Dear Editor:

Ahn et al. [1] describes multiple factors that may influence sleep quality in intensive care units (ICUs). Another phenomenon that may interfere with the sleep of ICU patients is nightmares and distressing dreams [2]. While there are many mechanisms that may contribute to such dreams, one possible contributing factor is “fever dreams,” a topic that is relatively unexplored. “Fever dreams,” which are commonly referenced in songs, books, artwork, and films, refer to the experience of vivid, bizarre dreams during a febrile episode. Plausible mechanisms for fever dreams include disrupted rapid eye movement (REM) sleep time, and the continuity hypothesis, which describes dreams to reflect waking life thoughts and experiences [3]. However, scientific evidence for this phenomenon remains less abundant than popular culture references. Therefore, a review was conducted to characterize dreams that occur during a fever (“fever dreams”), in particular with respect to content (e.g., realism, bizarre, emotional valence, temperature-related content, and health-related content) and how this content differs from regular dreams.

The databases PubMed, PsycINFO, and Embase were searched for studies pertaining to fever dreams (Supplementary Materials 1 and 2 for details). Titles and abstracts underwent screening prior to full-text review for eligibility determination. All search results were reviewed in duplicate (by ST, JSN, and SB) for eligibility determination, with disagreement resolved through consensus or discussion with a third reviewer. To be included, a study was required to fulfill the following criteria: (1) English-language; (2) primary peer-reviewed research articles (excluding abstracts, reviews, and individual case reports); (3) include human participants; (4) describe the characteristics of dreams with fever (dream content or frequency) and dreams in a non-fever comparator group; and (5) be available in full-text. Data were extracted using a standardized format. Joanna Briggs Institute checklists appropriate for study design were used to perform quality analysis. Quality analysis was undertaken in duplicate.

Initial searches returned 654 results. There were three studies that fulfilled the inclusion criteria (Figure 1) [3-5]. The included studies were of moderate-to-low quality (Supplementary Material 3). The details of the included studies are summarized in Supplementary Material 4.

Two studies presented information on fever dream content. In the 2020 study by Schredl...
and Erlacher [3], 152 individuals were surveyed online (with the link distributed via a website for people interested in dreaming, namely lucid dreaming). This cohort was then compared to a matched control cohort without fever. Acknowledging the limitations of the study design, significant differences were observed in dream content between the two cohorts. In particular, fever dreams were more likely to be bizarre, have negative emotional valence, involve engagement with fewer people, have more health-related topics, and have more thermal-related content.

The only other study that described fever dream content was also conducted by the Schredl research group in 2016. In this study hardcopy surveys were distributed to psychology students and patients in general practitioner waiting rooms [4]. A sample size of 62 individuals was obtained, of whom 45 had fever dreams. The participants were matched to a control cohort. In this study, fever dreams were described as being significantly more bizarre. It was also reported that fever dreams had a greater intensity than the dreams of the control group, although the statistical significance of this finding was not reported.

Two studies also reported fever dream frequency. In the Schredl and Erlacher’s 2020 online survey [3] (n = 152), 15.79% of respondents had dreams every day they had a fever, 19.74% more than half the days they had a fever, 19.08% approximately half the days, 24.34% less than half, and 21.05% never. The frequency of dreams in the same categories for the control group was not presented. In Karacan et al. [5], a group of 11 male medical students had aspects of their sleep evaluated with and without an intravenous injection of pyrogen prior to sleep onset (either a steroid metabolite or a Salmonella-derived endotoxin). This was the only study in which objective fevers were observed (highest 38.9 °C). In this study, participants were less likely to dream on nights with fever (17%) compared to baseline nights without fever (79%) or on post-febrile recovery nights (80%) (P<0.05). This effect was observed in a setting of concomitant increases in sleep disruption and reduced REM sleep.

Available evidence, while limited, suggests that fever dreams may be an entity characterized by more intense, bizarre, and negative dreams [3-5]. Data regarding fever dreams indicate that some members of the population may experience them relatively frequently. Therefore, for patients admitted to ICU with fever, such dreams could theoretically influence their experience and sleep. There are numerous other factors that may also influence dreams in this context, including psychosocial factors, medications, and underlying medical conditions (Supplementary Material 5).

Dreams that are intense, bizarre, and laden with negative emotions can lead to the formation of delusional memories in ICU patients [6]. These delusional memories are associated with significantly poorer health-related quality of life measures, and a higher likelihood of long-lasting psychological effects such as anxiety, depression, and posttraumatic stress disorder [6]. Therefore, it is imperative for post-ICU care to incorporate appropriate psychological treatment in patients who experience fever dreams [7].

This review is based on the evidence available in peer-reviewed literature; therefore, the findings may be influenced by publication bias. The exclusion of non-English studies may have also prevented the detection of potentially useful research, particularly given the potential for psycho-sociocultural influences on dreams. Future studies in this area should seek to control for comorbidities and medications known to influence dreams. Prior to controlling for comorbidities and medications, surveyed hospital and ICU inpatients, among whom temperatures are already routinely recorded may provide further insights.

In conclusion, as described, there are multiple factors that may affect sleep in the ICU [1], including distressing dreams [2]. Dreams in the setting of fever could be one such factor contributing to the ICU patient experience. Acknowledging the limited data available on this topic, the available findings sug-
gest that dreams during periods of fever may be more intense, bizarre, and negative than dreams at other times.

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

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SUPPLEMENTARY MATERIALS

Supplementary materials can be found via https://doi.org/10.4266/acc.2023.01074.

REFERENCES