



Study Protocol

The Impact of an Intensive Care Diary on the Psychological Well-Being of Patients and Their Family Members: Longitudinal Study Protocol

Vincenzo Bosco ¹, Annamaria Froio ¹, Caterina Mercuri ², Vincenza Sansone ³ , Eugenio Garofalo ¹, Andrea Bruni ¹, Assunta Guillari ^{4,*}, Daniela Bruno ², Michaela Talarico ², Helenia Mastrangelo ⁵, Federico Longhini ¹ , Patrizia Doldo ⁶ and Silvio Simeone ⁶

¹ Department of Medical and Surgical Sciences, University Hospital Mater Domini, Magna Graecia University, 88100 Catanzaro, Italy; vincenzo.bosco@unicz.it (V.B.); froioannamaria@libero.it (A.F.); eugenio.garofalo@unicz.it (E.G.); andreabruni@unicz.it (A.B.); flonghini@unicz.it (F.L.)

² School of Medicine and Surgery, Magna Graecia University, 88100 Catanzaro, Italy; c.mercuri@unicz.it (C.M.); michaela.talarico@studenti.unicz.it (M.T.)

³ Department of Experimental Medicine, Luigi Vanvitelli University, 80131 Naples, Italy; vincenza.sansone@unicampania.it

⁴ Department of Public Health, University of Naples Federico II, 80138 Naples, Italy

⁵ ASP Catanzaro, 88100 Catanzaro, Italy; helenia.mastrangelo@studenti.unicz.it

⁶ Clinical and Experimental Medicine Department, Magna Graecia University, 88100 Catanzaro, Italy; doldo@unicz.it (P.D.); silvio.simeone@unicz.it (S.S.)

* Correspondence: assunta.guillari@unina.it



Citation: Bosco, V.; Froio, A.; Mercuri, C.; Sansone, V.; Garofalo, E.; Bruni, A.; Guillari, A.; Bruno, D.; Talarico, M.; Mastrangelo, H.; et al. The Impact of an Intensive Care Diary on the Psychological Well-Being of Patients and Their Family Members: Longitudinal Study Protocol. *Healthcare* **2023**, *11*, 2583. <https://doi.org/10.3390/healthcare11182583>

Academic Editor: Abdel-Latif Mohamed

Received: 9 August 2023

Revised: 16 September 2023

Accepted: 17 September 2023

Published: 19 September 2023



Copyright: © 2023 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

Abstract: Background: Thanks to medical and technological advancements, an increasing number of individuals survive admission to intensive care units. However, survivors often experience negative outcomes, including physical impairments and alterations in mental health. Anxiety, depression, cognitive impairments, post-traumatic stress disorders, and functional disorders are known collectively as post-intensive care syndrome (PICS). Among the key triggering factors of this syndrome, memory impairment appears to play a significant role. Aims: This study aims to evaluate the impact of an intensive care diary on the psychological well-being of patients and their relatives after discharge from the ICU. Design: Prospective observational study. Expected results: The results of this study evaluate the impact of an ICU diary on the quality of life of ICU survivors and their family members.

Keywords: ICU; diary; post-traumatic stress disorder; anxiety; depression; quality of life

1. Background

Thanks to technological advancements and evolving medical knowledge, an increasing number of individuals requiring admission to intensive care units are surviving [1,2]. Approximately 50–70% of survivors experience long-term cognitive, psychological, and functional impairments as a result of their ICU admission [3]. After ICU discharge, survivors often face adverse outcomes in physical function, cognitive function, and mental health status [4].

Physical consequences, such as limitations in physical function, are common and can significantly impact a patient's life and level of independence [5,6]. Psychosocial issues are frequently observed and can range from mild to severe symptoms [6]. These disorders are collectively known as post-intensive care syndrome (PICS) [7,8]. Furthermore, 50% of patients who survive ICU admission do not return to school or work until one year later [9], and many do not regain their initial health status [10].

Psychological disorders related to PICS, including Post-Traumatic Stress Disorder (PTSD), depression, and anxiety, can occur in up to a fifth of survivors during the first

12 months after ICU discharge and are associated with a poorer quality of life [11–13]. Additionally, up to one-third of ICU survivors report anxiety [14] and depression [15]. PICS-related disorders can manifest even up to 15 years after surviving an ICU admission [16]. Memory impairment appears to play a significant role in the development of PTSD following ICU admission [17,18].

The absence of memories related to the ICU stay is associated with more severe PTSD symptoms [19]. Furthermore, patients with prolonged ICU stays often experience not only memory gaps but also delirium and hallucinations [20]. These delirious memories of the ICU experience are associated with the development of PTSD in survivors [3]. Post-discharge sequelae have a substantial impact on the financial situation of patients and their partners [21]. Family members of patients admitted to the ICU also report PTSD symptoms related to their loved one's experience [22,23]. When a close family member is affected by critical illness, relatives often experience worry about the patient's survival [24]. Family members subsequently become caregivers, and stressful events can further worsen their quality of life [25,26]. Patient diaries [27] can be helpful for both ICU survivors and their relatives [3]. A strategy to reduce occurrence of these symptoms is to provide a reconstruction of the events [28].

In particular, during the COVID-19 pandemic, due to restrictions on family visitation implemented to prevent disease transmission, it was observed that the absence of informal communication between COVID-19 patients and their relatives led to increased stress among the relatives [29]. To foster a positive connection among patients, their families, and healthcare professionals during the COVID-19 pandemic, the use of diaries has been recommended as one of the strategies to enhance communication with vulnerable relatives and mitigate the post-ICU burden [30].

Research has shown the significant value of ICU diaries as a tool for processing emotions, gaining insight, reducing stress, documenting essential information, and facilitating communication between staff and patients [31–36]. Diary writing has provided ICU staff with a valuable means to reflect on their daily work and the care of critically ill patients as unique individuals. This remains true even in the midst of the COVID-19 pandemic, characterized by resource constraints and stringent family visitation restrictions, regardless of whether the entries are later perused by patients or their families [34]. ICU diaries are typically written at the patient's bedside and serve as a record of their ICU admission, including the events leading to admission, the patient's condition, and daily procedures or treatments. It is important to use simple, everyday language rather than technical or medical terms [37]. The purpose of the diary is to provide a clear narrative of the non-clinical events that occurred during the ICU stay. The involvement of family members, healthcare personnel, and, if possible, the patients themselves in writing the diary helps ICU survivors fill gaps in their memory [24–27,37–40], come to terms with their illness, and “reduce the impact or prevalence of imaginary events and hallucinations” [41,42].

ICU diaries are used to help patients make sense of their ICU experience and fill in memory gaps [19]. Additionally, these diaries provide a sense of control for relatives, allowing them to keep track of general events and document their support for their loved one when direct communication is not possible [43].

Healthcare professionals also appear to benefit from these diaries, as they have a positive impact on communication with family members [44,45] and facilitate the delivery of personalized care [46].

Since the publication of what appears to be the first study about the use of diaries in intensive care [47] to date [48], the use of diaries has been implemented in Europe [49] and extended to other continents [50]. In settings where this tool is available, patients and families often request the diary from the beginning of the hospitalization period [38]. It is recommended that the diary be written collaboratively by all key stakeholders, including patients, family members, and healthcare personnel [51].

Despite the usefulness of diaries for patients, family members, and healthcare professionals [52,53] in preventing or reducing psychological problems, such as symptoms of

PTSD, anxiety, and depression [3,9], the literature still presents different opinions regarding their effectiveness in improving recovery after critical illness [19,54]. In an intensive care setting, patients and families come from diverse backgrounds and have different critical illnesses [55]. Insufficient data exist to determine whether ICU diaries represent the most appropriate intervention to promote psychological health [56]. Additionally, to the best of our knowledge, only one qualitative study conducted in a specific Italian region has evaluated their use, focusing solely on diaries written by family members [57].

Iannuzzi's research [28] stands as the only implementation study conducted within an Italian hospital to explore the utilization of diaries.

For these reasons, as stated by the same authors, we believe it is essential to conduct a new study on the use of diaries in Italian intensive care unit.

2. Study Objective

2.1. The Aims of This Study Are as Follows

To assess the impact of an intensive care diary on the psychological well-being of patients and their relatives at 0, 3, and 12 months after discharge from the ICU.

The study has the following specific aims:

(1a) To test the hypothesis that an "intensive care diary" can reduce the patient's risk of developing symptoms of PTSD, anxiety-related disorders, and depressive symptoms;

(1b) To test the hypothesis that an "intensive care diary" can reduce the risk of developing symptoms of PTSD, anxiety disorders, and depressive symptoms in the relatives of patients admitted to the ICU;

(2) To evaluate how the QoL trajectory of patients discharged from the ICU and their families may be influenced by the use of an "intensive care diary";

(3) To explore the content and narrative structure of the diaries written by patients, relatives, and health professionals;

(4) To explore the experiential aspects related to use of a diary in intensive care.

2.2. Hypothesis

Patient diaries can provide assistance to ICU survivors and their families during their stay in the ICU amidst a critical illness. Additionally, they appear to offer benefits for healthcare personnel by fostering positive communication between healthcare providers and patients, thus facilitating the provision of personalized care.

Reconstructing memory of events that occurred during hospitalization in intensive care, through the use of a diary, can reduce onset of PTSD in subjects who survived ICU recovery.

The use of a critical care diary, in which daily events can be recorded by family members and caregivers, can assist in reducing the occurrence of PTSD, anxiety, depressive symptoms, and it can promote psychological well-being in both patients and their families.

Understanding how the use of diaries is experienced by participants can help develop educational programs aimed at implementing the use of this tool to improve their quality of life.

2.3. Design

The study will be conducted using a mixed methods approach [58], to explore the relationship between the use of diaries (qualitative) and the perceived QoL trajectory after ICU discharge (quantitative) [28]

Data collection is planned at 0, 3, and 12 months after ICU discharge. In the quantitative approach, descriptive observational methods will be employed using different types of questionnaires. In the qualitative approach, an interpretive narrative research technique will be used to analyze the diaries [59,60].

An interpretive approach will guide the data analysis process [61]. Furthermore, in order to explore the experience and the meaning attributed to the diaries, Cohen's phenomenology [62] will also be used. This methodology combines Husserl's descriptive

and Gadamerian interpretative phenomenology. It was chosen as it has already been used, given its ability to facilitate a deeper understanding of both lived experiences and the meanings attributed to these experiences.

2.4. Inclusion Criteria

Patients:

- AGE > 18
- ICU length of stay > 72 h
- Speaking and understanding the Italian language
- Consent form

Family members:

- AGE > 18
- Family member ICU length of stay > 72 h
- Speaking and understanding the Italian language
- Consent form

Healthcare providers:

- AGE > 18
- Work in ICU
- Speaking and understanding the Italian language
- Consent form

2.5. Exclusion Criteria

For patients:

- Severe organ failure
- Pre-existing presence of psychological pathology

For family members:

- Pre-existing presence of psychological pathology

2.5.1. Setting and Data Collection Procedure

Data collection instruments will be administered at the time of discharge and then again at 3 and 12 months thereafter (Table 1).

Table 1. Variables and instruments that will be used to collect the data: individual measures.

Operationalized as	Measured by	Patients	Parents	Healthcare Professional	Measured at (Months)
Socio-demographic	Socio-demographic questionnaire	X	X	X	0
ICUM	Memories	X			
Quality of life (over 18 years)	SF-36	X	X		0-3-12
Depression state	HADS	X	X		0-3-12
Anxiety	HADS	X	X		0-3-12
Cognitive state	MMSE	X			0-3-12

2.5.2. Data Collection

Patient

- Socio-demographic questionnaire.
- Diary: A small lined notebook placed at the patient's bedside. The first page contains instructions. These diaries are intended to create a clear narrative of non-clinical events that occurred during the patient's stay in the intensive care unit (ICU). They are written in by family members, healthcare personnel, and, when possible, by the patients themselves, with the goal of helping ICU survivors fill in gaps in their memory.

- ICUM [63]: A 14-item self-administered test. The items investigate the quantity and type of memories before, during, and after the intensive care period. A checklist with definitions of the different types of memories of the ICU stay serves as an aid, allowing the patient to mark what they remember. Validated and used in Italy [64], the data from this tool are then compared with the data from the medical record.
- Mini-mental state examination (MMSE) [65]: A neuropsychological test used to assess intellectual efficiency and cognitive impairment. It is the most common screening tool for evaluating global cognitive functioning, although the diagnosis of cognitive impairment cannot be made with this tool alone. The test consists of 30 items that pertain to seven different cognitive areas: orientation in time, orientation in space, word registration, attention and calculation, recall, language, and constructive praxis. The total score ranges from 0 to 30 points. A score equal to or below 18 indicates severe cognitive impairment, a score between 18 and 24 indicates moderate to mild impairment, a score of 25 is considered borderline, and a score between 26 and 30 indicates normal cognitive function. The Italian version is commonly used [51], and recent updates have been made to its normative values [66].
- Hospital anxiety and depression scale (HADS) [67]: This self-reported questionnaire comprises 14 items and includes subscales for anxiety and depression. Each item is scored from 0 to 3, resulting in a total score ranging from 0 to 21 for each subscale. Patients with scores above 7 exhibit symptoms of anxiety and depression [68]. The scale has previously been employed in studies related to post-intensive care syndrome (PICS) [49] and is validated in Italian, with a Cronbach's alpha HADS-A at 0.85 and HADS-D at 0.89 [69].
- SF-36 [70]: This generic health questionnaire assesses various domains of general health status and consists of 36 items. It is further divided into eight subscales: physical functioning, role limitations due to physical health problems, bodily pain, general health perception, vitality, social functioning, role limitations due to emotional problems, and mental health. The questionnaire yields two summary scores: the physical component summary (PCS), which encompasses physical functioning, role limitations due to physical health problems, bodily pain, and general health domains, and the mental component summary (MCS), including vitality, social functioning, role limitations due to emotional problems, and mental health domains. The SF-36 has been used to evaluate PICS [71] and has already been validated in Italian with Cronbach's alpha coefficient consistently exceeding the recommended level of 0.70 (ranging from 0.77 to 0.93) [72].

Families

- Socio-demographic questionnaire.
- Diary.
- Hospital anxiety and depression scale (HADS) [67].
- SF-36 [70].

Healthcare Professional

- Socio-demographic questionnaire.
- Diary.

2.6. Sample Size

A total of 150 patients will be enrolled for the quantitative part of the study. The aforementioned number was calculated based on the total number of recoveries performed in the university hospital where the sampling will take place. Taking into account the inclusion and exclusion criteria, this totals 245 subjects, with a 95% confidence interval and a 5% significance level, considering an expected prevalence of 0.3%. For the qualitative section, purposive sampling will be employed, continuing until data saturation is achieved [73].

2.7. Analysis

Descriptive statistics, including mean, standard deviation, median, interquartile range, and frequencies, will be employed to summarize socio-demographic and clinical data. Multilevel analysis using linear regression will be conducted to identify predictors of quality of life (QOL). Data collected from dyads will be analyzed using the actor–partner interdependence model (APIM) to observe how one aspect influences another. Significance will be determined for all tests with a p -value (p) < 0.05.

For the analysis of diaries, Braun and Clarke’s thematic analysis approach [74] will be used in the qualitative design. Interpretive narrative research will be employed to analyze the diaries [59,60]. Thematic analysis will describe the data, select codes, and construct themes following the six steps outlined by Braun and Clarke [74]. The interpretive approach was deliberately chosen to analyze the data for their characteristics and to interpret social reality through the subjective viewpoints of the participants within the context where the reality is situated. The participant’s interviews will be audio-recorded and conducted using open-ended questions, as outlined in the methodology. These interviews will take place in locations chosen by the participants, providing them with the freedom to describe their experiences fully. Prior to conducting the interviews, researchers will engage in “bracketing” as part of “critical reflection” [62]. This process helps ensure rigor in data analysis.

During the interviews, researchers will also take note of environmental factors, participants’ non-verbal language, and their reflections. For the phenomenological analysis, sampling will continue until data saturation [73] is reached, indicating redundancy of experiences.

The interviews will be transcribed verbatim and integrated with field notes. Subsequently, researchers will conduct individual and meticulous analyses to extract main themes and any sub-themes. These extracted themes will then be compared among researchers and presented to participants for verification.

2.8. Ethical Considerations

The study has received approval from the Ethics Committee of the Central Area of the Calabria Region, Italy, with protocol registration number 65 on 16 March 2023. The study will be conducted in accordance with the principles of the Helsinki Declaration and will adhere to current regulations on clinical trials. Confidentiality and anonymity will be ensured by assigning an alphanumeric code to each participant. All sensitive data will be handled in accordance with the principles of Legislative Decree No. 196 of 30 June 2003, and in compliance with the General Data Protection Regulation (European Regulation No. 2016/679).

3. Expected Results

This study aims to generate data regarding the use and impact of diaries in an ICU among survivors to critical illness and among their family members. The intensive care unit diary is based on cognitive behavioral therapy principles, specifically the concept of trauma exposure [75]. It assists patients in processing traumatic events by exposing them to trauma memories [76]. By filling gaps in memory [77], the intensive care diary reduces the incidence of anxiety, depression [78], and post-traumatic stress disorder [19], thereby improving the quality of life of the survivors [48]. The importance of consistently assessing the perceived QoL in patients is a well-established concept in the healthcare literature. Longitudinal studies will enable us to identify predictors and interdependencies of this factor among patients and their relatives, contributing to the enhancement of nursing care for both patients and caregivers.

4. Implications for Practice

ICU survivors experience changes in their physical and mental health. The use of diaries in intensive care is associated with a lower incidence of psychological disorders, which are common after intensive care unit stay, and an improved perception of their

own quality of life. This study will allow us to comprehend the impact of diaries on ICU survivors and their family members.

The utilization of diaries could lead to enhancements in the care provided, elevating its quality and fostering improved relationships among patients, family members, and healthcare professionals.

Author Contributions: Conceptualization, S.S., P.D., V.B. and V.S.; methodology, S.S. and V.S.; software, A.F., V.B., A.G., M.T. and D.B.; validation, V.B., C.M. and A.G.; formal analysis, V.B., P.D., A.G. and D.B.; investigation, V.B., A.F., V.S. and H.M.; writing—original draft preparation, P.D., S.S. and C.M.; writing—review and editing, E.G., P.D., A.B., F.L. and S.S. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: The study was conducted in accordance with the Declaration of Helsinki, and approved by the Ethics Committee of the Central Area of the Calabria Region, Italy (protocol code n. 65 on 16 March 2023).

Informed Consent Statement: Informed consent will be obtained from all subjects involved in the study.

Data Availability Statement: Data sharing is not applicable to this article.

Conflicts of Interest: The authors declare no conflict of interest.

References

1. Lilly, C.M.; Swami, S.; Liu, X.; Riker, R.R.; Badawi, O. Five-Year Trends of Critical Care Practice and Outcomes. *Chest* **2017**, *152*, 723–735. [\[CrossRef\]](#)
2. Iwashyna, T.J. Survivorship will be the defining challenge of critical care in the 21st century. *Ann. Intern. Med.* **2010**, *153*, 204–205. [\[CrossRef\]](#)
3. McIlroy, P.A.; King, R.S.; Garrouste-Orgeas, M.; Tabah, A.; Ramanan, M. The Effect of ICU Diaries on Psychological Outcomes and Quality of Life of Survivors of Critical Illness and Their Relatives: A Systematic Review and Meta-Analysis. *Crit. Care Med.* **2019**, *47*, 273–279. [\[CrossRef\]](#)
4. Haines, K.J.; Berney, S.; Warrillow, S.; Denehy, L. Long-term recovery following critical illness in an Australian cohort. *J. Intensive Care* **2018**, *6*, 8. [\[CrossRef\]](#)
5. Kress, J.P.; Hall, J.B. ICU-acquired weakness and recovery from critical illness. *N. Engl. J. Med.* **2014**, *370*, 1626–1635. [\[CrossRef\]](#)
6. Akerman, E.; Langius-Eklof, A. The impact of follow-up visits and diaries on patient outcome after discharge from intensive care: A descriptive and explorative study. *Intensive Crit. Care Nurs.* **2018**, *49*, 14–20. [\[CrossRef\]](#)
7. Needham, D.M.; Davidson, J.; Cohen, H.; Hopkins, R.O.; Weinert, C.; Wunsch, H.; Zawistowski, C.; Bemis-Dougherty, A.; Berney, S.C.; Bienvenu, O.J.; et al. Improving long-term outcomes after discharge from intensive care unit: Report from a stakeholders' conference. *Crit. Care Med.* **2012**, *40*, 502–509. [\[CrossRef\]](#)
8. Wang, S.; Allen, D.; Perkins, A.; Monahan, P.; Khan, S.; Lasiter, S.; Boustani, M.; Khan, B. Validation of a New Clinical Tool for Post-Intensive Care Syndrome. *Am. J. Crit. Care* **2019**, *28*, 10–18. [\[CrossRef\]](#)
9. Myhren, H.; Ekeberg, O.; Stokland, O. Health-related quality of life and return to work after critical illness in general intensive care unit patients: A 1-year follow-up study. *Crit. Care Med.* **2010**, *38*, 1554–1561. [\[CrossRef\]](#)
10. Sutton, L.; Bell, E.; Every-Palmer, S.; Weatherall, M.; Skirrow, P. Survivorship of Patients After Long Intensive Care Stay with Exploration and Experience in a New Zealand Cohort (SPLIT ENZ): Protocol for a Mixed Methods Study. *JMIR Res. Protoc.* **2022**, *11*, e35936. [\[CrossRef\]](#)
11. Wang, S.; Xin, H.N.; Chung Lim Vico, C.; Liao, J.H.; Li, S.L.; Xie, N.M.; Hu, R.F. Effect of an ICU diary on psychiatric disorders, quality of life, and sleep quality among adult cardiac surgical ICU survivors: A randomized controlled trial. *Crit. Care* **2020**, *24*, 81. [\[CrossRef\]](#)
12. Parker, A.M.; Sricharoenchai, T.; Raparla, S.; Schneck, K.W.; Bienvenu, O.J.; Needham, D.M. Posttraumatic stress disorder in critical illness survivors: A meta analysis. *Crit. Care Med.* **2015**, *43*, 1121–1129. [\[CrossRef\]](#)
13. Ni, J.; Ding, Y.; Miao, L.; Zhu, B. Post-Intensive Care Syndrome: A Problem Cannot Be Ignored in ICU. Comment on Inoue et al. Prevalence and Long-Term Prognosis of Post-Intensive Care Syndrome after Sepsis: A Single-Center Prospective Observational Study. *J. Clin. Med.* **2022**, *11*, 5257. *J. Clin. Med.* **2023**, *12*, 268. [\[CrossRef\]](#)
14. Nikayin, S.; Rabiee, A.; Hashem, M.D.; Huang, M.; Bienvenu, O.J.; Turnbull, A.E.; Needham, D.M. Anxiety symptoms in survivors of critical illness: A systematic review and meta-analysis. *Gen. Hosp. Psychiatry* **2016**, *43*, 23–29. [\[CrossRef\]](#)
15. Rabiee, A.; Nikayin, S.; Hashem, M.D.; Huang, M.; Dinglas, V.D.; Bienvenu, O.J.; Turnbull, A.E.; Needham, D.M. Depressive Symptoms After Critical Illness: A Systematic Review and Meta-Analysis. *Crit. Care Med.* **2016**, *44*, 1744–1753. [\[CrossRef\]](#)
16. Desai, S.V.; Law, T.J.; Needham, D.M. Long-term complications of critical care. *Crit. Care Med.* **2011**, *39*, 371–379. [\[CrossRef\]](#)

17. Davydow, D.S.; Gifford, J.M.; Desai, S.V.; Needham, D.M.; Bienvenu, O.J. Posttraumatic stress disorder in general intensive care unit survivors: A systematic review. *Gen. Hosp. Psychiatry* **2008**, *30*, 421–434. [\[CrossRef\]](#)
18. Jones, C.; Griffiths, R.D.; Humphris, G.; Skirrow, P.M. Memory, delusions, and the development of acute posttraumatic stress disorder-related symptoms after intensive care. *Crit. Care Med.* **2001**, *29*, 573–580. [\[CrossRef\]](#)
19. Barreto, B.B.; Luz, M.; Rios, M.N.O.; Lopes, A.A.; Gusmao-Flores, D. The impact of intensive care unit diaries on patients' and relatives' outcomes: A systematic review and meta-analysis. *Crit. Care* **2019**, *23*, 411. [\[CrossRef\]](#)
20. Kiekkas, P.; Theodorakopoulou, G.; Spyrtos, F.; Baltopoulos, G.I. Psychological distress and delusional memories after critical care: A literature review. *Int. Nurs. Rev.* **2010**, *57*, 288–296. [\[CrossRef\]](#)
21. Hopkins, R.O.; Girard, T.D. Medical and economic implications of cognitive and psychiatric disability of survivorship. *Semin. Respir. Crit. Care Med.* **2012**, *33*, 348–356. [\[CrossRef\]](#)
22. van der Steen-Banasik, E.; Hermans, J.; Tjho-Heslinga, R.; Caspers, R.; Leer, J.W. The objective response of brain metastases on radiotherapy. A prospective study using computer tomography. *Acta Oncol.* **1992**, *31*, 777–780. [\[CrossRef\]](#)
23. Sundararajan, K.; Martin, M.; Rajagopala, S.; Chapman, M.J. Posttraumatic stress disorder in close Relatives of Intensive Care unit patients' Evaluation (PRICE) study. *Aust. Crit. Care* **2014**, *27*, 183–187. [\[CrossRef\]](#)
24. Agard, A.S.; Harder, I. Relatives' experiences in intensive care—Finding a place in a world of uncertainty. *Intensive Crit. Care Nurs.* **2007**, *23*, 170–177. [\[CrossRef\]](#)
25. Haines, K.J.; Denehy, L.; Skinner, E.H.; Warrillow, S.; Berney, S. Psychosocial outcomes in informal caregivers of the critically ill: A systematic review. *Crit. Care Med.* **2015**, *43*, 1112–1120. [\[CrossRef\]](#)
26. Nielsen, A.H.; Angel, S.; Egerod, I.; Hansen, T.B. The effect of diaries written by relatives for intensive care patients on posttraumatic stress (DRIP study): Protocol for a randomized controlled trial and mixed methods study. *BMC Nurs.* **2018**, *17*, 37. [\[CrossRef\]](#)
27. Nielsen, A.H.; Egerod, I.; Hansen, T.B.; Angel, S. Intensive care unit diaries: Developing a shared story strengthens relationships between critically ill patients and their relatives: A hermeneutic-phenomenological study. *Int. J. Nurs. Stud.* **2019**, *92*, 90–96. [\[CrossRef\]](#)
28. Iannuzzi, L.; Villa, S.; Vimercati, S.; Villa, M.; Pisetti, C.F.; Vigano, G.; Fumagalli, R.; Rona, R.; Lucchini, A. Use of Intensive Care Unit Diary as an Integrated Tool in an Italian General Intensive Care Unit: A Mixed-Methods Pilot Study. *Dimens. Crit. Care Nurs.* **2021**, *40*, 248–256. [\[CrossRef\]](#)
29. Maaskant, J.M.; Jongerden, I.P.; Bik, J.; Joosten, M.; Musters, S.; Storm-Versloot, M.N.; Wielenga, J.; Eskes, A.M. Strict isolation requires a different approach to the family of hospitalised patients with COVID-19: A rapid qualitative study. *Int. J. Nurs. Stud.* **2021**, *117*, 103858. [\[CrossRef\]](#)
30. Azoulay, E.; Kentish-Barnes, N. A 5-point strategy for improved connection with relatives of critically ill patients with COVID-19. *Lancet Respir. Med.* **2020**, *8*, e52. [\[CrossRef\]](#)
31. Mickelson, R.S.; Piras, S.E.; Brown, L.; Carlile, C.; Drumright, K.S.; Boehm, L. The use and usefulness of ICU diaries to support family members of critically ill patients. *J. Crit. Care* **2021**, *61*, 168–176. [\[CrossRef\]](#) [\[PubMed\]](#)
32. Haruna, J.; Tatsumi, H.; Kazuma, S.; Kuroda, H.; Goto, Y.; Aisaka, W.; Terada, H.; Masuda, Y. Using an ICU Diary to Communicate with Family Members of COVID-19 Patients in ICU: A Case Report. *J. Patient Exp.* **2021**, *8*, 23743735211034094. [\[CrossRef\]](#) [\[PubMed\]](#)
33. Haakma, T.; Tieben, R.; Sleven, B.; Buise, M.; van Mol, M. Experiences of nurses with an innovative digital diary intervention in the intensive care unit: A qualitative exploration. *Intensive Crit. Care Nurs.* **2022**, *70*, 103197. [\[CrossRef\]](#)
34. Galazzi, A.; Bruno, M.; Binda, F.; Caddeo, G.; Chierichetti, M.; Roselli, P.; Grasselli, G.; Laquintana, D. Thematic analysis of intensive care unit diaries kept by staff: Insights for caring. *Intensive Crit. Care Nurs.* **2023**, *76*, 103392. [\[CrossRef\]](#)
35. McDonald, G.; Clark, L.L. COVID-19: It happens to nurses too—A case study. *Br. J. Community Nurs.* **2020**, *25*, 594–597. [\[CrossRef\]](#) [\[PubMed\]](#)
36. Floris, L.; Madeddu, A.; Deiana, V.; Pasero, D.; Terragni, P. The use of the ICU diary during the COVID-19 pandemic as a tool to enhance critically ill patient recovery. *Minerva Anesthesiol.* **2021**, *87*, 490–491. [\[CrossRef\]](#) [\[PubMed\]](#)
37. Aitken, L.M.; Rattray, J.; Hull, A.; Kenardy, J.A.; Le Brocque, R.; Ullman, A.J. The use of diaries in psychological recovery from intensive care. *Crit. Care* **2013**, *17*, 253. [\[CrossRef\]](#)
38. Agard, A.S.; Egerod, I.; Tonnesen, E.; Lomborg, K. From spouse to caregiver and back: A grounded theory study of post-intensive care unit spousal caregiving. *J. Adv. Nurs.* **2015**, *71*, 1892–1903. [\[CrossRef\]](#)
39. Foster, M.; Chaboyer, W. Family carers of ICU survivors: A survey of the burden they experience. *Scand. J. Caring Sci.* **2003**, *17*, 205–214. [\[CrossRef\]](#)
40. Ewens, B.; Chapman, R.; Tulloch, A.; Hendricks, J.M. ICU survivors' utilisation of diaries post discharge: A qualitative descriptive study. *Aust. Crit. Care* **2014**, *27*, 28–35. [\[CrossRef\]](#)
41. Ullman, A.J.; Aitken, L.M.; Rattray, J.; Kenardy, J.; Le Brocque, R.; MacGillivray, S.; Hull, A.M. Intensive care diaries to promote recovery for patients and families after critical illness: A Cochrane Systematic Review. *Int. J. Nurs. Stud.* **2015**, *52*, 1243–1253. [\[CrossRef\]](#)
42. Teece, A.; Baker, J. Thematic Analysis: How do patient diaries affect survivors' psychological recovery? *Intensive Crit. Care Nurs.* **2017**, *41*, 50–56. [\[CrossRef\]](#)

43. Egerod, I.; Christensen, D.; Schwartz-Nielsen, K.H.; Agard, A.S. Constructing the illness narrative: A grounded theory exploring patients' and relatives' use of intensive care diaries. *Crit. Care Med.* **2011**, *39*, 1922–1928. [\[CrossRef\]](#)
44. Amendola, L.M.; Galazzi, A.; Zainaghi, I.; Cortinovis, I.; Zolin, A.; Gerritsen, R.T.; Adamini, I.; Lusignani, M.; Laquintana, D. Validation and Analysis of the European Quality Questionnaire in Italian Language. *Int. J. Environ. Res. Public Health* **2020**, *17*, 8852. [\[CrossRef\]](#)
45. Dellafiore, F.; Arrigoni, C.; Grugnetti, A.M.; Zaffino, G.; Calorenne, V.; Pitella, F.; Rosa, D.; Caruso, R. Bedside nursing handover and organisational will to achieve personalisation within an Italian Cardiac Surgery Unit: The nurses' viewpoint through a qualitative study. *Prof. Inferm.* **2019**, *72*, 51–59.
46. Albanesi, B.; Nania, T.; Barello, S.; Villa, G.; Rosa, D.; Caruso, R.; Udugampolage, N.S.; Casole, L.; Dellafiore, F. Lived experience of patients in ICU after cardiac surgery: A phenomenological study. *Nurs. Crit. Care* **2022**, *27*, 204–213. [\[CrossRef\]](#)
47. Backman, C.G.; Walther, S.M. [Critical periods at the intensive care units are documented in diaries]. *Lakartidningen* **1999**, *96*, 468–470.
48. Hu, D.; Ji, X.; Li, Y.; Liang, Y.; Chen, J. Effect of intensive care unit diary on quality of life of intensive care unit survivors and their relatives: A systematic review and meta-analysis. *Nurs. Open* **2023**, *10*, 4985–4994. [\[CrossRef\]](#)
49. Sayde, G.E.; Stefanescu, A.; Conrad, E.; Nielsen, N.; Hammer, R. Implementing an intensive care unit (ICU) diary program at a large academic medical center: Results from a randomized control trial evaluating psychological morbidity associated with critical illness. *Gen. Hosp. Psychiatry* **2020**, *66*, 96–102. [\[CrossRef\]](#)
50. Garrouste-Orgeas, M.; Flahault, C.; Fasse, L.; Ruckly, S.; Amdjar-Badidi, N.; Argaud, L.; Badie, J.; Bazire, A.; Bige, N.; Boulet, E.; et al. The ICU-Diary study: Prospective, multicenter comparative study of the impact of an ICU diary on the wellbeing of patients and families in French ICUs. *Trials* **2017**, *18*, 542. [\[CrossRef\]](#)
51. Aitken, L.M.; Rattray, J.; Kenardy, J.; Hull, A.M.; Ullman, A.J.; Le Brocque, R.; Mitchell, M.; Davis, C.; Castillo, M.I.; Macfarlane, B. Perspectives of patients and family members regarding psychological support using intensive care diaries: An exploratory mixed methods study. *J. Crit. Care* **2017**, *38*, 263–268. [\[CrossRef\]](#)
52. Nair, R.; Mitchell, M.; Keogh, S. The extent and application of patient diaries in Australian intensive care units: A national survey. *Aust. Crit. Care* **2015**, *28*, 93–102. [\[CrossRef\]](#)
53. Nielsen, A.H.; Angel, S.; Egerod, I. An ICU diary written by relatives: Who is it really written for? *Intensive Crit. Care Nurs.* **2020**, *57*, 102813. [\[CrossRef\]](#)
54. Ullman, A.; Kenardy, J. Remembering the Unforgettable: Trialing ICU Diaries in North America. *Crit. Care Med.* **2018**, *46*, 2048–2050. [\[CrossRef\]](#)
55. Tronstad, O.; Flaws, D.; Lye, I.; Fraser, J.F.; Patterson, S. Doing time in an Australian ICU; the experience and environment from the perspective of patients and family members. *Aust. Crit. Care* **2021**, *34*, 254–262. [\[CrossRef\]](#)
56. Aitken, L.M.; Castillo, M.I.; Ullman, A.; Engstrom, A.; Cunningham, K.; Rattray, J. What is the relationship between elements of ICU treatment and memories after discharge in adult ICU survivors? *Aust. Crit. Care* **2016**, *29*, 5–14; quiz 15. [\[CrossRef\]](#)
57. Negro, A.; Villa, G.; Zangrillo, A.; Rosa, D.; Manara, D.F. Diaries in intensive care units: An Italian qualitative study. *Nurs. Crit. Care* **2022**, *27*, 36–44. [\[CrossRef\]](#)
58. Fetters, M.D.; Curry, L.A.; Creswell, J.W. Achieving integration in mixed methods designs-principles and practices. *Health Serv. Res.* **2013**, *48*, 2134–2156. [\[CrossRef\]](#)
59. Gudmundsdottir, S. Introduction to the theme issue of? narrative perspectives on research on teaching and teacher education? *Teach. Teach. Educ.* **1997**, *13*, 1–3. [\[CrossRef\]](#)
60. Sansone, V.; Cancani, F.; Gagliardi, C.; Satta, T.; Cecchetti, C.; de Ranieri, C.; Di Nardo, M.; Rossi, A.; Dall'Oglio, I.; Alvaro, R.; et al. Narrative diaries in the paediatric intensive care unit: A thematic analysis. *Nurs. Crit. Care* **2022**, *27*, 45–54. [\[CrossRef\]](#)
61. Bhattacharjee, A. *Social Science Research: Principles, Methods, and Practices*; Scholar Commons: Austin, TX, USA, 2012.
62. Cohen, M.; Kahn, D.; Steeves, R. *Hermeneutic Phenomenological Research: A Practical Guide for Nurse Researchers*; SAGE: Thousand Oaks, CA, USA, 2000.
63. Jones, C.; Humphris, G.; Griffiths, R.D. Preliminary validation of the ICUM tool: A tool for assessing memory of the intensive care experience. *Clin. Intensive Care* **2000**, *11*, 251–255. [\[CrossRef\]](#)
64. Capuzzo, M.; Valpondi, V.; Cingolani, E.; De Luca, S.; Gianstefani, G.; Grassi, L.; Alvisi, R. Application of the Italian version of the Intensive Care Unit Memory tool in the clinical setting. *Crit. Care* **2004**, *8*, R48–R55. [\[CrossRef\]](#)
65. Folstein, M.F.; Folstein, S.E.; McHugh, P.R. "Mini-mental state": A practical method for grading the cognitive state of patients for the clinician. *J. Psychiatr. Res.* **1975**, *12*, 189–198. [\[CrossRef\]](#)
66. Carpinelli Mazzi, M.; Iavarone, A.; Russo, G.; Musella, C.; Milan, G.; D'Anna, F.; Garofalo, E.; Chieffi, S.; Sannino, M.; Illario, M.; et al. Mini-Mental State Examination: New normative values on subjects in Southern Italy. *Aging Clin. Exp. Res.* **2020**, *32*, 699–702. [\[CrossRef\]](#)
67. Zigmond, A.S.; Snaith, R.P. The hospital anxiety and depression scale. *Acta Psychiatr. Scand.* **1983**, *67*, 361–370. [\[CrossRef\]](#) [\[PubMed\]](#)
68. Bjelland, I.; Dahl, A.A.; Haug, T.T.; Neckelmann, D. The validity of the Hospital Anxiety and Depression Scale. An updated literature review. *J. Psychosom. Res.* **2002**, *52*, 69–77. [\[CrossRef\]](#)

69. Costantini, M.; Musso, M.; Viterbori, P.; Bonci, F.; Del Mastro, L.; Garrone, O.; Venturini, M.; Morasso, G. Detecting psychological distress in cancer patients: Validity of the Italian version of the Hospital Anxiety and Depression Scale. *Support Care Cancer* **1999**, *7*, 121–127. [[CrossRef](#)] [[PubMed](#)]
70. Ware, J.E., Jr.; Sherbourne, C.D. The MOS 36-item short-form health survey (SF-36). I. Conceptual framework and item selection. *Med. Care* **1992**, *30*, 473–483. [[CrossRef](#)]
71. Kawakami, D.; Fujitani, S.; Morimoto, T.; Dote, H.; Takita, M.; Takaba, A.; Hino, M.; Nakamura, M.; Irie, H.; Adachi, T.; et al. Prevalence of post-intensive care syndrome among Japanese intensive care unit patients: A prospective, multicenter, observational J-PICS study. *Crit. Care* **2021**, *25*, 69. [[CrossRef](#)]
72. Apolone, G.; Mosconi, P. The Italian SF-36 Health Survey: Translation, validation and norming. *J. Clin. Epidemiol.* **1998**, *51*, 1025–1036. [[CrossRef](#)]
73. Polit, D.; Beck, C. *Essentials of Nursing Research: Appraising Evidence for Nursing Practice*; Lippincott Williams & Wilkins: Philadelphia, PA, USA, 2020.
74. Braun, V.; Clarke, V. Using thematic analysis in psychology. *Qual. Res. Psychol.* **2006**, *3*, 77–101. [[CrossRef](#)]
75. Knowles, S.R.; Graff, L.A.; Wilding, H.; Hewitt, C.; Keefer, L.; Mikocka-Walus, A. Quality of Life in Inflammatory Bowel Disease: A Systematic Review and Meta-analyses-Part I. *Inflamm. Bowel. Dis.* **2018**, *24*, 742–751. [[CrossRef](#)] [[PubMed](#)]
76. Locke, M.; Eccleston, S.; Ryan, C.N.; Byrnes, T.J.; Mount, C.; McCarthy, M.S. Developing a Diary Program to Minimize Patient and Family Post-Intensive Care Syndrome. *AACN Adv. Crit. Care* **2016**, *27*, 212–220. [[CrossRef](#)] [[PubMed](#)]
77. Nielsen, A.H.; Angel, S.; Egerod, I.; Lund, T.H.; Renberg, M.; Hansen, T.B. The effect of family-authored diaries on posttraumatic stress disorder in intensive care unit patients and their relatives: A randomised controlled trial (DRIP-study). *Aust. Crit. Care* **2020**, *33*, 123–129. [[CrossRef](#)] [[PubMed](#)]
78. Sun, X.; Huang, D.; Zeng, F.; Ye, Q.; Xiao, H.; Lv, D.; Zhao, P.; Cui, X. Effect of intensive care unit diary on incidence of posttraumatic stress disorder, anxiety, and depression of adult intensive care unit survivors: A systematic review and meta-analysis. *J. Adv. Nurs.* **2021**, *77*, 2929–2941. [[CrossRef](#)]

Disclaimer/Publisher's Note: The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.