Indonesian Journal of Nursing Health Science
Vol.6, No.2, September 2021 ,p.133-157

ISSN (Print) : 2502-6127
ISSN (Online) : 2657-2257

A Systematic Review of Family-Centered Intervention Among Critical Ill Patients

Budi Mulyana[1], Yanny Trisyani W[2], Aan Nur'aeni[3], Rian Adi Pamungkas[4]
[14]Department of Nursing, Universitas Esa Unggul, Jakarta, Indonesia
[123]Faculty of Nursing, Padjadjaran University, Bandung, Indonesia
Jl. Arjuna Utara No. 9 Duri Kepa, Kebon Jeruk, Jakarta Barat 11510
E-Mail Correspondence: budimulyana@esaunggul.ac.id

Submitted: 28 Mei 2021, *Revised: 1 Agustus 2021*, *Accepted: 30 September 2021*

Abstract

Background: The Critical Care Unit is services that induce stress physically and psychologically for patients and families. Family-centered intervention could help deal with those problems. Objective: This study aimed to review and appraise the Impact of family-centered intervention in the adult critical care unit. Design: The design was a systematic review of a RCTs published in English from beginning to 2020.Three databases: PubMed, Science Direct, and CINAHL. Four independent reviewers were analyzed based on the inclusion and exclusion criteria, followed by the CONSORT, to assess methodological quality. We extracted data from each article as follows: the authors, region, purpose of the study,intervention, duration, sample, instrument, and outcomes. Furthermore, we used JBI to control the risk of bias, followed by the PRISMA to arrange paper. There were twenty-five studies that were included in the analysis. Result: We extracted 653 articles based on the PRISMA flowchart. We selected relevant studies related to family-centered intervention to improve Intensive Care Unit outcomes. This review found that family-centered intervention used collaborative approaches, including family participation, sharing information, and flexible visitation. Conclusion: The family-centered intervention was effective in improving family satisfaction, family psychological well-being, and patient Level of Consciousness. The family-centered intervention was an essential part of quality healthcare.

Keyword: Family-Centered Care, Adult, Intensive Care Unit

Abstrak

Latar Belakang: Unit Perawatan Kritis merupakan pelayanan yang menimbulkan stres fisik dan psikologis dalam jangka panjang bagi pasien dan keluarga. Intervensi yang berpusat pada keluarga, menghasilkan intervensi tingkat keluarga tertentu ke dalam proses keperawatan dapat membantu mengatasi masalah tersebut. Tujuan: Studi ini meninjau dan menilai dampak intervensi yang berpusat pada keluarga di unit perawatan kritis dewasa. Desain: Desain penelitian ini adalah *systematic review of RCTs* yang diterbitkan dalam bahasa Inggris dari awal hingga 2020. Tiga basis data: PubMed, Science Direct, dan CINAHL. Empat pengulas independen menganalisis berdasarkan kriteria inklusi dan eksklusi, diikuti oleh CONSORT, untuk menilai kualitas metodologis. Kami mengekstrak data dari setiap artikel sebagai berikut: penulis, wilayah, tujuan penelitian, intervensi, durasi, sampel, instrumen, dan hasil. Selanjutnya, kami menggunakan JBI untuk mengendalikan risiko bias, diikuti oleh PRISMA untuk menyusun *manuscript*. Ada dua puluh lima studi yang dimasukkan dalam analisis. Hasil: Kami mengekstrak 653 artikel berdasarkan diagram alur PRISMA. Kami memilih studi yang relevan terkait dengan intervensi yang berpusat pada keluarga untuk meningkatkan *outcome* dari Unit Perawatan Intensif. Tinjauan ini menemukan bahwa intervensi yang berpusat pada keluarga menggunakan pendekatan kolaboratif, termasuk partisipasi keluarga, berbagi informasi, dan kunjungan fleksibel. Kesimpulan - Intervensi yang berpusat pada keluarga efektif dalam meningkatkan kepuasan keluarga, kesejahteraan psikologis keluarga, dan Tingkat Kesadaran pasien. Intervensi yang berpusat pada keluarga adalah bagian penting dari perawatan kesehatan yang berkualitas.

Kata Kunci: Perawatan Yang Berpusat Pada Keluarga, Unit Perawatan Intensif dan Dewasa

Introduction

Presently, the utilization of the critical care unit is improving in the hospital. This causes a high cost and economic burden. Critical care patients have developed chronic critical illness when they experience acute illness and require life-sustaining therapies (Carson et al., 2016). Besides, the Critical Care Unit is services that induce stress physically and psychologically inthe long-term. This causes several factors, such as far from family, invasive procedures, pain, privacy, immobility, the dependency of mechanical ventilation, constant noise, confusion, sleep disruption, and unfamiliarity with critical care providers (Gonzalez-Martin et al., 2019). Asidefrom that, In the ICU, family members of patients are thrust into a highly stressful and often bewildering environment as well as feeling emotional distress, including post-traumatic stress disorder (PTSD), hospital anxiety and depression (HAAD) (Torke et al., 2016), (Carson et al., 2016). An adult critical care unit with many mortalities needs an essential setting to perform quality communication about care goals and implement palliative care. Even for patients who survive from the critical care unit, palliative care issues are often discussed by patients and theirfamilies (Curtis et al., 2016). Information is one of the top needs as rated by family members. Information informed by medical doctors and nurses should include the Patient's condition, given therapies, medical procedures, and the required health care and understand why things are being done (Chiang et al., 2017) (Gonzalez-Martin et al., 2019). Thus, nurses are faced witha crucial role in informing patients who stay in a critical care unit about critical health care status (Gonzalez-Martin et al., 2019).

Regardless of a nurse's critical rules, physician's practices provide the appropriate, clear, and compassionate information for family members to deal with their psychological distress and make decisions about patients who are unable to choose for themselves. Family members must understand the diagnosis, treatment, and prognosis in the Patient if they participate in making decisions and speaking for the Patient (Azoulay et al., 2002). Family members need a clear understanding of the Patient's prognosis to make decisions that represent the Patient's values (Lee Char, Evans, Malvar, & White, 2010). The critical care unit's most essential needs are the emotional and psychological needs to be close to their family members (Salmani, Mohammadi, Rezvani, & Kazemnezhad, 2017). The American college of critical care medicine strongly recommended the shared decision-making model when communicating with families to achieve patients' and families' goals. This recommendation increases awareness that family members suffer acute emotional distress during the critical care unit stay of their loved one and put at high risk of a psychological problem and to deal with this issue, the development of strategies to improve interactions between families and critical care staff is highly required (Azoulay et al., 2018). Poor communication is associated with anxiety, distress, and post-traumatic stress- related symptoms in families (Garrouste-Orgeas et al., 2016).

Over the last decade, the academy and hospital interested in family-centered intervention, resulting in specific family interventions into the nursing care plan in different perspective fields. Professional critical care providers have produced several family-centered interventions that support bonding and interaction with family members (Abbasi, Mohammadi, & Sheaykh Rezayi, 2009). A growing evidence-based practice has helped family members present during emergency resuscitation, invasive procedures, and at the time of the end of life. Family members exposed to resuscitations report that their presence facilitates adjustment to end and grieving, improves understanding of the Patient's condition, and decreases helplessness (Tawil et al., 2014). Besides that, critical care providers have shifted to partner with patients and their family members on direct care to improve critical care outcomes, improve quality of care, and lower expenses. Collaborating with family members in critical care units such as immediate family, relatives, friends, and significant others who lack capacity is vital for improving patient and family members' critical care outcomes (Azoulay et al., 2018; Heyland et al., 2018).

Flexible visitation and peer support also include in the family-centered care concept. Professional society guidelines have recommended that flexible visitation policy for family members in the critical care unit is an essential step toward family-centered intervention (Rosa et al., 2019). Peers' support has been widely performed in nursing and medicine and showed critical roles in health promotion. Peers' support as a part of social support is people with similar conditions and characters sharing information, emotions, and opinions to deal with health problems (Shen, Zheng, Zhong, Ding, & Wang, 2019).

Introduction that both patients and families have collaborated on critically ill patients' direct care was first developed by The Picker Institute in 1988. Family participation has become a model of collaboration among critical care providers, patients, and their families. In 2001, the Institute of Medicine (IOM) in the US applied a new system titled 'Crossing the Quality Chasm:A New Health System for the 21st century', arranged six specific aims for improvement in healthcare, one of which purported that healthcare should be family-centered and that care should be respect to individual Patient and family member preferences, Patient's value and needs as well as ensuring that all clinical decisions according to patient values. This momentumencourages hospitals to apply family-centered intervention. In 2004, the Institute for Family- Centered Care defined this method as an innovative approach to applying nursing care plans (Ciufo, Hader, & Holly, 2011).

The framework of family-centered care in this review uses three theoretical frameworks: working on getting through, lightening our load, and facilitating sensemaking. These theoretical frameworks emphasize the importance of family member involvement and participation in decision-making, communication, and collaboration in bedside care (Heyland et al., 2018).

Though family collaboration in direct care is practiced in general wards, it cannot be freely practiced in the critical care unit due to specialized skills provided for the critical patients in the critical care unit (Salmani et al., 2017). There is a common belief among the critical care providers that flexible visitation of family members does not affect critical patients. That visits interfere with the daily nursing process, disorganization of care, burnout, and infectious complication (Abbasi et al., 2009; Rosa et al., 2019). Therefore, most critical care units still adopt restricted visitation policy (Rosa et al., 2019).

This study aimed to review and appraise the Impact of family-centered intervention in the adult critical care unit for family members and patients.

Methods

Design

The design was a systematic review of a Randomized Control Trial published in English.

Search Methods

PubMed, CINAHL, and Science Direct were used to extract relevant, published studies. These related published studies were selected based on the inclusion and exclusion criteria followed by the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) framework to appraise each published study. The family-centered intervention was an initial search term in each article title.

Several keywords were used to obtain relevant published study used in this review, comprising "family-centered intervention," "adults," and "intensive care unit." Available published studies related to the family-centered intervention for adult ICUs were reviewed to extract information. To obtain comprehensive publishes research relevant to family-centered intervention for adult ICUs, the period of publication was from conception to 2020. We used the format of the Participant-Intervention-Comparison-Outcomes (PICO) to design the criteria of published study as follows;

Table 1 PICO

PICO	Mesh	DataBases
Population	"Adult Intensive Care Unit" OR "Critically Ill Patients"	PubMed, CINAHL, Science Direct
Intervention	"Family-centered intervention" OR "Family Involvement" OR "Family Engagement" OR "Family Participation and Collaboration" OR "Open and Flexible Visitation" OR "Sharing Information" OR "Family Respect and Dignity."	
Comparison	Control Group	
Outcomes	Level of Consciousness, Delirium, ICU Length of Stay, ICU Mortality, Family Satisfaction, and Family Psychological Well Being	

Inclusion and Exclusion Criteria

The inclusion criteria are: (1) English language articles published from beginning to 2020; (2) randomized control trial (RCT) design; (3) family-centered intervention to improve critical care outcomes; (4) adult ICUs as the target population; (5) reported specific outcomes such as Level of Consciousness, Delirium, ICU Length of Stay, ICU Mortality, Family Satisfaction, and Family Psychological Well Being.

The researchers set exclusion criteria such as: (1) not being a family-centered intervention; (2) type of published research including descriptive, one-group quasi-experimental design, qualitative research, mixed-methods without testing the Impact of family-centered intervention, and quasi-experimental study with two groups pretest and posttest design; (3) intervention target focused on community, neonatal, pediatric, and maternal; (4) not focused on improving critical care outcome, and (5) published in a thesis format, dissertation format, or review studies such as a literature review, a concept analysis, a systematic review, and a meta- analysis, not involving family-centered intervention for adult critical care unit.

Screening

The screening of published study was done by all authors, which included the title, abstract, and full text. All published study that meets inclusion criteria were included. Details of search strategies, eligibility published studies and included published studies selected to review and appraise this study are summarized in Figure 1.

Data extraction

Data from published study were extracted using a table, which consists of the author's name, year, focused activities, framework, intervention, study design, sample size, duration, instrument, and outcomes.

Quality Appraisal

Three independent reviewers assessed retrieved published studies. Appropriate critical appraisal and review instrument form JBI was used to control the risk of bias found in each published study. The assessment of methodological quality items comprised: (1) random allocation; (2) allocation adequately concealed; (3) baseline similarity; (4) blinding of participants and personnel; (5) blinding of outcome assessment (detection bias); (5) incomplete outcomes data; and (6) intention to treat; (7) validity and reliability instrument and outcomes assessment; (8) appropriate statistical analysis; (9) standard RCT.

Data Analysis

The Consolidated Standard of Reporting Trials (CONSORT) was used to assess methodological quality.

Result

Search Result

Using the initial keywords, we extracted 653 articles from three databases based on the PRISMA flowchart from beginning to 2020. The researchers screened and selected relevant published studies related to family-centered intervention to improve ICU outcomes (LOC, delirium, ICU LOS, ICU mortality, family satisfaction, and family psychological well-being) basedon the titles and abstracts of the selected documents. From there, 482 published studies were excluded due to inappropriate inclusion criteria.

After screening published studies based on research titles and abstracts, the researchers extracted 171 eligible published studies with the publication's full text. Only 25 published studies fulfilled the inclusion criteria. On the other hand, more than 150 published studies were excluded for any reason. In all, 53 published studies did not meet the family-centered intervention, instead of using a nurse and a physician-based intervention without family, surrogate, or peer as a focus intervention. In all, four published studies did not measure ICU outcomes rather than different outcomes. Accurately, 17 published studies focused on other populations that are pediatric, maternal, and community populations. Because these reviews focused on an RCT study design, 57 published studies did not meet study design such as quasi-experimental, qualitative study, descriptive study, mixed-method design without measuring critical care outcomes, and studies design without comparison groups. While two published studies were in review format, including concept analysis, literature review, systematic review, and meta-analysis, other reasons to exclude 12 published studies were notin full text.

Table 1 Database Searching

Database beginning - 2020	Retrieved
PubMed	366
Science Direct	1077
CINAHL	156
Total	1599

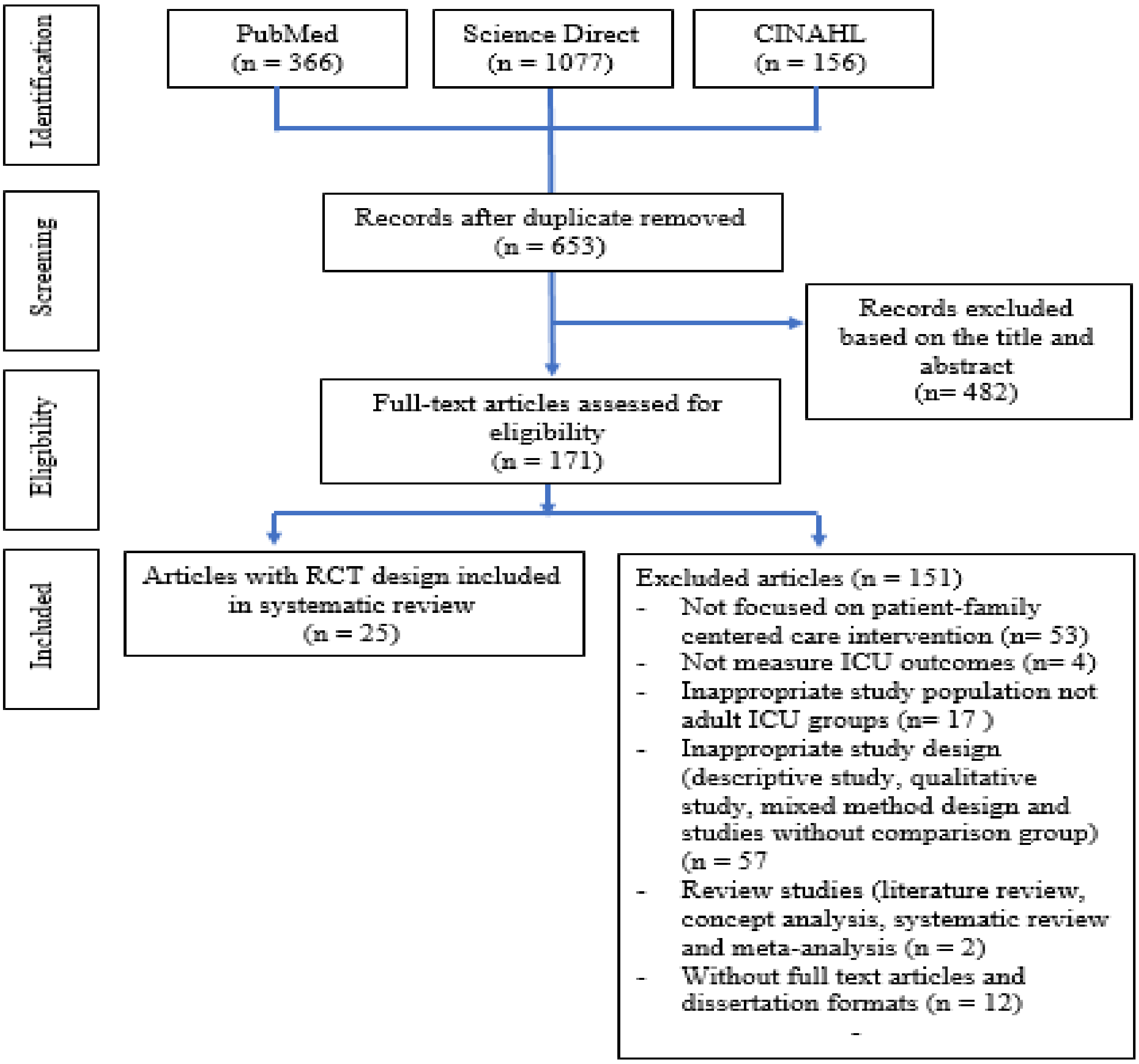

Figure 1. Summary of the searching process

Quality Assessment

Twenty-five published studies had a low risk of bias because most of them performed the blinding technique to avoid bias in selecting sample and treatment allocation.

Analytical Findings

Sample Size and Research Design

Twenty-five published studies used Patient or family or both as participants. The sample size was ranged from 9 to 652, depending on the study's purpose and research design. In this study, there was five research design under RCT namely, (1) 10 of 25 published studies were simple RCT; (2) 2 of 25 published studies were pilot RCT; (3) 1 of 25 published studies was feasibility RCT; (4) 4 of 25 published studies were parallel RCT; and (5) 8 of 25 published studies were cluster RCT. Refers to table 3 for detailed information.

Sample size of patients

There were 8 of 25 published studies that used Patients only as participants. The sample size of patients needed to answer the research question was ranged from 19 to 162. It depended on the purpose of the study and research design. There were 4 of 6 published studies that used simple RCT, and the sample size was the range from 25 to 162 (Abbasi et al., 2009; Jones et al., 2010; Salmani et al., 2017; Shen et al., 2019). There were 2 of 6 published studies that used parallel RCT, and the sample size was the range from 19 to 148 (Azoulay et al., 2018; Gonzalez-Martin et al., 2019). And the last, 2 of 25 published studies used cluster RCT (Chen et al., 2014).

Sample size of the family

There were 8 of 25 published studies that used family only as participants. The sample size of families needed to answer the research question was ranged from 29 to 87. It depended on the purpose of the study and research design. There were 5 of 6 published studies that used simple RCT, and the sample size was ranged from 38 to 86 (Chiang et al., 2017; Lautrette et al.,2007; Lee Char et al., 2010; Moreau et al., 2004; Tawil et al., 2014). There were 1 of 6 published studies that used feasibility RCT and the sample size was 29 (M. L. Mitchell et al., 2017). There were 1 of 6 published studies used cluster RCT, and the sample size was 87 (Azoulay et al., 2002). And the last, there were 1 of 6 published studies that used parallel RCT and the sample size was 42 (Garrouste-Orgeas et al., 2016).

Sample size of both Patient and family

There were 9 of 25 published studies that used both Patient and family as participants. The sample size of both patients and families needed to answer the research question was ranged from 9 to 652. It depended on the purpose of the study and research design. There were1 of 8 published studies that used simple RCT and the sample size was 105 (Wilson et al., 2015). There were 2 of 8 published studies that used pilot RCT, and the sample size was ranged from 9 to 16 (Mailhot et al., 2017; Torke et al., 2016). There were 1 of 8 published studies that used parallel RCT and the sample size was 82 (Curtis et al., 2016). And the last, there were 5 of 8 published studies that used cluster RCT, and the sample size was the range from 130 to 652 (Carson et al., 2016; Garrouste-Orgeas et al., 2019; Heyland et al., 2018; Rosa et al., 2019; White et al., 2018).

Program Duration

The program duration was various for each study, depending on the purpose of the study. The shortest duration was a day (Lee Char et al., 2010), and the longest duration was six months (Curtis et al., 2016; Shen et al., 2019; White et al., 2018).

Instruments

Level of consciousness (LOC) assessment

2 of 25 published studies established LOC as a primary outcome and the instruments used were the Glasgow Coma Scale (GCS) and Coma Recovery Scale-Revised (CRS-R) to measure LOC (Abbasi et al., 2009; Salmani et al., 2017). GCS is an instrument to assess impaired consciousness and coma in trauma and non- trauma patients and predict neurological outcomes(Brennan, Murray, & Teasdale, 2018). CRS-R is used to differentiate between

vegetative state (VS) and minimally conscious state (MCS). It is an instrument to assess patients with disorders of consciousness after brain injury (Annen et al., 2019).

Psychological assessment

12 of 25 published studies established psychological disorders as a primary outcome, and some set as secondary outcomes. The instruments used were General Health Questioner (GHQ) -12 is an instrument in the form of the questioner that is used for mental health conditions (Liang, Wang, & Yin, 2016). The Impact of Event Scale-Revised (IES-R) is an instrument used for assessing symptoms of post-traumatic stress (PTS), and it is used as a self-report instrument (Bohlken, Schömig, Lemke, Pumberger, & Riedel-Heller, 2020). HospitalAnxiety and Depression Scale (HADS) The HADS is a questionnaire used to detect possible psychological distress like depression & anxiety in patients (Beekman & Verhagen, 2018). The Patient Health Questionnaire-9 (PHQ-9) consists of nine questionnaires used to screen for depression in medical settings (Levis, Benedetti, & Thombs, 2019). Generalized Anxiety Disorder-7 (GAD-7) is used to detect generalized anxiety disorder, social anxiety disorder, panicdisorder, and post-traumatic stress disorder (Löwe et al., 2008). PTSD Checklist Civilian Version (PCL-C) is used to assess post-traumatic stress disorder (Alhalal, Ford-Gilboe, Wong,& AlBuhairan, 2017). The Depression Anxiety Stress Scales (DASS) was used to measure depression and anxiety in the clinical setting (Oei, Sawang, Goh, & Mukhtar, 2013). ThePeritraumatic Dissociative Experiences Questionnaire (PDEQ) is used to measure peritraumaticdissociation and the traumatic event (Brooks et al., 2009). And the last instrument was the after-death bereavement family interview (Carson et al., 2016), Maslach Burnout Inventory (MBI) (Rosa et al., 2019), and Post-Traumatic Stress Syndrome-14 (PTSS-14) (Jones, Backman, & Griffiths, 2012; Lautrette et al., 2007).

Delirium

6 of 25 published studies established delirium as a primary outcome, and some set as secondary outcomes. The instruments used were the Confusion Assessment Method for the Intensive Care Unit (CAM-ICU) is used to diagnose delirium in critically ill patients (Gusmao-Flores, Salluh, Chalhub, & Quarantini, 2012). The Delirium Index (DI) is a tool for measuring the severity of delirium symptoms based on the patient's observation, without information from nursing staff, family members, or medical chart (Mailhot et al., 2017). Sickness impact profile (SIP) is a questionnaire to measure patient dysfunction according to his everyday behavior in a large number of diseases (Prcic, Aganovic, & Hadziosmanovic, 2013). Bandura’s guide is used to measure the self-efficacy of the Patient (Mailhot et al., 2017). The Spielberger Trait-State Anxiety Inventory (STAI) is used to screen anxiety in the general population and psychiatric patients (Emons, Habibović, & Pedersen, 2019). The Richmond Agitation–Sedation Scale (RASS) is used to measure the level of anxiety and agitation. It was developed by critical care physicians, pharmacists and nurses (Sessler et al., 2002).

Patient and family satisfaction

5 of 25 published studies set family satisfaction as the primary outcomes & secondary outcome. The instruments used were family satisfaction (FS)-25, family satisfaction-ICU, self-reported video satisfaction, and 12-question survey (Carson et al., 2016; Gonzalez-Martin et al., 2019; Lautrette et al., 2007; Moreau et al., 2004; Wilson et al., 2015).

Communication and family need to support decision making

9 of 25 published studies set decision making as the primary outcomes and some set as secondary outcomes. These instruments were the decision conflict scale, decision regrets score (Torke et al., 2016), 5-item questionnaire for the understanding of brain death (Moreau et al., 2004; Tawil et al., 2014), Quality of clinician-family communication (QOC), patient and family centeredness of care (PPPC) (White et al., 2018), communication and physical comfort scale (CPCS), critical care family needs intervention (CCFNI) (Azoulay et al., 2018; Azoulay et al., 2002; Chiang et al., 2017; Gonzalez-Martin et al., 2019), and quality of communication scale (Carson et al., 2016).

Other's instrument

Others instrument used in this study were hospital length of stay, ICU length of stay, ICU mortality, cost of care, post-operative complication, limitation of therapies, 90-day survival & readmission rate, number of days of mechanical ventilation, patient complication during delirium, vital sign, the Acute Physiologic Assessment and Chronic Health Evaluation II (APACHE II), Sequential Organ Failure Assessment (SOFA) score, ICU memory tools questionnaire, questionnaire to assess numeracy, the abbreviated physician trust scale, questionnaire to assess spiritual beliefs and EuroQol-5D-3L (Abbasi et al., 2009; Carson et al., 2016; Curtis et al., 2016; Garrouste-Orgeas et al., 2019; Lee Char et al., 2010; Mailhot et al., 2017; Salmani et al., 2017; Shen et al., 2019; Torke et al., 2016; White et al., 2018). These instruments were used as either preintervention or secondary outcomes.

Family-Centered Intervention Features

Family participation

The Patient and family want to be close during hospitalization. To facilitate it, the critical care unit needs to apply family-centered intervention. Family collaboration depends on the Patient's condition and their ability to provide care. Family-centered intervention is important when preparing to discharge a patient. The family will be able to do any type of direct care at home (Abbasi et al., 2009; M. L. Mitchell et al., 2017; Salmani et al., 2017; Tawil et al., 2014)

Information sharing

Information sharing is to communicate and share complete information among healthcare providers, patients, and family members to effectively participate in direct care and decision-making. Family members look to the nurse and physician for information about the Patient's condition, such as prognosis and treatment plans. However, the nurse should clarify any information shared by others in the critical care unit (Ciufo et al., 2011; Lee Char et al., 2010; M. Mitchell et al., 2016; Park et al., 2018; Salmani et al., 2017; Tawil et al., 2014; Torke et al., 2016).

Dignity and respect

Dignity and respect are to keep the Patient's privacy covered and respected. Dignity and respect also include to respect and to support all patient and family member decision (Ciufo et al., 2011; M. L. Mitchell et al., 2017).

Flexible visitation

Flexible visitation or open visitation or unrestricted visitation is a policy in the critical care unit in which family members can visit their loved ones anytime without restriction (Abbasi et al., 2009; Salmani et al., 2017).

Role of family in family-centered intervention

A family is defined as close and carries out daily routine and critical care patients.Everyone who is an important part of the Patient's life is considered a family member (Morton, Fontaine, Hudak, & Gallo, 2013). Since 1999, the American Association of Critical Nurse(AACN) has developed and implemented a "Synergy Model" model to link certified nursepractices with nursing services outcomes. The synergy model explains nursing practice based on patients' needs and characteristics rather than disease and therapeutic modalities. The premise or underlying belief is that the patient's and family's needs and characteristics will influence and orient the nurse's characteristics and competencies. This model's two main teachings, namely, Patient characteristics, are the main concern for nurses, and nurse competence is the most important thing for patients. Eight nurse characteristics are clinical judgment, advocacy/ moral agency, caring practice, collaboration, system thinking, response to delivery, clinical inquiry, and learning facilitators. Eight patients and family characteristics are participation in decision making, resiliency, stability, complexity, participation in care, resource availability, vulnerability, and predictability (Morton et al., 2013).

The critically ill Patient feels that he is in his worst condition. For patients, health care providers are new people in their lives who lack knowledge of their feelings and desires. At the same time, the family is the closest person to the Patient who knows the Patient's characteristics better. The inner bond between the Patient and family makes them want to be together under any circumstances and help each other. Based on the synergy model, the family's role in family-centered intervention is to provide social, spiritual, psychological, biological, and physical support. Support is provided in the form of collaboration, participation, and sharing of information in inpatient care. Meanwhile, families' inability to care for critically ill patients is the duty of nurses who provide education to families (Morton et al., 2013).

Effectiveness of Family-Centered Intervention on Critical Care Unit Outcomes

The researchers recruited 25 published studies in this review based on the inclusion criteria to establish the Impact of the family-centered intervention. Summary findings of the family-centered intervention on critical care outcomes between the intervention and the control groups are discussed below.

Level of Consciousness

This review examined the Impact of a family-centered intervention on improving thePatient's level of consciousness. Regard 25 existing published studies, two published studies (2/25) measured LOC, and about 100% (2/2) produced a positive effect of the family-centered intervention concerning changed GCS score (Abbasi et al., 2009; Salmani et al., 2017).

Level of Delirium

Regard 25 existing published studies, three published studies (3/25) measured delirium, and all of those (3/3) produced a negative impact of the family-centered intervention. Three studies confirmed no significant changes in the delirium level (Mailhot et al., 2017; M. L. Mitchell et al., 2017; Rosa et al., 2019).

Family Understanding of disease

Regard 25 existing published studies, six published studies (6/25) measure family understanding of the disease, and about 33.3% (2/6) produced a positive impact of the family-centered intervention (Azoulay et al., 2002; Tawil et al., 2014). Four studies (4/6) confirmed no significant changes in the family's understanding of the disease (Azoulay et al., 2018; Azoulay et al., 2002; Lee Char et al., 2010; Moreau et al., 2004; Tawil et al., 2014; Wilson et al., 2015).

Family Satisfaction

Regard 25 existing published studies, eight published studies (8/25) measured family satisfaction, and about 37.5% (3/8) produced a positive impact of the family-centered intervention (Gonzalez-Martin et al., 2019). Five studies (5/8) confirmed no significant changesin family satisfaction (Azoulay et al., 2018; Azoulay et al., 2002; Chiang et al., 2017; Gonzalez- Martin et al., 2019; Jones et al., 2010; Lautrette et al., 2007; Moreau et al., 2004; Wilson et al., 2015).

Psychological Disorder

Regard 25 existing published studies, sixteen published studies (16/25) measured psychological disorder, and about 56.25% (9/16) produced a positive impact of the family-centered intervention (Azoulay et al., 2002; Carson et al., 2016; Chiang et al., 2017; Curtis et al., 2016; Gonzalez-Martin et al., 2019; Jones et al., 2010; Mailhot et al., 2017; Rosa et al., 2019; Shen et al., 2019). Seven studies (7/16) confirmed no significant psychological disorder (Azoulay et al., 2018; Azoulay et al., 2002; Garrouste-Orgeas et al., 2019; Lautrette et al., 2007;Tawil et al., 2014; Torke et al., 2016; White et al., 2018).

ICU & Hospital Length of Stay

Regard 25 existing published studies, five published studies measured ICU and hospital length of stay, and about 60% (3/5) produced a positive impact of the family-centered intervention (Curtis et al., 2016; Mailhot et al., 2017; White et al., 2018). Two studies confirmed no significant changes in ICU and hospital length of stay (Carson et al., 2016; Heyland et al., 2018).

Other outcomes

Other outcomes of family-centered intervention were decreased ICU mortality, achieved the goal of care, improved quality of care, and improved patient and family centeredness of care(Lee Char et al., 2010; Moreau et al., 2004; White et al., 2018).

Discussion

The researchers performed a systematic review of 25 existing published studies related to family-centered intervention in the critical care unit between beginning to 2020. A randomized control trial was employed as a robust design in every review. Our objective was to appraise the Impact of the family-centered intervention in the intensive care unit. The researchers found that each study measured more than one outcome.

The family-centered intervention was generated in the critical care setting to support patients and their family members in achieving critical care outcomes. This strategy offered a collaboration of critical care providers, families, and patients. This review found that family- centered intervention used collaborative approaches across studies, including family participation and collaboration in direct care, sharing information for better decisions, andflexible visiting hours as well as respect for patient and family. Overall, the family-centered intervention was associated with improved psychological well-being, family satisfaction, and other outcomes.

Twenty-five published studies used various instruments as a tool to answer the research question. Those are instruments for assessing consciousness, delirium level, psychological disorder, family satisfaction, decision making, and other instrument used for additional information or secondary outcomes. Aside from that, the sample size of 20 published studies ranged from 9 to 652, depending on the study's purpose and research design.

This study was the first study from Indonesia, which focused on the family center. Therefore, this study could have beneficial among family members to take care of critical care patients. Other strengths of this study were focused on randomized control trials. It was considered an adequate design to examine the program's effectiveness on health outcomes among critical care. However, some limitations were encountered in this study since we only focused on narratively rather than meta-analysis. The researchers used only three databasesso that it becomes our limitation.

Conclusion

The family-centered intervention was effective in improving family satisfaction, family psychological well-being, and patient LOC. The family-centered intervention was an essential part of quality healthcare. Based on the Law of the Republic of Indonesia No. 44 of 2009 concerning Hospitals Article 33 paragraph 1, it is that every hospital must have an effective, efficient, and accountable organization. The hospital organization is structured with the aim of achieving the vision and mission of the hospital by implementing good corporate governanceand good clinical governance. One of the 7 pillars of good clinical governance is patient and family centered care. Thus, involving families and patients in care in accordance with the mandate of the law. Patient and family centered care was known to be effective in the setting of pediatric, maternity, community, and gerontology nursing, but few agencies implement patient and family centered in ICU. This is due to the complexity of ICU technology and patient disease.With the results of this review, it can be used as a reference for applying PFCC in the ICU. Thenfor further research, it can be carried out until the meta-analysis stage so that the effect of familycentered care in the ICU can be more illustrated.

Acknowledgments

The authors would like to thank Padjadjaran University and Indonesia National Library for facilitating the database search to conduct this systematic.

Funding

This research received no specific grant from any funding agency.

References

Abbasi, M., Mohammadi, E., & Sheaykh Rezayi, A. (2009). Effect of a regular family visiting program as an affective, auditory, and tactile stimulation on the consciousness level of comatose patients with a head injury. *Jpn J Nurs Sci, 6*(1), 21-26. doi:10.1111/j.1742-7924.2009.00117.x

Alhalal, E., Ford-Gilboe, M., Wong, C., & AlBuhairan, F. (2017). Reliability and validity of the Arabic PTSD Checklist Civilian Version (PCL-C) in women survivors of intimate partner violence. *Res Nurs Health, 40*(6), 575-585. doi:10.1002/nur.21837

Annen, J., Filippini, M. M., Bonin, E., Cassol, H., Aubinet, C., Carrière, M., . . . Chatelle, C. (2019). Diagnostic accuracy of the CRS-R index in patients with disorders of consciousness. *Brain Inj, 33*(11), 1409-1412. doi:10.1080/02699052.2019.1644376

Azoulay, E., Forel, J. M., Vinatier, I., Truillet, R., Renault, A., Valade, S., . . . Papazian, L. (2018). Questions to improve family-staff communication in the ICU: a randomized controlled trial. *Intensive Care Med, 44*(11), 1879-1887. doi:10.1007/s00134-018-5423-2

Azoulay, E., Pochard, F., Chevret, S., Jourdain, M., Bornstain, C., Wernet, A., . . . Lemaire, F. (2002). Impact of a family information leaflet on effectiveness of information provided to family members of intensive care unit patients: a multicenter, prospective, randomized, controlled trial. *Am J Respir Crit Care Med, 165*(4), 438-442. doi:10.1164/ajrccm.165.4.200108-006oc

Beekman, E., & Verhagen, A. (2018). Clinimetrics: Hospital Anxiety and Depression Scale. *J Physiother, 64*(3), 198. doi:10.1016/j.jphys.2018.04.003

Bohlken, J., Schömig, F., Lemke, M. R., Pumberger, M., & Riedel-Heller, S. G. (2020). [COVID-19 Pandemic: Stress Experience of Healthcare Workers - A Short Current Review]. *Psychiatr Prax, 47*(4), 190-197. doi:10.1055/a-1159-5551

Brennan, P. M., Murray, G. D., & Teasdale, G. M. (2018). Simplifying the use of prognostic information in traumatic brain injury. Part 1: The GCS-Pupils score: an extended index of clinical severity. *Journal of Neurosurgery, 128*(6), 1612-1620. doi:10.3171/2017 12.jns172780

Brooks, R., Bryant, R. A., Silove, D., Creamer, M., O'Donnell, M., McFarlane, A. C., & Marmar, C. R. (2009). The latent structure of the Peritraumatic Dissociative Experiences Questionnaire. *J Trauma Stress, 22*(2), 153-157. doi:10.1002/jts.20414

Carson, S. S., Cox, C. E., Wallenstein, S., Hanson, L. C., Danis, M., Tulsky, J. A.,.......Nelson, J. E. (2016). Effect of Palliative Care-Led Meetings for Families of Patients With Chronic Critical Illness: A Randomized Clinical Trial. *Jama, 316*(1), 51-62. doi:10.1001/jama.2016.8474

Chen, Y. Y., Chu, T. S., Kao, Y. H., Tsai, P. R., Huang, T. S., & Ko, W. J. (2014). To evaluate the effectiveness of health care ethics consultation based on the goals of health care ethics consultation: a prospective cohort study with randomization. *BMC Med Ethics, 15*,1. doi:10.1186/1472-6939-15-1

Chiang, V. C. L., Lee, R. L. P., Ho, F. M., Leung, C. K., Tang, Y. P., Wong, W. S., Lai, H. L. (2017). Fulfilling the psychological and information need of the family members ofcritically ill patients using interactive mobile technology: A randomised controlled trial. *Intensive & Critical Care Nursing, 41*, 77-83. doi:10.1016/j.iccn.2017.03.006

Ciufo, D., Hader, R., & Holly, C. (2011). A comprehensive systematic review of visitation models in adult critical care units within the context of patient- and family-centred care. *Int J Evid Based Healthc, 9*(4), 362-387. doi:10.1111/j.1744-1609.2011.00229.x

Curtis, J. R., Treece, P. D., Nielsen, E. L., Gold, J., Ciechanowski, P. S., Shannon, S. E., . . . Engelberg, R. A. (2016). Randomized Trial of Communication Facilitators to Reduce Family Distress and Intensity of End-of-Life Care. *Am J Respir Crit Care Med, 193*(2), 154-162. doi:10.1164/rccm.201505-0900OC

Emons, W. H., Habibović, M., & Pedersen, S. S. (2019). Prevalence of anxiety in patients with an implantable cardioverter defibrillator: measurement equivalence of the HADS-A and the STAI-S. *Qual Life Res, 28*(11), 3107-3116. doi:10.1007/s11136-019-02237-2

Garrouste-Orgeas, M., Flahault, C., Vinatier, I., Rigaud, J. P., Thieulot-Rolin, N., Mercier, E., . . . Timsit, J. F. (2019). Effect of an ICU Diary on Posttraumatic Stress Disorder Symptoms Among Patients Receiving Mechanical Ventilation: A Randomized Clinical Trial. *Jama, 322*(3), 229-239. doi:10.1001/jama.2019.9058

Garrouste-Orgeas, M., Max, A., Lerin, T., Gregoire, C., Ruckly, S., Kloeckner, M., . . . Misset, B. (2016). Impact of Proactive Nurse Participation in ICU Family Conferences: A Mixed-Method Study. *Crit Care Med, 44*(6), 1116-1128. doi:10.1097/ccm.0000000000001632

Gonzalez-Martin, S., Becerro-de-Bengoa-Vallejo, R., Angulo-Carrere, M. T., Iglesias, M. E., Martinez-Jimenez, E. M., Casado-Hernandez, I., . . . Rodriguez-Sanz, D. (2019). Effects of a visit prior to hospital admission on anxiety, depression and satisfaction of patients in an intensive care unit. *Intensive Crit Care Nurs, 54*, 46-53. doi:10.1016/j.iccn.2019.07.001

Gusmao-Flores, D., Salluh, J. I., Chalhub, R., & Quarantini, L. C. (2012). The confusion assessment method for the intensive care unit (CAM-ICU) and intensive care delirium screening checklist (ICDSC) for the diagnosis of delirium: a systematic review and meta-analysis of clinical studies. *Crit Care, 16*(4), R115. doi:10.1186/cc11407

Heyland, D. K., Davidson, J., Skrobik, Y., des Ordons, A. R., Van Scoy, L. J., Day, A. G., . . . Marshall, A. P. (2018). Improving partnerships with family members of ICU patients: study protocol for a randomized controlled trial. *Trials, 19*, 1-N.PAG. doi:10.1186/s13063-017-2379-4

Jones, C., Bäckman, C., Capuzzo, M., Egerod, I., Flaatten, H., Granja, C., . . . Griffiths, R. D. (2010). Intensive care diaries reduce new onset post traumatic stress disorder following critical illness: a randomised, controlled trial. *Crit Care, 14*(5), R168. doi:10.1186/cc9260

Jones, C., Backman, C., & Griffiths, R. D. (2012). Intensive care diaries and relatives' symptoms of posttraumatic stress disorder after critical illness: a pilot study. *Am J Crit Care, 21*(3), 172-176. doi:10.4037/ajcc2012569

Lautrette, A., Darmon, M., Megarbane, B., Joly, L. M., Chevret, S., Adrie, C., . . . Azoulay, E. (2007). A communication strategy and brochure for relatives of patients dying in the ICU. *N Engl J Med, 356*(5), 469-478. doi:10.1056/NEJMoa063446

Lee Char, S. J., Evans, L. R., Malvar, G. L., & White, D. B. (2010). A randomized trial of two methods to disclose prognosis to surrogate decision makers in intensive care units. *Am J Respir Crit Care Med, 182*(7), 905-909. doi:10.1164/rccm.201002-0262OC

Levis, B., Benedetti, A., & Thombs, B. D. (2019). Accuracy of Patient Health Questionnaire-9 (PHQ-9) for screening to detect major depression: individual participant data meta-analysis. *Bmj, 365*, l1476. doi:10.1136/bmj.l1476

Liang, Y., Wang, L., & Yin, X. (2016). The factor structure of the 12-item general health questionnaire (GHQ-12) in young Chinese civil servants. *Health Qual Life Outcomes, 14*(1), 136. doi:10.1186/s12955-016-0539-y

Löwe, B., Decker, O., Müller, S., Brähler, E., Schellberg, D., Herzog, W., & Herzberg, P. Y. (2008). Validation and standardization of the Generalized Anxiety Disorder Screener (GAD-7) in the general population. *Med Care, 46*(3), 266-274. doi:10.1097/MLR.0b013e318160d093

Mailhot, T., Cossette, S., Cote, J., Bourbonnais, A., Cote, M. C., Lamarche, Y., & Denault, A. (2017). A post cardiac surgery intervention to manage delirium involving families: a randomized pilot study. *Nurs Crit Care, 22*(4), 221-228. doi:10.1111/nicc.12288

Mitchell, M., Coyer, F., Kean, S., Stone, R., Murfield, J., & Dwan, T. (2016). Patient, family-centred care interventions within the adult ICU setting: An integrative review. *Australian critical care : official journal of the Confederation of Australian Critical Care Nurses, 29*. doi:10.1016/j.aucc.2016.08.002

Mitchell, M. L., Kean, S., Rattray, J. E., Hull, A. M., Davis, C., Murfield, J. E., & Aitken, L. M. (2017). A family intervention to reduce delirium in hospitalised ICU patients: A feasibility randomised controlled trial. *Intensive and Critical Care Nursing, 40*, 77-84. doi:https://doi.org/10.1016/j.iccn.2017.01.001

Moreau, D., Goldgran-Toledano, D., Alberti, C., Jourdain, M., Adrie, C., Annane, D., . . .Azoulay, E. (2004). Junior versus senior physicians for informing families of intensive care unit patients. *Am J Respir Crit Care Med, 169*(4), 512-517.doi:10.1164/rccm.200305-645OC

Morton, P. G., Fontaine, D., Hudak, C. M., & Gallo, B. M. (2013). *Keperawatan Kritis Pendekatan Asuhan Holistik Volume 1* (Edisi 8 ed. Vol. Volume 1). Jakarta: EGC.

Oei, T. P., Sawang, S., Goh, Y. W., & Mukhtar, F. (2013). Using the Depression Anxiety Stress Scale 21 (DASS-21) across cultures. *Int J Psychol, 48*(6), 1018-1029. doi:10.1080/00207594.2012.755535

Park, M., Giap, T. T., Lee, M., Jeong, H., Jeong, M., & Go, Y. (2018). Patient- and family- centered care interventions for improving the quality of health care: A review of systematic reviews. *Int J Nurs Stud, 87*, 69-83. doi:10.1016/j.ijnurstu.2018.07.006

Prcic, A., Aganovic, D., & Hadziosmanovic, O. (2013). Sickness Impact Profile (SIP) Score, a Good Alternative Instrument for Measuring Quality of Life in Patients with Ileal Urinary Diversions. *Acta informatica medica : AIM : journal of the Society for Medical Informatics of Bosnia & Herzegovina : casopis Drustva za medicinsku informatiku BiH, 21*(3), 160-165. doi:10.5455/aim.2013.21.160-165

Rosa, R. G., Falavigna, M., da Silva, D. B., Sganzerla, D., Santos, M. M. S., Kochhann, R., . . . Teixeira, C. (2019). Effect of Flexible Family Visitation on Delirium Among Patients in the Intensive Care Unit: The ICU Visits Randomized Clinical Trial. *Jama, 322*(3), 216-228. doi:10.1001/jama.2019.8766

Salmani, F., Mohammadi, E., Rezvani, M., & Kazemnezhad, A. (2017). The effects of family-centered affective stimulation on brain-injured comatose patients' level of consciousness: A randomized controlled trial. *Int J Nurs Stud, 74*, 44-52. doi:10.1016/j.ijnurstu.2017.05.014

Sessler, C. N., Gosnell, M. S., Grap, M. J., Brophy, G. M., O'Neal, P. V., Keane, K. A., . . . Elswick, R. K. (2002). The Richmond Agitation–Sedation Scale. *American Journal of Respiratory and Critical Care Medicine, 166*(10), 1338-1344. doi:10.1164/rccm.2107138

Shen, Z., Zheng, F., Zhong, Z., Ding, S., & Wang, L. (2019). Effect of peer support on health outcomes in patients with cardiac pacemaker implantation: A randomized, controlled trial. *Nurs Health Sci, 21*(2), 269-277. doi:10.1111/nhs.12595

Tawil, I., Brown, L. H., Comfort, D., Crandall, C. S., West, S. D., Rollstin, A. D., . . . Marinaro, J. (2014). Family presence during brain death evaluation: a randomized controlled trial*. *Crit Care Med, 42*(4), 934-942. doi:10.1097/ccm.0000000000000102

Torke, A. M., Wocial, L. D., Johns, S. A., Sachs, G. A., Callahan, C. M., Bosslet, G. T., . . . Burke, E. S. (2016). The Family Navigator: A Pilot Intervention to Support Intensive CareUnit Family Surrogates. *Am J Crit Care, 25*(6), 498-507. doi:10.4037/ajcc2016730

White, D. B., Angus, D. C., Shields, A. M., Buddadhumaruk, P., Pidro, C., Paner, C., . . . Arnold, R. M. (2018). A Randomized Trial of a Family-Support Intervention in Intensive Care Units. *N Engl J Med, 378*(25), 2365-2375. doi:10.1056/NEJMoa1802637

Wilson, M. E., Krupa, A., Hinds, R. F., Litell, J. M., Swetz, K. M., Akhoundi, A., . . . Kashani, K. (2015). A video to improve patient and surrogate understanding of cardiopulmonary resuscitation choices in the ICU: a randomized controlled trial. *Crit Care Med, 43*(3), 621-629. doi:10.1097/ccm.0000000000000749

Appendix 1. Critical Appraisal and Extract Data

No	References	Focused Activities					Framework	Intervention / Program	Design	Sample Size	Program Duration	Instrument	Outcomes
		RD	SI	C	P	OV							
1	Salmani, F et al. (2017)		*	*	*	*	Participation in care / emotional physiology on the brain	auditory, sensory, kinetic, and affective stimulation	RCT	Patient: 1. I (n: 30) 2. P (n: 30) 3. C (n: 30)	Seven days	1. APACHE II 2. GCS score 3. CRS-R score	Improving the LOC
2	Abbasi, Maryam et al. (2009)			*	*	*	Participation in care	regular visiting program and perform an auditory, affective, and tactile stimulation	RCT	Patient: 1. I (n: 25) 2. C (n: 25)	6 days	1. GCS score 2. Vital sign	Induce the stimulation of comatose patients (LOC)
3	Char, Susan J. Lee et al. (2010)		*				physicians-family communication	Explaining to the family regarding the patient's prognosis quantitively & qualitatively	RCT	Surrogates: 1. Numeric group (n: 83) 2. Qualitative group (n: 86)	a day	questionnaire to assess numeracy and spiritual belief	Not significant different in prognostic understanding
4	Tawil, Isaac, et al. (2014)		*		*	*	Family presence/ sharing information	1. Presence vs. absence at bedside throughout the brain death evaluation	RCT	Family: 1. I (n: 38) 2. C (n: 20)	?	1. 5-item questionnaire = understanding of brain death 2. IES 3. GHQ-12	improves understanding of brain death with no apparent adverse impact on psychological well-being
5	Torke, Alexia M et al. (2016)		*				surrogate/clinician communication (information & Emotional)	Family navigator or surrogate decision-maker meeting	A pilot RCT	patient & Family: 1. I (n: 9) 2. C (n: 12)	Two weeks	1. SOFA score; 2. IES-R; 3. Decision conflict scale; 4. Decision regret score; 5. PHQ-9; 6. GAD-7	no significant differences between the FN and control group
6	Mitchell, Marion L	*		*	*		Partnership nursing staff	1. Orientasi & memory clues	a feasibili	Family: 1. Intervention	Five days	1. CAM-ICU 2. the rich-mond	there was no statistically different

ISSN (Print) : 2502-6127
ISSN (Online) : 2657-2257

	(2017)					and family member	2. sensory checks 3. discussing family life	ty RCT	(n: 29) 2. Control (n: 32)		agitation-sedation scale	in ICU delirium and the number of days of delirium in ICU was also similar between the groups
7	White, Douglas B et al. (2018)	*	*	*		theory of cognitive-emotional decision making (Modern decision theory)	Family-Support Intervention: PARTNER	A stepped-wedge cluster RCT	Patient : 1. I (n= 547) 2. C (n= 873) Surrogate : 1. I (n=429) 2. C (n= 677)	6 months	1. HADS 2. IES (PTSD) 3. QOC 4. PPPC 5. ICU LOS 6. Hospital LOS	1. non-significant difference between the group in the mean of HADS 2. Mean of LOC, PPPC and QOC was better in the intervention group than the control group
8	J, Randall Curtis et al. (2016)	*				clinician-family communication	used a communication facilitator	A Parallel-group RCT	Patient: 1. I (n=82) 2. C (n= 86) Family: 1. I (n=131) 2. C (n= 131)	Six months	1. PHQ-9 2. PCL 3. LOS 4. Cost of Care	The communication facilitator shorten ICU stay, reduced depression, but could not reduce anxiety and PTSD as well as ICU mortality at six months
9	Rosa, Regis Goulart et al (2019)				*	liberalization visitation	1. Flexible visitation 2. usual restricted visitation	Cluster-Crossover RCT	Patient : 1. I (n=837) 2. C (n= 848) Family : 1. I (n=652) 2. C (n= 643) Clinicians 1. I (n=435) 2. C (n=391)	30 days	1. CAM-ICU 2. HADS 3. CCFNI 4. Maslach Burnout Inventory (MBI)	not statistically significant difference between the group in the incidence of delirium. for family members, median anxiety and depression score were significantly better with flexible visitation

10	Chiang, Vico Chung Lum et al (2017)	*				Psychological theory/Information technology utilization	Education of families by tab (EF-T) about the patient's condition	RCT	Family: 1. I (n: 39) 2. C (n: 35)	?	1. C-DASS 2. CPCS 3. CCFNI	significantly difference between group on depression score, no significant difference between groups on family satisfaction
11	Shen, Zhiying et al. (2018)	*				social support (emotional, appraisal, information, and practice)	Peer support	RCT	Patient: 1. I (n: 34) 2. C (n: 35)	6 months	1. EuroQol-5D-3L 2. HADS 3. PP-KAPQ 4. Postoperative Complication	telephone-based peer support could decrease HADS score
12	Carson, Shannon S. et al. (2017)	*				clinician-family communication	family informational and emotional support meeting led by palliative care clinicians	A multicenter RCT	Patient : 1. I (n= 130) 2. C (n= 126) Family : 1. I (n=163) 2. C (n= 149)	3 months	1. HADS 2. IER-S 3. FS-24 4. ICU LOS	1. there was no significant difference in anxiety and depression symptoms between groups 2. there were no significant between-group differences on ICU LOS
13	Martin, Sara Gonalez et al (2019)				*	liberalization visitation	a visit prior to hospital admission	An RCT of parallel groups	Patient: 1. I (n: 19) 2. C (n: 19)	Three months	1. HADS 2. IES-R 3. CCFNI 4. FS-ICU	1. significant differences between groups for the HADS, IES-R, and CCFNI 2. a visit prior to hospital admission improve family satisfaction
14	Mailhot, Tanya et al. (2017)		*	*		1. the Caritas processes from the human caring theory (Watson)	Mentor_D nursing intervention (involve family & give a sense of efficacy to	A pilot RCT	patient & Family: 1. I (n: 16) 2. C (n: 14)	Three days	1. Delirium Index 2. STAIS 3. Bandura's guide 4. CAM-ICU	1. no significance on delirium 2. Significant psycho-functional recovery score between group

					2. bandura theory: utilizing the sources of information	intervene in delirium management				
15	heyland, daren K et al (2018)	*	*	*	lightening our load, working on getting through, and facilitated sensemaking	1. Nutritional intervention2. Decision-support intervention	Multicenter, open-label RCT phase II	?	Six months	The nutritional intervention 1. 6-minute walk distance at or before hospital discharge 2. the 36-item short-form survey (SF-36) physical function at six months & hand-grip strength 3. ONS consumption on the wards, time to discharge alive from hospital4. Mortality & LOS 5. 90-day readmission rates & cost-effectiveness 6. HADS The decision-support intervention 1. IES-R 2. (FS-ICU24) subscale 3. LOS (ICU) 4. The 10-item

								decisional conflict scale (DCS)	
16	Azoulay, Elie et al. (2002)	*	Comprehension information (education via leaflet)	Family information leaflet (FIL) + a standard information	A multicenter, Prospective RCT (Cluster)	Family: 1. I (n: 87) 2. C (n: 88)	?	1. CCFNI 2. HADS	1. comprehension was significantly better in the FIL group 2. anxiety and depression were not significantly 3. satisfaction was not significance
17	Azaulay, Elie et al. (2018)	*	ICU staff-family Communication	providing the list of 21 question	Randomized, Parallel-group trial	Patient: 1. I (n: 148) 2. C (n: 154)	5 days	1. CCFNI 2. HADS	Providing the list of 21 questions did not affect comprehension, family psychological distress, and family satisfaction
18	Orgaes, Maite Garrouste et al (2016)	*	shared decision-making model (ICU staff-family communication)	ICU family conferences with proactive nurse participation	A Mixed-Method Study (Qualitative & a single-center, parallel-group randomized)	Family: 1. I (n: 42) 2. C (n: 44)	Three months	1. IES-R 2. HADS 3. PDEQ	1. not significantly different regarding the prevalence of post-traumatic stress-related symptoms 2. anxiety & depression subscale scores were significantly lower in the intervention group
19	Wilson, Michael E et al. (2015)	*	Communication & decision making	Receive an 8-minute video that depicted CPR, showed a simulated hospital code, and explained	Unblinded RCT	patient & surrogate: 1. I (n: 105) 2. C (n: 103)	30 days	1. 12-question survey2. Self-reported video satisfaction	1. Video group participants had higher rates of understanding 2. no statistically significant differences in

				resuscitation preference options + usual care					documented resuscitation preferences 3. a majority of the participant felt that the video was helpful in cardiopulmonary resuscitation decision making
20	Orgaes, Maite Garrouste et al (2019)	*	?	Usual ICU care with ICU diary VS routine ICU care without ICU diary	Assess or-blinded, multicenter, RCT	patient & family 1. I (n: 355) 2. C (n: 354)	Three months	1. IES-R 2. HADS	did not significantly reduce the number of patients who reported significant PTSD symptoms at three months
21	Moreau et al. ()		?	Communication with junior vs. senior physician and FMS	A Prospective RCT	?	?	?	1. non-significant on comprehension 2. Non-significant different in family satisfaction
22	Chen et al. ()		?	Ethics consultation vs. usual care	Prospective Cluster RCT	?	?	?	85% (I) vs 24% © achieved care goals
23	Connors et al. ()		?	Nurse facilitator to improve physician/patient communication	Prospective Cluster RCT	?	?	?	non-significant in DNR documentation
24	Lautrette et al		?	Early end-of-life conference and bereavement brochure vs. usual care (end-of-life conference) in	Prospective RCT	?	?	?	1. PTSD symptoms decreases from 69% to 45% FM depressive symptoms (non-significant) 2. Non-significant

				patients expected to die within a few days					
25	Jones et al. ()	*	ICU Diary	Prospectively written diary by healthcare staff & family for patients with ICU stay > 72 hr	RCT	Patients: 1. I (n:162) 2. C (n:160)	3 month	1. ICUMT 2. PTSS 3. PDS	patient: PTSD new cases decrease from 13% to 5 %

Appendix 2. Risk of Bias Assessment

NO	**AUTHOR**	**INSTRUMENT**														
		JBI														
		1	2	3	4	5	6	7	8	9	10	11	12	13	SCORE	Interpretasi
1	Salmani, F et al. (2017)	*	?	*	*	*	*	*	*	?	*	*	*	*	11/13	low risk of bias
2	Abbasi, Maryam et al. (2009)	*	?	*	?	?	*	*	*	*	*	*	*	*	10/13	low risk of bias
3	Char, Susan J. Lee et al. (2010)	*	?	*	?	?	*	*	?	?	*	?	*	*	7/13	medium risk of bias
4	Tawil, Isaac, et al. (2014)	*	?	?	?	*	*	*	*	*	*	?	*	*	9/13	low risk of bias
5	Torke, Alexia M et al. (2016)	*	*	*	?	?	?	*	?	?	*	*	*	*	8/13	medium risk of bias
6	Mitchell, Marion L. et al. (2017)	*	?	*	?	?	?	*	*	*	*	?	*	*	8/13	medium risk of bias
7	Martin, Sara Gonzalea et al (2019)	*	*	*	*	*	*	*	*	*	*	*	*	*	13/13	no bias
8	Rosa, Goulart Regis et al (2019)	*	?	*	?	?	*	*	*	*	*	*	*	*	10/13	low risk of bias
9	Azoulay, Elie et al. (2001)	*	*	*	*	*	*	*	*	?	*	?	*	*	11/13	low risk of bias
10	Azoulay, Elie et al. (2018)	*	?	*	*	*	*	*	*	*	*	*	*	*	12/13	low risk of bias
11	Carson, Shannon S. et al. (2017)	*	*	*	*	*	*	*	*	?	*	?	*	*	11/13	low risk of bias
12	Shen, Zhiying et al. (2018)	*	*	*	?	?	?	*	*	?	*	?	?	*	7/13	medium risk of bias
13	Curtis, Randall J. et al. (2016)	*	*	?	*	?	?	?	*	*	*	*	?	*	8/13	medium risk of bias
14	White, D., B. et al. (2018)	*	?	?	?	?	*	*	?	*	*	?	*	*	7/13	medium risk of bias
15	Chiang, Vico Chung Lim et al (2016)	*	*	*	?	?	*	*	*	*	*	?	*	*	10/13	low risk of bias
16	Mailhot, Tanya et al. (2017)	*	*	?	*	*	*	*	*	*	*	*	*	*	12/13	low risk of bias
17	Orgaes, Maite Garrouste et al (2016)	*	*	*	*	*	?	*	*	?	*	*	*	*	11/13	low risk of bias
18	Heyland, Daren K. et al (2018)	*	?	*	?	?	?	*	*	*	*	*	*	*	9/13	low risk of bias
19	Wilson, Michael E et al. (2015)	*	*	*	?	?	?	*	*	*	*	*	*	*	10/13	low risk of bias
20	Orgaes, Maite Garrouste et al	*	?	*	?	?	*	*	*	*	*	*	*	*	10/13	low risk of bias

	(2019)															
21	Moreau et al. ()	*	*	*	?	?	?	*	*	?	*	?	?	*	7/13	medium risk of bias
22	Chen et al. ()	*	*	?	*	?	?	?	*	*	*	*	?	*	8/13	medium risk of bias
23	Connors et al. ()	*	?	*	?	?	?	*	*	*	*	*	*	*	9/13	low risk of bias
24	Lautrette et al	*	*	*	?	?	?	*	*	*	*	*	*	*	10/13	low risk of bias
25	Jones et al. ()	*	?	*	?	?	*	*	*	?	*	*	*	*	9/13	low risk of bias

Note:
0-4: high risk of bias
5-8: medium risk of bias
9-12: low risk of bias
13: no bias