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Review Paper

Developing a framework for implementing intensive care unit diaries: a focused review of the literature

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ARTICLE INFORMATION

Article history:

Received 15 December 2015
Received in revised form 1 May 2016
Accepted 15 May 2016

Keywords:

ICU
Intensive care unit
PICS
Post-intensive care syndrome
PTSD
Post-traumatic stress disorder
ICU diaries

ABSTRACT

Objective: Intensive care unit diaries have been shown to improve post-critical illness recovery, however, prior reports of diary implementation are heterogeneous. We sought to construct a common framework for designing and implementing Intensive Care Unit diaries based on prior studies.

Review method used/data sources: We conducted a focused review of the literature regarding intensive care diaries based on a systematic search of several databases. Two reviewers assessed 56 studies and data were abstracted from a total of 25 eligible studies conducted between 1990 and 2014. We identified key information regarding the development, design, and implementation of the journals. We then grouped elements that appeared consistently across these studies within three main categories: (1) diary target populations; (2) diary format and content; and (3) the manner of diary return and follow-up.

Results: Most studies were conducted in European countries in adult intensive care units and targeted patients in both medical and surgical units. The timing of diary initiation was based on the elapsed length of stay or duration of mechanical ventilation. We categorised diary format and content as: entry content, authors, use of standardised headings, type of language, initiation, frequency of entries, and physical location of diaries. Diaries were hand written and many studies found that photographs were an essential element in ICU diaries. We categorised the manner of diary return and follow-up. The context in which intensive care unit diaries were returned were felt to be important factors in improving the use of diaries in recovery.

Conclusions: In conclusion, we describe a common framework for the future development of intensive care unit diaries that revolves around the target population for the diaries, their format and content, and the timing of their use. Future studies should address how these elements impact the mechanisms by which intensive care diaries exert beneficial effects.

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1. Introduction

Critical illness and intensive care can profoundly disrupt the long-term health of intensive care unit (ICU) survivors resulting in new functional or neurocognitive impairments.^{1,2} This syndrome of new or worsening debilitation after critical care—the post-intensive care syndrome (PICS) is projected to become increasingly prevalent as the general population ages, the use of critical care

services increases, and short-term intensive care unit (ICU) mortality continues to decrease.^{1–3} Emerging ICU-based interventions designed to attenuate the impact of PICS seek to restore homeostatic function by hastening the removal of unnecessary organ support devices, decreasing delirium, and promoting early physical activity.⁴

In addition to the functional or cognitive sequelae of intensive care, survivors of critical illness with PICS can also experience high rates of depression, anxiety, and post-traumatic stress disorder (PTSD).⁵ PTSD is a condition triggered by the experiences of a traumatic event that is severe enough to cause powerful subjective responses such as intense fear and feelings of helplessness. Symptoms associated with PTSD can include

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<http://dx.doi.org/10.1016/j.aucc.2016.05.001>

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“flashbacks”—re-experiencing the event and increased arousal.⁶ PTSD can manifest through memories of routine care in the ICU being experienced as fragmented and delusional.^{7,8} Prior studies have used ICU diaries; a bedside record of significant medical events and procedures recorded with text or photograph entries, to reduce the neuropsychiatric impact of critical care. In a randomised control trial reported by Jones and others, ICU diaries resulted in a significant reduction in PTSD at 3 months after ICU discharge.⁸

In the context of critical illness, diaries could represent an effective, low-cost intervention with prior evidence of high acceptance rates. They may also have benefits that extend beyond the patient since family members of ICU survivors also face high rates of stress, depression, anxiety, and complicated grief.^{1–3} Despite this favourable profile, existing literature does not fully address the framework for using ICU diaries including the handoff and packaging of the diary at the completion of the ICU stay and hospitalisation.

2. Objective

In this focused review of the literature, we sought to construct a common framework for ICU diaries, based on elements reported from individual studies, to aid in the future development and implementation of ICU diary programmes in diverse settings.

3. Methods

3.1. Data sources and search

We systematically searched MEDLINE, PubMed-NCBI, Cochrane CENTRAL and Google using a combination of the following search blocks: ‘intensive care diaries’, ‘intensive care recovery’, ‘Post-intensive Care Syndrome’, ‘intensive care journals’, ‘posttraumatic stress disorder in intensive care patients’, ‘posttraumatic stress symptoms’, and ‘rehabilitation after mechanical ventilation.’ Additionally, we hand searched the references in each article in order to find additional relevant studies.

3.2. Study selection and inclusion criteria

After initial screening, two authors evaluated the citations for eligibility based on study titles and abstracts yielding a total of 56 potentially eligible articles (Fig. 1). From this sample, studies and publications were excluded if they were not in English, were not published between January 1990 and December 2014, were not relevant to the ICU, and were not original research or literature reviews (Fig. 1). A total of 25 remaining studies were reviewed in detail with data abstraction performed by a single reviewer (M.B.). We used a standardised data abstraction tool to identify key information regarding the development, design, and implementation of ICU diaries, including: author, year, country, single versus multi-center study, study type study subjects, intervention provided in the study, and key findings. Based on this review, we then sought to identify uniform elements that appeared consistently across these studies to design a framework for the implementation of ICU diaries.

3.3. Assessment of quality of reviewed articles

One author (MB) assessed each eligible study for quality using the Grading of Recommendations Assessment, Development and Evaluation (GRADE) approach. The GRADE approach uses the term quality to refer to an individual study and judgments based about the strength of the body of evidence.⁹

4. Results

4.1. Study characteristics

We divided the eligible studies from our literature search into two categories: (1) studies that primarily evaluated outcomes based on interviews and surveys ($n=16$); and (2) those that primarily evaluated quantitative outcomes ($n=9$).

Among the 16 studies we identified as primarily focusing on assessing outcomes with surveys or interviews, most were performed in Europe: Sweden,^{10–13} Denmark,^{14–17} Norway,^{18,19} United Kingdom,^{20,21} Switzerland,²² France,²³ Australia,²⁴ and one study conducted Denmark, Norway and Sweden combined.²⁵ Eleven studies were performed in multi-centred settings (Table 1). Most studies focused on the ICU patients as subjects; however, 4 studies focused on ICU staff.^{15,20,22,25}

Among the 9 studies we identified as primarily focusing on quantitative outcomes (Table 1), most were from European countries including Sweden,^{26,27} Denmark,²⁸ United Kingdom,²⁹ France,³⁰ Japan,³¹ and three another enrolling patients from several European countries (Table 1).^{8,32,33} There were two randomised controlled studies which enrolled a total of 36 and 352 subjects, respectively.^{8,29} Quantitative outcome measures used in these studies varied, and included the Therapeutic Intervention Scoring System,¹¹ Hospital Anxiety and Depression Scale,^{19–29} ICU Memory Tool,⁸ Post-Traumatic Stress Syndrome 14,^{8,32} Peritraumatic Dissociative Experiences Questionnaire 3,³⁰ Medical Outcomes Study Short Form 36,²⁶ Impact of Events Scale, and Acute Stress Disorder Scale.³⁰

4.2. Overview of ICU diary components

Several themes surfaced during our review, which we broadly categorised as defining: (1) the target population served by the diary; (2) the diary format and content; and (3) the timing of diary initiation and follow-up. Within each category, several specific elements could be defined further.

4.3. Identifying the target population

Diaries were implemented in medical, surgical, and mixed ICUs. All studies were conducted in adult ICU patients. Most studies focused on patients whose ICU length of stay was at least 48 h; in addition, most focused specifically on those who were mechanically ventilated and sedated. Exclusion criteria often included patients with neurocognitive impairment (e.g., traumatic brain injury, dementia), prior psychiatric illness (e.g., anxiety, depression), or visual impairment as well as those who did not speak the primary language of the respective country in which the study was conducted. Pre-existing psychiatric problems including depression and prior PTSD have a strong potential to exacerbate ICU related PTSD. This remains unmeasured in many mixed ICU studies.

4.4. Diary authorship and medium

Diary authorship was a particularly important aspect of the effective implementation of diaries in ICUs. For example, Jones et al. recognised that the burden of the writing was in starting the diary, in particular, in introducing how the patient came to be in the ICU.⁸ As a result, they used a diary unit consisting of a group of clinicians that were multidisciplinary, including nurses and physicians who were assigned to initiate daily entries. Most studies allowed diverse groups to contribute written material including: ICU providers, patients’ family members and friends, as well as

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