silvan, 1990; Freud, 1900, 1915–1917; Sommantico, 2016, 2018; Sommantico, De Rosa, & Parrello, 2017; Velotti & Zavattini, 2019), dreams can be interpreted, not only as an attempt at the fulfillment of repressed wishes but also as a way to retrospectively master and transform a waking life traumatic event. And so, following this line of thought, it seems that significant events in waking life can be associated with specific experiences of dreaming, especially with dreamt emotions and threats.

The Present Study: Aims and Hypotheses

The main aim of the present study is to analyze the content of dreams in the time of COVID-19. In accordance with the continuity hypothesis of dreaming, with respect to catastrophic and traumatic events (Barrett, 2001; Hartmann & Basile, 2003; Rosen et al., 1991; Schredl & Piel, 2006), we hypothesized that the dreams of people living with the isolation measures related to the COVID-19 pandemic are mainly realistic and are characterized by strong negative emotional intensity, a strong emotional tone, and the presence of sensory impressions.

Furthermore, we were interested in understanding if, and how, the danger of contagion and the quarantine–isolation measures were represented in dreams. We then hypothesize that most recent dreams are set in locations external to the places where the quarantine–isolation is lived out. Above all, negative emotions, such as anxiety and fear, will emerge, related to dangerous situations.

Finally, based on previous dream research (Nielsen et al., 2000; Schredl, 2002; Schredl & Reinhard, 2008; Settineri, Frisone, Alibrandi, & Merlo, 2019), we hypothesized that women recall their dreams more often, and they also evaluate their dreams as more emotionally intense, than men do. In particular, studies and meta-analyses (Schredl, 2010b; Schredl & Lahl, 2010) not only indicated that women tend to recall their dreams more often than men but also tried to identify what factors might explain this difference, such as frequency of nocturnal awakenings, interest in dreams, neuroticism, and sex role orientation.

Method

Research Instruments

Sociodemographic Questionnaire. Respondents provided sociodemographic data (e.g., age, gender, region of residence, level of education, and profession) via a basic Sociodemographic Questionnaire. Respondents were also asked to report information about their quarantine (e.g., number of people, dimensions of their house, availability of a private room), and whether they know people affected by or who have died of COVID-19.

Dream Questionnaire. Dream frequency recall was measured on a 7-point scale (0 = *never*; 1 = *less than once a month*; 2 = *about once a month*; 3 = *about two to three times a month*; 4 = *about once a week*; 5 = *several times a week*; 6 = *almost every morning*; Schredl, 2002, 2010a; Settineri et al., 2019). Following the indications of Schredl (2002, 2010a), participants were also asked to self-rate their dreams' realism (on a 3-point scale: 0 = *nonrealistic dreams*; 1 = *dreams are sometimes realistic*; 2 = *dreams are often realistic*), the creative aspect of their dreams (on a 5-point scale, ranging from 1 = *no creative aspects* to 5 = *many creative aspects*), the emotional intensity of their dreams (on a 5-point scale, ranging from 1 = *not intense* to 5 = *very intense*), and the overall emotional tone of their dreams (on a 3-point scale: -1 = *predominantly negative*; 0 = *balanced*, +1 = *predominantly positive*).

Regarding the instructions for reporting "The Most Recent Dream," we followed the indications set out by Hall and Van de Castle (1966), later modified by Domhoff (1996, 2003). We asked participants to indicate (a) whether the dream occurred last night, last week, or last month; (b) the date the dream occurred; and (c) what time of the day the dream was recalled. Participants were also asked to (a) describe the dream exactly and as fully as they could remember it; (b) describe the setting of the dream, whether it was familiar or not; (c) describe the people and their sex, age, and relationship to the dreamer; (d) describe any animals or objects that appeared in the dream; (e) describe their feelings during the dream and whether they were pleasant or unpleasant; and (f) tell exactly what happened during the dream to themselves and the other characters. Participants were also asked to self-rate their dream (Domhoff, 1996; Schredl, 2002, 2010a) regarding (a) the intensity of the positive emotions of the dream (on a 4-point scale, ranging from 0 = *no emotions* to 3 = *intense emotions*); (b) the intensity of the negative emotions of the dream (on a 4-point scale, ranging from 0 = *no emotions* to 3 = *intense emotions*); (c) realism/bizarreness of the dream (on a 4-point scale, ranging from 0 = *realistic dream* to 3 = *bizarre dream*); and (d) the presence of sensory impressions in the dream (on a 4-point scale, ranging from 0 = *no sensory impressions* to 3 = *strong sensory impressions*).

Dream Content Analysis

As stated by Schredl (2010a), the crucial aim of content analysis is to quantify "particular aspects of the verbal material [. . .] for differentiating between findings which are due to chance and findings which might reflect 'real' differences in the

population” (p. 65). Despite the fact that dream content analysis has several shortcomings (such as the loss of information and the impossibility to capture the uniqueness of people’s dreams), one of the most important issue is related to the use of the validity of dream content scales, as well as the presence of independent judges analyzing dream emotions (Hoffman, 2013; Schredl, 2002; Schredl, 2010a; Schredl & Doll, 1998).

For the present quantitative analyses, the rating scales used in the study were the same as those used for The Most Recent Dream. This was done to compare participants’ self-ratings and judges’ ratings of the following: (a) the intensity of the positive emotions; (b) the intensity of the negative emotions; (c) realism/bizarreness; and (d) the presence of sensory impressions. All scales used the same format as the self-rating scales in the Dream Questionnaire. The interrater reliability coefficients (Spearman rank correlations) for these scales were high and ranged from .69 (realism/bizarreness) to .81 (negative emotions).

For the qualitative analyses (Richards, 2015), the Grounded Theory Model (Glaser & Strauss, 1967) was used to explore the presence of common aspects in participants’ dreams, analyzed by three independent researchers. Grounded theory “is an inductive, theory discovery methodology that allows the researcher to develop a theoretical account of the general features of a topic while simultaneously grounding the account in empirical observations or data” (Martin & Turner, 1986, p. 141). Beyond the researcher’s need to come up with preliminary hypotheses, which provides greater freedom to explore the research area and which allows for issues to emerge, the grounded theory approach offers several other benefits. These include (a) rigorous insight into areas that are relatively unknown by the researchers; (b) capacity to interpret complex phenomena; (c) accommodation of social issues; (d) appropriateness for socially constructed experiences; and (e) no constraints of a priori knowledge.

The content analyses were oriented around specific questions. The search for recurring emotional valence and symbolic elements was linked to (a) elements of the traumatic situation people are experiencing; (b) aspects related to the condition of quarantine–isolation; and (c) aspects related to “escape” from the quarantine–isolation situation.

Data Analyses

Survey data were then entered into SPSS 23.0 (IBM Corp, 2015) for the quantitative analyses and QRS NVivo 11 (Bazeley & Richards, 2000; Richards, 1999) for the quali-quantitative analyses. Data were checked/verified by project staff for accuracy, to maintain the researcher’s irreplaceable meaning-making process. Ordinal logistic regression models were used for ordinal outcome variables (i.e., dream recall frequency, etc.; p value < .05).

Procedure and Participants

Participants were recruited in Italy via the Internet from April 2020 to May 2020, according to the following criteria: more than 18 years of age and compliant

with the quarantine measures. All data were collected through self-report questionnaires, written or translated into the Italian language, using an Internet-based survey (Hewson, Vogel, & Laurent, 2016). Participation in the study was voluntary, anonymous, and unpaid. All participants included in the study gave consent to participate on the first page of the survey. The informed consent included detailed information about the aims and procedures of the study, confidentiality, and the anonymity of the responses. After signing the informed consent, participants first completed the Sociodemographic Questionnaire. Participants then completed the Dream Questionnaire and reported The Most Recent Dream. Means across each participant's reported dreams were calculated for word count. Dream reports were arranged and scored on the dream rating scales by three independent judges.

The study complied with the American Psychological Association ethical standards in the treatment of human research participants and conformed to the provisions of the 1964 Helsinki Declaration and its later amendments. Furthermore, the study was approved by the Ethical Committee of Psychological Research of the Department of Humanities of the University of Naples Federico II (protocol no. 14/2020).

There were 890 respondents, but only 796 (73.2% women; ages 18–79 years, $M = 30.3$, $SD = 12.8$) reported their most recent dream. Half of the participants were students (50.1%). Participants living in the center or in the suburbs of a big city were 48.8%. The majority of participants (40.2%) were in a relationship but lived alone (32.8% were single, 23.9% married or cohabiting, 2.5% were divorced, and 0.6% were widows). Participants living with family during the quarantine period were 82.3% (10.3% in couple, 5.3% alone, and 2.1% with friends). The mean number of people cohabiting during the quarantine period was 3.5 ($SD = 1.3$). The majority of participants (51.5%) live in a house that is between 80 and 140 m², with their own room available (75.4%), and many had animals living with them (38.4% had dogs and/or cats). The sample had a high level of education, with 52.4% of the participants having completed secondary school and 41.4% having completed a university degree or a postuniversity degree. Participants who knew someone infected by COVID-19 were 29.5%, and participants who knew someone who died of COVID-19 were 8.4%.

Results

Dream Recall Frequency and Content Measures

Regarding the dream recall frequency, the sample was divided, according to the recommendations of Schredl (2002), into three categories: (a) low recallers = never to about once a month, 17.3%; (b) medium recallers = about two to three times a month to about once a week, 34.9%; and (c) high recallers = several times a week to almost every morning, 47.7%. Regarding realism/bizarreness, participants reported dreams, on average, sometimes realistic ($M = 1.2$; $SD = 0.7$). Regarding the creative aspect, participants reported medium creative content ($M = 2.9$; $SD = 1.2$) of their dreams. Regarding the emotional intensity, participants reported a high emotional intensity ($M = 3.9$; $SD = 1.0$) of their dreams. Finally,

regarding the emotional tone, participants reported a mainly balanced emotional tone in their dreams ($M = -0.2$; $SD = 0.6$; see Table 1).

The dependent ordinal variables (dream recall frequency, realism/bizarreness, creative aspects, emotional intensity, and emotional tone) were compared with gender as an independent variable, with age and level of education controlled. Results are shown in Table 2.

In line with previous studies, significant causal relationships were found with dream recall frequency, emotional intensity, and emotional tone, thus indicating that female participants are higher recallers than men, as well as report higher emotional intensity and a predominantly negative emotional tone of their dreams. No significant causal relationships were found for realism/bizarreness and creative aspects.

Most Recent Dream Quali-Quantitative Analysis

In reporting the Most Recent Dream, the majority of participants (55.9%) indicated that the dream occurred during the last week (25.6% last night and 18.5% last month) and that they mainly recalled the dream during the morning (83.9%). The mean dream length was 134.0 words ($SD = 136.9$).

Regarding the intensity of emotions, participants reported medium positive emotions ($M = 1.5$; $SD = 1.1$) and high negative emotions ($M = 1.9$; $SD = 1.1$). Regarding realism/bizarreness, participants reported medium realism ($M = 1.6$; $SD = 0.9$). Finally, regarding the presence of sensory impressions, participants reported a high presence of sensory impressions ($M = 1.8$; $SD = 1.0$; see Table 3).

Zero-order correlations between participants' self-ratings and judges' mean ratings are shown in Table 4. Results showed medium to large significant positive associations, with r values ($p \leq .01$) ranging from .52 to .66.

The dependent ordinal variables (positive emotions, negative emotions, realism/bizarreness, and sensory impressions) were compared with gender, the COVID-19 variables (knowing a COVID-19 case or death), and the time when the most recent dream occurred (last night, last week, last month) as independent variables, with age and level of education controlled. Results are shown in Table 5.

Regarding the effect of gender, and in line with previous studies, significant causal relationships were found with positive emotions, negative emotions, and

Table 1
Dream Recall Frequency and Content

| Dream variables | Females | Males | Total sample |
|---------------------|---|---|---|
| | <i>N</i> = 583 (% or <i>M</i> , <i>SD</i>) | <i>N</i> = 213 (% or <i>M</i> , <i>SD</i>) | <i>N</i> = 796 (% or <i>M</i> , <i>SD</i>) |
| Low recallers | 14.1 | 26.3 | 17.3 |
| Medium recallers | 35.2 | 34.3 | 34.9 |
| High recallers | 50.8 | 39.4 | 47.7 |
| Realism/bizarreness | 1.2, 0.7 | 1.1, 0.7 | 1.2, 0.7 |
| Creative aspects | 2.9, 1.2 | 2.9, 1.2 | 2.9, 1.2 |
| Emotional intensity | 3.9, 0.9 | 3.6, 1.0 | 3.9, 1.0 |
| Emotional tone | -0.2, 0.6 | -0.1, 0.6 | -0.2, 0.6 |

Table 2
Regression Analyses for Dream Variables

| Dream variables | Effect of gender | | |
|------------------------|------------------|----------|-------|
| | β | χ^2 | p |
| Dream recall frequency | .045 | 36.57 | .000* |
| Realism/bizarreness | .003 | 2.41 | .300 |
| Creative aspects | .007 | 5.63 | .060 |
| Emotional intensity | .027 | 22.05 | .000* |
| Emotional tone | .015 | 12.39 | .002* |

Note. β = standardized estimates.
* $p \leq .05$.

sensory impressions, thus indicating that female participants report higher emotional intensity and sensory impressions in their most recent dreams. Regarding the effect of knowing a COVID-19 case or death, significant causal relationships were found with positive emotions, negative emotions, and sensory impressions, thus indicating that participants knowing people affected by or who have died of COVID-19 report higher emotional intensity and sensory impressions in their most recent dreams. Finally, regarding the effect of the time when the most recent dream occurred, significant causal relationships were found with positive emotions, thus indicating that participants whose most recent dreams occurred last week reported higher positive emotions. No significant causal relationships were found for realism/bizarreness.

With the support of NVivo, three independent judges classified 5,738 references, in a textual corpus consisting of 796 dreams (1,06,727 words). Each reference was placed in one or more nodes: (a) main nodes, or starting macrocategories, which corresponded to the structural elements of the dream sought by the judges (settings, characters, actions, etc.); (b) subnodes that emerged from the exploration of the text (see Tables 6 and 7).

Node 1. Settings. The dream settings are internal (*home, prison, madhouse, hospital*, etc.) in 319 references (37%), but mostly external (543 references, 63%): *streets, squares, beaches, swimming pools, shopping centers, fairs, bars*, and so forth. Both the houses, which are often crowded and with many windows, and the external places are sometimes familiar, sometimes “strange.” Here are some examples of excerpts from dreams: “It was a kind of stilt house, beautiful super

Table 3
Most Recent Dreams’ Content

| Dream variables | Females | Males | Total sample |
|---------------------|------------------------------|------------------------------|------------------------------|
| | $N = 583$ (% or M , SD) | $N = 213$ (% or M , SD) | $N = 796$ (% or M , SD) |
| Dream length | 138.4, 134.5 | 122.1, 142.7 | 134.0, 136.9 |
| Last night | 26.4 | 23.5 | 25.6 |
| Last week | 56.9 | 53.1 | 55.9 |
| Last month | 16.6 | 23.5 | 18.5 |
| Positive emotions | 1.4, 1.1 | 1.7, 0.9 | 1.5, 1.1 |
| Negative emotions | 2.0, 1.1 | 1.7, 1.1 | 1.9, 1.1 |
| Realism/bizarreness | 1.5, 1.0 | 1.6, 1.0 | 1.6, 0.9 |
| Sensory impressions | 1.8, 1.0 | 1.7, 1.0 | 1.8, 1.0 |

Table 4
Zero-Order Correlations Between Participants' Self-Ratings and Judges' Ratings (N = 796)

| Rating scales | Positive emotions J | Negative emotions J | Realism/ bizarreness J | Sensory impressions J |
|-----------------------|---------------------|---------------------|------------------------|-----------------------|
| Positive emotions P | .56* | | | |
| Negative emotions P | | .66* | | |
| Realism/bizarreness P | | | .54* | |
| Sensory impressions P | | | | .52* |

Note. P = participants; J = judges.
* $p < .01$.

elegant and full of windows”; “I was locked up in a madhouse and there was a woman chasing me with the intent to kill me”; “I was with someone at a fair, but I don’t remember who he is, however I get lost among the stalls scrupulously looking at every object and there were a lot of people and I struggled to breathe and I felt oppressed”; “I was at the bar in the city where we happen to go with one of my closest friends and my brother”; “We went to the sea, to the swimming pool and in the evening, we went out to the town.”

Node 2. Characters. Apart from the *dreamer*, *family members*, *friends*, and *colleagues* who belong to the daily life of the present appear in the dreams (713 references, 52.9%). So do many people from the past, that is, *people with whom we have not had relationships for a long time* (244 references, 16.1%): *ex-boyfriends*, *old school friends*, and *loved ones who died*. Finally, *unknown and crowd* appear in 391 references (29%). Here are some examples: “My girlfriend and I arrive in a tourist village surrounded by nature: during the trip our bags were lost”; “I was with my colleagues in the workplace, very busy but calm”; “I was at my house, I don’t remember if the current one or not, my parents quarreled, and I had to decide who was right”; “I was speaking at a village festival with a friend of mine with whom I have lost relationships lately and they talked about our estrangement. Then I also saw an ex-boyfriend of mine in the dream, but I don’t remember what we said”; “I dreamt of being at my house with my grandmother, who died about 3 years ago. She asked me to turn on the stove because she was cold, and I tried”; “There was the eruption of Vesuvius. Many people ran towards a kind of bunker. Instead, my family proceeded to the volcano.”

Table 5
Regression Analyses for Most Recent Dream Variables

| Dream variables | Effect of gender | | | Effect of knowing a COVID-19 case | | | Effect of knowing a COVID-19 death | | | Time when the dream occurred | | |
|---------------------|------------------|----------|-------|-----------------------------------|----------|-------|------------------------------------|----------|-------|------------------------------|----------|-------|
| | β | χ^2 | p | β | χ^2 | p | β | χ^2 | p | β | χ^2 | p |
| Positive emotions | .019 | 15.28 | .000* | .012 | 9.88 | .007* | .013 | 9.81 | .007* | .018 | 14.42 | .002* |
| Negative emotions | .026 | 20.96 | .000* | .013 | 10.40 | .006* | .011 | 9.07 | .011* | .008 | 6.61 | .086 |
| Realism/Bizarreness | .003 | 2.07 | .355 | .003 | 2.12 | .347 | .003 | 2.59 | .274 | .004 | 2.96 | .398 |
| Sensory impressions | .009 | 7.36 | .025* | .008 | 6.41 | .040* | .009 | 7.46 | .024* | .010 | 7.81 | .051 |

Note. β = standardized estimates.
* $p < .05$.

Table 6
Nodes and Subnodes of Most Recent Dreams' Categorical Analysis (1; N = 796)

| Nodes | | Subnodes | | | |
|---------------|---------------------|---------------------|--|--------------------|-------------------|
| 1. Settings | | Internal | | External | |
| 862 ref. | | 319 ref. (37%) | | 543 ref. (63%) | |
| 2. Characters | Present | Past | | Unknown/crowd | |
| 1,348 ref. | 713 ref. (52.9%) | 244 ref. (18.1%) | | 391 ref. (29%) | |
| 3. Animals | | Pets | | Others | |
| 113 ref. | | 80 ref. (70.8%) | | 33 ref. (29.2%) | |
| 4. Objects | Generic | Movement related | | Technological | Weapons |
| 783 ref. | 549 ref. (70.1%) | 146 ref. (18.6%) | | 60 ref. (7.7%) | 28 ref. (3.6%) |

Note. ref. = references. There are 5,738 analyzed references.

Node 3. Animals. Only in a small number of references (113) do animals appear. In 70.8% of the cases, they are pets (80 references), *dogs* and *cats*; in 29.2% of cases, they are other kind of animals (33 references). Sometimes they are dangerous, and sometimes they are themselves in need of help. Here are some examples: “A dog enters and bite me. I’m frightened and I try to run away even if in itself the dog was not aggressive at all, in fact it seemed very quiet”; “We are out of the hospital, my mother walks away, my cat is with me, dying. I hold her in my arms”; “Suddenly a huge rat comes in and tries to attack me, I close the front door”; “A cockroach with a single antenna walks on the wall, scares me and I seek help from the people present”; “There is a rabbit in a cage, and I am worried and want to free it.”

Node 4. Objects. In 783 references, objects appear: (a) generic (549 references, 70.1%), that is, *household objects*, *furnishings*, and so forth; (b) movement

Table 7
Nodes and Subnodes of Most Recent Dreams' Categorical Analysis (2; N = 796)

| Nodes | | | | Subnodes | | | | |
|--------------------------|---------------------|-------------------|---------------------|-------------------------------------|---------------------|------------------------------------|---------------------|--------------------------------|
| 5. Emotions 994 ref. | | | | Positive | | Negative | | |
| | | | | 242 ref. (24.4%) | | 752 ref. (75.6%) | | |
| | | | | Anxiety/fear 410 ref. (54.5%) | | Frustration 211 ref. (28.1%) | | Generic 131 ref. (17.4%) |
| 6. Actions 1,491 ref. | | | | Canonical | | Exceptional | | |
| | | | | 799 ref. (53.6%) | | 692 ref. (46.4%) | | |
| | | | | | | Violence/ | | |
| | Sharing | Body | Movement | Help/care | Danger | transgression | Incomplete | Death |
| | 276 ref. (34.5%) | 215 ref. (27%) | 268 ref. (33.5%) | 40 ref. (5%) | 343 ref. (49.6%) | 146 ref. (21.1%) | 164 ref. (23.7%) | 39 ref. (5.6%) |
| 7. COVID-19 147 ref. | | | | Disease | | Quarantine | | Checks |
| | | | | 43 ref. (29.2%) | | 77 ref. (52.4%) | | 27 ref. (18.4%) |
| | | | | | | | | |

Note. ref. = references. There are 5,738 analyzed references.

related (146 references, 18.6%), that is, *stairs* and means of locomotion such as *cars*, *motorbikes*, *planes*, and so forth; (c) technological (60 references, 7.7%), that is, *computers*, *mobiles*, and so forth; and (d) weapons (28 references, 3.6%), *pistols*, *knives*, *axes*, and so forth. Here are some examples: “I had to take a plane to go from Madrid to Santiago de Chile. As always, I was very afraid of flying, but also of getting infected”; “I was on my old scooter on the ring road, even if the surrounding landscape was very different and more desolate than the real one, with my cousin and her friend”; “I was on a boat. I was hiking with my old high school classmates”; “I was trying to escape from someone who wanted to kill me. He was a person familiar to me, but I can’t remember him: He had a pistol with a silencer.”

Node 5. Emotions. Terms that explicitly refer to emotions and feelings appear in 994 references. Positive emotions are found only in 242 references (24.4%): *serenity*, *joy*, *pleasure*, and so forth. Negative emotions appear in 752 references (75.6%) and are divided into three areas: (a) anxiety/fear (410 references, 54.5%): *anxiety*, *anguish*, *fear*, *panic*, *terror*, and so forth; (b) frustration (211 references, 28.1%): *sense of helplessness*, *sense of frustration*, *anger*, *sense of guilt*, and so forth; and (c) generic negative emotions (131 references, 17.4%): *negative feelings*, *sadness*, *annoyance*, *bewilderment*, and so forth. Here are some examples: “I’m going to get married. Our wedding was scheduled for late May, but we had to postpone it. I am happy”; “I dream of making love with my girlfriend for weeks, a dream obviously with very positive and pleasant emotions”; “I was anxious because my daughter had to hand over homework and she was failing to stay on schedule”; “I dreamt of being in a very crowded cinema. I was starting to cover my mouth and nose with a scarf, and I remember well the panic sensation that suddenly assailed me, the terror of being able to become infected pervaded me”; “I remembered that I had not brought self-certification with me and I was panicking.”

Node 6. Actions. The categorized actions number 1,491 and have been divided into (a) canonical (799 references, 53.6%), that is, actions that are part of the routine of daily life and (b) exceptional (692 references, 45.4%), that is, unusual, strange.

The canonical actions are divided as follows: (a) sharing actions (276 references, 34.5%), which refer to being together (*cooking*, *speaking*, *walking*, *fighting*, etc.); (b) body related (215 references, 27%): sometimes in the sense of affective intimacy (*hugging*, *kissing*, *having sex*, etc.), other times related to bodily perceptions or expressions (*crying*, *screaming*, *feeling pain*, etc.); (c) movement related (268 references, 33.5%), like *going out*, *running away*, *traveling*, and so forth; and (d) help/care (40 references, 5%): *how to help*, *cure*, and *protect*. Here are some examples: “I went to a disco on the beach with my friends, while they took a drink all around me it became my graduation party”; “We go to his house, I embrace him like a 16-year-old girl, I squeeze him to hurt him almost and I wanted his kisses as much as ever”; “I dreamt of going to the supermarket with my cousin and a friend of mine.”

Exceptional actions have been divided into (a) dangerous actions (343 references, 49.6%), in which the dreamer or other characters are threatened by various dangers and uncertain situations, but also *wars*, *earthquakes*, *eruptions*, and so forth; (b) violence/transgression (146 references, 21.1%), in which the dreamer witnesses or suffers *robberies*, *assaults*, *betrayals*, and so forth; (c) incomplete actions (164 references, 23.7%), that is, actions that the dreamer cannot conclude

or keep under control (*not controlling the car, a bike losing balance, inability in taking an exam, cannot ask for help*, etc.); and (d) death (39 references, 5.6%); in a small percentage of references, the death of the dreamer or other characters is told. Here are some examples: “I was in a bunker and there was war outside. I was terrified of the sound of exploding bombs”; “I was subjected to a robbery by a pickpocket to whom I offered my belongings”; “We were celebrating something but after a few moments we heard shots from outside. We catapulted onto the street and witnessed a shooting. After a few moments one of my friends was hit by a bullet”; “We have to go back in and I’m going to get back the car that is parked next to the sidewalk. The car is no longer there, so I try to contact the police with the mobile, but I can’t dial the numbers”; “I feel like I’m in a maze, I can’t find the way out. Suddenly I find myself stuck in corridors that look like those of a luxury hotel”; “A colleague of mine came to my office and commits suicide by jumping off the balcony. I start to be afraid of being blamed for murder and I don’t know why.”

Node 7. COVID-19. Only in 147 references do dreamers make explicit reference to COVID-19: It is cited as a *virus* causing disease, *contagion*, *infection*, and various *symptoms* (43 references, 52.4%), but above all as the cause of quarantine (77 references, 52.4%), and, finally, as a cause of the checks to which people are subjected (27 references, 18.4%), which impose the use of *self-certifications*, the meeting with the *police*, and the risk of *fines*. Here are some examples: “I dreamt that I contracted the virus and therefore had to go to a clinic to be isolated. I was fine and I wasn’t attached to respirators or anything, the only emotion I remember having was a sense of amazement”; “I was leaving the house for the first time during the quarantine with my friends, but was not yet allowed to leave”; “We were in the car in a long queue and I find that the queue was due to the police checks that allowed only the people who had a self-certification to pass: At that point I was taken by anxiety because I have no documents with me.”

Discussion

Beyond collecting data from the Dream Questionnaire, this study examined the Most Recent Dreams reported by adult Italians. All dreams were coded by three independent judges to provide a more reliable and complete picture of the extent to which specific themes can be observed in dreams during the time of COVID-19.

Consistent with previous research (Nielsen et al., 2000; Schredl, 2002, 2010b; Schredl & Reinhard, 2008; Settineri et al., 2019), women reported recalling dreams more often than men. Furthermore, women reported significantly higher emotional intensity and a predominantly negative emotional tone in their dreams. Finally, women more frequently reported a frustrating situation with higher negative emotions in their most recent dreams.

Participants who knew people affected by or who have died of COVID-19 reported higher emotional intensity and sensory impressions in their most recent dreams. In light of the transformative function of dreams (Adams-Silvan & Silvan, 1990; Sommantico, 2018), we can hypothesize that knowing people affected by or who have died of COVID-19 is a real emotionally significant experience, which could further stimulate the need for a dream job that would manifest itself in a

greater emotional intensity of dreams, as well as in a greater presence of sensory impressions. Furthermore, these data are in line with both the continuity hypothesis of dreaming with waking life (Barrett, 2001; Hartmann & Basile, 2003; Rosen et al., 1991; Schredl & Piel, 2006) and the classical psychoanalytic thinking, according to which significant events in waking life can be associated with specific experiences of dreaming, especially with dreamt emotions and threats.

According to previous investigations (Schredl, 2002; Schredl & Doll, 1998), dreams' emotions (especially positive ones) are underestimated by judges when compared with dreamers' self-ratings. This may be due to the fact that the judges took into account the presence of words that explicitly name emotions. Despite this difference, the correlation coefficients between judges' ratings and dreamers' self-ratings remain statistically significant.

Regarding the settings of the most recent dreams, they were mainly external to the places where the quarantine–isolation is lived (e.g., streets, beaches, bars, etc.). On the contrary, objects (e.g., household objects, furniture, computers, mobiles, etc.) and animals (pets) are those the people use and encounter while inside the quarantine–isolation place. We can interpret these findings by hypothesizing that people subject to strict quarantine–isolation measures project the desire to escape from forced domestic life in their dreams. Particularly interesting is the recurrence in dreams of characters with whom the dreamer had not had relationships for a long time (ex-partners, ex-friends, dead people, etc.), who now return to ask for contact and with whom meeting does not appear uncanny, but natural. We can perhaps hypothesize that this is a way of representing the lack of social contact, which the quarantine–isolation enforces as “reversible,” or as an expression of nostalgia for the lost past.

Regarding the emotions elicited in most recent dreams, it is interesting to note that positive emotions (e.g., serenity, pleasantness, happiness, etc.) were significantly less intense than negative emotions (e.g., anguish, fear, panic, terror, etc.). Furthermore, these negative emotions were mainly related to dangerous or violent situations (in which the dreamer is involved as a spectator or as an actor), as well as to frustrating situations, in which the dreamer fails or is prevented from completing something. It should also be noted that there are some situations of danger, violence, death, and the impossibility to act in which the emotion experienced is not explicitly mentioned, as in a sort of singular “alexithymia,” typical of traumatic processes (Di Giacinto et al., 2015; Taylor & Bagby, 2013). Furthermore, the significant number of canonical actions that refer to relationality and to the body also suggests how central this issue is in the condition of forced quarantine–isolation.

Finally, regarding the themes that emerged from the qualitative analyses, we highlighted a partial superposition with previous studies that investigated typical themes in most recent dreams, in terms of the rank order of the themes (Mathes, Schredl, & Göritz, 2014; Nielsen et al., 2003; Yu, 2015). Indeed, in our sample, between the most prevalent typical dream themes, there were “being chased, pursued, arguments,” “trying something again and again,” “sexual experiences,” “school, teachers, studying,” and “swimming or vacationing.” Despite this similarity, there was a difference in the prevalence of other themes. Indeed, in our sample, the other most prevalent, typical themes were “being physically attacked,” “being

blamed or punished,” “being persecuted,” “spouse or lover having extramarital relations or being unfaithful,” and “shooting or remote attacks.”

Taken together, these results can be interpreted in light of the continuity hypothesis of dreaming (Barrett, 2001; Hartmann & Basile, 2003; Rosen et al., 1991; Schredl & Piel, 2006), indicating that the dreams of people living under the isolation measures related to the COVID-19 pandemic are mainly realistic and are characterized by strong negative emotional intensity, strong emotional tone, the presence of sensory impressions, and the presence of dangerous and frustrating situations.

Despite this, we cannot exclude the existence of a possible bias highlighted by Malinowski (2016), affirming that “it may be that there is a memory bias toward recalling dreams that are particularly troubling, since they reflect what is troubling also in waking life, which the participants may have been ruminating upon” (p. 119).

Strengths and Limitations

To our knowledge, this is the first completed Italian study on dreaming in the time of COVID-19. The first strength of the present study, following the indication of Schredl (2010a), is the use of both valid and reliable self-rating and judged dream content scales. Furthermore, specifically regarding the used rating scales, the interrater reliability coefficients are high, as well as the confidence levels and the effect sizes (Hoffman, 2013).

The first general limitation is related to sampling strategy. Indeed, judgmental sampling, as well as convenience sampling, such as snowball sampling, implies specific possible biases: for example, volunteers’ bias (related to the special characteristics of individuals who voluntarily participate in a study; e.g., Hoffman, 2013). Furthermore, our sample was not balanced with respect to gender. Future research could try to work with more gender-balanced samples. A final limitation relates to the participants’ wide age range. Indeed, it is possible that, as highlighted by different studies (Schredl, Berres, Klingauf, Schellhaas, & Göritz, 2014; Settineri et al., 2019), some constructs, such as dream recall frequency, vary across different life phases. Future follow-up research could analyze this issue. In sum, previous limitations and the cross-sectional study design also limit the conclusions that can be drawn, especially their generalizability.

Conclusions

The present study was conducted during the worst phase of the COVID-19 pandemic in Italy, when the mass media communicated every day the increasing numbers of the sick and dead, especially among the elderly, and continually reminded audiences of the obligation to practice social distancing, as summarized in the expression “I stay home.”

The large number of people who responded in a short time to our request to participate in the study (890 in 14 days) perhaps speaks to the increase in recall of dream activity at a time when there is a push to represent something new and unknown, or even a need to narrate and confront it.

In accordance with the continuity hypothesis of dreaming and with psychoanalytic thinking, the results show how catastrophic events are reflected in dream life both directly, through realistic dreams and explicit references to COVID-19, and indirectly and symbolically. In particular, the element of the pandemic that the unconscious seems to have used the most is isolation in the home, represented in dreams as an unusual and disturbing experience, especially through denial, escape to external places, and close encounters with others, including those with whom people have not had contact for a long time. The transgression of the quarantine—isolation, desired and feared, is thus the basis of dreams marked by danger and the threat not so much of the other, but of relationships: One dreams, in fact, of being attacked and attacking, being betrayed and betraying, being accused and accusing, witnessing death and dying. But the most specific feature of the traumatic experience is the sense of powerlessness: that is, the feeling that you do not have the individual resources to face reality. However, dreamwork is just one way to start elaborating this collective catastrophic experience. Narrating it and making it available to the scientific community is a further step.

In sum, this study highlights that an integrative experimental and clinical perspective, including qualitative and quantitative analyses, as well as different theoretical approaches, such as the continuity hypothesis and the psychoanalytic framework, could contribute to a more comprehensive analysis of dreaming.

References

- Adams-Silvan, A., & Silvan, M. (1990). "A dream is the fulfillment of a wish": Traumatic dream, repetition compulsion, and the pleasure principle. *The International Journal of Psychoanalysis*, 71, 513–522.
- Altena, E., Baglioni, C., Espie, C. A., Ellis, J., Gavrilloff, D., Holzinger, B., . . . Riemann, D. (2020). Dealing with sleep problems during home confinement due to the COVID-19 outbreak: Practical recommendations from a task force of the European CBT-I Academy. *Journal of Sleep Research*, 29, e13052. <http://dx.doi.org/10.1111/jsr.13052>
- Barrett, D. (2001). *Trauma and dreams*. London, UK: Harvard University Press.
- Bazeley, P., & Richards, L. (2000). *The NVivo qualitative project book*. London, UK: Sage. <http://dx.doi.org/10.4135/9780857020079>
- Bradshaw, S., Lafrenière, A., Amini, R., Lortie-Lussier, M., & De Koninck, J. (2016). Threats in dreams, emotions and the severity of threatening experiences in waking. *International Journal of Dream Research*, 9, 102–109. <http://dx.doi.org/10.11588/ijodr.2016.2.27214>
- Brooks, S. K., Webster, R. K., Smith, L. E., Woodland, L., Wessely, S., Greenberg, N., & Rubin, G. J. (2020). The psychological impact of quarantine and how to reduce it: Rapid review of the evidence. *The Lancet*, 395, 912–920. [http://dx.doi.org/10.1016/S0140-6736\(20\)30460-8](http://dx.doi.org/10.1016/S0140-6736(20)30460-8)
- Cellini, N., Canale, N., Mioni, G., & Costa, S. (2020). Changes in sleep pattern, sense of time and digital media use during COVID-19 lockdown in Italy. *Journal of Sleep Research*, 15, e13074. <http://dx.doi.org/10.1111/jsr.13074>
- Davidson, J., & Lynch, S. (2012). Thematic, literal, and associative dream imagery following a high-impact event. *Dreaming*, 22, 58–69. <http://dx.doi.org/10.1037/a0026273>
- Di Giacinto, A., Lai, C., Cieri, F., Cinosi, E., Massaro, G., Angelini, V., . . . di Giannantonio, M. (2015). Difficulty describing feelings and post-traumatic symptoms after a collective trauma in survivors of L'Aquila earthquake. *Journal of Mental Health*, 24, 150–154. <http://dx.doi.org/10.3109/09638237.2015.1019055>
- Domhoff, G. W. (1996). *Finding meanings in dreams. A quantitative approach*. New York, NY: Springer. <http://dx.doi.org/10.1007/978-1-4899-0298-6>
- Domhoff, G. W. (2003). *The scientific study of dreams: Neural networks, cognitive development, and content analysis*. Washington, DC: American Psychological Association. <http://dx.doi.org/10.1037/10463-000>

- Freud, S. (1900). The interpretation of dreams. In J. Strachey (Ed. & Trans.), *The standard edition of the complete psychological works of Sigmund Freud* (Vols. 4 and 5, pp. 1–628). London, UK: Hogarth Press.
- Freud, S. (1915–1917). New introductory lessons on psycho-analysis. In J. Strachey (Ed. & Trans.), *The standard edition of the complete psychological works of Sigmund Freud* (Vol. 15, pp. 83–242). London, UK: Hogarth Press.
- Glaser, B. G., & Strauss, A. L. (1967). *The discovery of grounded theory: Strategies for qualitative research*. Chicago, IL: Aldine.
- Hall, C. S., & Van de Castle, R. L. (1966). *The content analysis of dreams*. New York, NY: Appleton-Century-Crofts.
- Hartmann, E. (2011). *The nature and functions of dreaming*. Oxford, UK: Oxford University Press.
- Hartmann, E., & Basile, R. (2003). Dream imagery becomes more intense after 9/11/01. *Dreaming*, 13, 61–66. <http://dx.doi.org/10.1023/A:1023398924124>
- Hewson, C., Vogel, C., & Laurent, D. (Eds.). (2016). *Internet research methods* (2nd ed.). London, UK: Sage. <http://dx.doi.org/10.4135/9781473920804>
- Hoffman, C. (2013). Research articles in dreaming: A review of the first 20 years. *Dreaming*, 23, 216–231. <http://dx.doi.org/10.1037/a0032905>
- Huang, Y., & Zhao, N. (2020). Generalized anxiety disorder, depressive symptoms and sleep quality during COVID-19 epidemic in China: A web-based cross-sectional survey. *Psychiatry Research*, 288, 112954. <http://dx.doi.org/10.1016/j.psychres.2020.112954>
- IBM Corp. (2015). IBM SPSS statistics for windows, Version 23.0 [Computer software]. Armonk, NY: Author.
- Malinowski, J. E. (2016). Themes in participants' understandings of meaning in their most recent dream: Worries, relationships, and symbolism. *International Journal of Dream Research*, 9, 115–123. <http://dx.doi.org/10.11588/ijodr.2016.2.29405>
- Martin, P. Y., & Turner, B. A. (1986). Grounded theory and organizational research. *Journal of Applied Behavioral Science*, 22, 141–157. <http://dx.doi.org/10.1177/002188638602200207>
- Mathes, J., & Schredl, M. (2016). Threats in dreams: Are they related to waking-life? *International Journal of Dream Research*, 9, 58–66. <http://dx.doi.org/10.11588/ijodr.2016.1.27499>
- Mathes, J., Schredl, M., & Göritz, A. S. (2014). Frequency of typical dream themes in most recent dreams: An online study. *Dreaming*, 24, 57–66. <http://dx.doi.org/10.1037/a0035857>
- Nielsen, T. A., Laberge, L., Paquet, J., Tremblay, R. E., Vitaro, F., & Montplaisir, J. (2000). Development of disturbing dreams during adolescence and their relation to anxiety symptoms. *Sleep*, 23, 727–736. <http://dx.doi.org/10.1093/sleep/23.6.1>
- Nielsen, T. A., Zadra, A. L., Simard, V., Saucier, S., Stenstrom, P., Smith, C., & Kuiken, D. (2003). The typical dreams of Canadian university students. *Dreaming*, 13, 211–235. <http://dx.doi.org/10.1023/B:DREM.0000003144.40929.0b>
- Pappa, S., Ntella, V., Giannakas, T., Giannakoulis, V. G., Papoutsis, E., & Katsaounou, P. (2020). Prevalence of depression, anxiety, and insomnia among healthcare workers during the COVID-19 pandemic: A systematic review and meta-analysis. *Brain, Behavior, and Immunity*, 88, 901–907. <http://dx.doi.org/10.1016/j.bbi.2020.05.026>
- Richards, L. (1999). *Using NVivo in qualitative research*. London, UK: Sage.
- Richards, L. (2015). *Handling qualitative data: A practical guide*. London, UK: Sage.
- Rosen, J., Reynolds, C. F., III, Yeager, A. L., Houck, P. R., & Hurwitz, L. F. (1991). Sleep disturbances in survivors of the Nazi Holocaust. *The American Journal of Psychiatry*, 148, 62–66. <http://dx.doi.org/10.1176/ajp.148.1.62>
- Schredl, M. (2002). Questionnaire and diaries as research instruments in dream research: Methodological issues. *Dreaming*, 12, 17–26. <http://dx.doi.org/10.1023/A:1013890421674>
- Schredl, M. (2010a). Dream content analysis: Basic principles. *International Journal of Dream Research*, 3, 65–73. <http://dx.doi.org/10.11588/ijodr.2010.1.474>
- Schredl, M. (2010b). Explaining the gender difference in dream recall frequency. *Dreaming*, 20, 96–106. <http://dx.doi.org/10.1037/a0019392>
- Schredl, M., Berres, S., Klingauf, A., Schellhaas, S., & Göritz, A. S. (2014). The Mannheim Dream Questionnaire (MADRE): Retest reliability, age and gender effects. *International Journal of Dream Research*, 7, 141–147. <http://dx.doi.org/10.11588/ijodr.2014.2.16675>
- Schredl, M., & Doll, E. (1998). Emotions in diary dreams. *Consciousness and Cognition*, 7, 634–646. <http://dx.doi.org/10.1006/ccog.1998.0356>
- Schredl, M., & Lahl, O. (2010). Gender, sex role orientation, and dream recall frequency. *Dreaming*, 20, 19–24. <http://dx.doi.org/10.1037/a0018578>
- Schredl, M., & Piel, E. (2006). War-related dream themes in Germany from 1956 to 2000. *Political Psychology*, 27, 299–307. <http://dx.doi.org/10.1111/j.1467-9221.2006.00008.x>
- Schredl, M., & Reinhard, I. (2008). Gender differences in dream recall: A meta-analysis. *Journal of Sleep Research*, 17, 125–131. <http://dx.doi.org/10.1111/j.1365-2869.2008.00626.x>

- Settineri, S., Frisone, F., Alibrandi, A., & Merlo, E. M. (2019). Italian adaptation of the Mannheim Dream Questionnaire (MADRE): Age, gender and dream recall effects. *International Journal of Dream Research*, 12, 119–129. <http://dx.doi.org/10.11588/ijodr.2019.1.59328>
- Sher, L. (2020). COVID-19, anxiety, sleep disturbances and suicide. *Sleep Medicine*, 70, 124. <http://dx.doi.org/10.1016/j.sleep.2020.04.019>
- Sommantico, M. (2016). A couple's unconscious communication: Dreams. *British Journal of Psychotherapy*, 32, 456–474. <http://dx.doi.org/10.1111/bjp.12251>
- Sommantico, M. (2018). La fonction transformatrice du rêve [The transformative function of the dream]. *Revue française de psychanalyse*, 82, 1475–1480. <http://dx.doi.org/10.3917/rfp.825.1475>
- Sommantico, M., De Rosa, B., & Parrello, S. (2017). Counselling university students: A psychoanalytic approach of the single case report. *Mediterranean Journal of Clinical Psychology*, 5, 1. <http://dx.doi.org/10.6092/2282-1619/2017.5.1354>
- Taylor, G. J., & Bagby, R. M. (2013). Psychoanalysis and empirical research: The example of alexithymia. *Journal of the American Psychoanalytic Association*, 61, 99–133. <http://dx.doi.org/10.1177/0003065112474066>
- Velotti, P., & Zavattini, G. C. (2019). È ancora attuale l'uso del sogno nella pratica clinica? [Is the use of dream still actual in clinical practice?] *Giornale Italiano di Psicologia*, 3, 433–462.
- Wang, C., Zhou, J., & Zong, C. (2020). Two cases report of epidemic stress disorder to novel coronavirus pneumonia. *Asian Journal of Psychiatry*, 51, 102070. <http://dx.doi.org/10.1016/j.ajp.2020.102070>
- Xiao, H., Zhang, Y., Kong, D., Li, S., & Yang, N. (2020). Social capital and sleep quality in individuals who self-isolated for 14 days during the coronavirus disease 2019 (COVID-19) outbreak in January 2020 in China. *Medical Science Monitor*, 26, e923921. <http://dx.doi.org/10.12659/MSM.923921>
- Yu, C. K.-C. (2015). One hundred typical themes in most recent dreams, diary dreams, and dreams spontaneously recollected from last night. *Dreaming*, 25, 206–219. <http://dx.doi.org/10.1037/a0039225>
- Zandifar, A., & Badrfam, R. (2020). Iranian mental health during the COVID-19 epidemic. *Asian Journal of Psychiatry*, 51, 101990. <http://dx.doi.org/10.1016/j.ajp.2020.101990>