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Appraising Rufaidah Al-Aslamia, First Muslim Nurse and Pioneer of Islamic Nursing: Contributions and Legacy

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Abstract

Global advancement in nursing is attributed mainly to western pioneers with negligible recognition of Rufaidah Al-Aslamia, who was the first Muslim nurse, and pioneer in Islamic nursing more than 1,400 years ago in Madinah (Medina, Saudi Arabia). She responded to the need for the provision of organized nursing care to injured soldiers in the Islamic battles during the time of Prophet Mohammed (Peace & Blessings Upon Him). The paucity of focus on Rufaidah Al-Aslamia triggered this scientific study to appraise her contributions and legacy as the pioneer of Islamic nursing. A qualitative, historical research inquiry was conducted using a research design that was exploratory, descriptive, explanatory, interpretive, and contextual within the constructivist paradigm. Data collection of literature was conducted by purposive sampling. Data analysis was conducted in two parts, which is document analysis, and thematic and content analysis with the use of deductive, inductive and abductive logical reasoning. The results of topic themes related to nurse-, patient-, and system-focused activities are provided with the emerging themes including efficient organizer, effective communication, clinical practice teacher, community care, and spiritual care. The historical narrative is reconstructed using empirical data sources as part of the discussion that includes the biography of Rufaidah Al-Aslamia and a vivid comprehensive portrayal of the contributions and legacy of Rufaidah Al-Aslamia as the first Muslim nurse and the pioneer of Islamic nursing.

Keywords: first muslim nurse, pioneer Islamic nursing, Prophet Mohammed, Rufaidah Al-Aslamia

Abstrak

Rufaidah Al-Aslamia, Perawat Muslim Pertama dan Pelopor Keperawatan Islam: Kontribusi dan Legasi. *Kemajuan global di bidang keperawatan seringkali dikaitkan terutama dengan perintis barat dengan sedikit pengakuan terhadap Rufaidah Al-Aslamia, yang merupakan perawat Muslim pertama, dan pelopor dalam keperawatan Islam lebih dari 1.400 tahun yang lalu di Madinah (Arab Saudi). Rufaidah Al-Aslamia menanggapi kebutuhan penyediaan asuhan keperawatan yang terorganisir untuk tentara yang terluka dalam pertempuran Islam pada masa Nabi Muhammad (SAW). Kurangnya fokus pada Rufaidah Al-Aslamia memicu studi ilmiah ini untuk menilai kontribusi dan warisannya sebagai pelopor keperawatan Islam. Penelusuran sejarah dengan pendekatan kualitatif dilakukan dengan menggunakan desain penelitian yang bersifat eksploratif, deskriptif, eksplanatif, interpretif, dan kontekstual dalam paradigma konstruktivis. Pengumpulan data literatur dilakukan dengan* purposive sampling. *Analisis data dilakukan dalam dua bagian, yaitu analisis dokumen, dan analisis tematik dan isi dengan menggunakan penalaran logis deduktif, induktif dan abduktif. Hasil dari topik yang berkaitan dengan kegiatan yang berfokus pada perawat, pasien, dan sistem disajikan dengan tema-tema yang muncul termasuk penyelenggara yang efisien, komunikasi yang efektif, guru praktik klinis, perawatan komunitas, dan perawatan spiritual. Narasi sejarah direkonstruksi menggunakan sumber data empiris sebagai bagian dari diskusi yang mencakup biografi Rufaidah Al-Aslamia dan penggambaran komprehensif yang jelas tentang kontribusi dan warisan Rufaidah Al-Aslamia sebagai perawat Muslim pertama dan pelopor keperawatan Islam.*

Kata kunci**:** *Nabi Muhammad, pelopor keperawatan islam, perawat muslim pertama, Rufaidah Al-Aslamia*

Introduction

Global advancement in nursing is attributed mainly to western pioneers; however, more than 1,400 years ago in Madinah, Rufaidah Al-Aslamia practiced as the first Muslim nurse, which is the root of Islamic nursing (Hussain, 1981; Jan, 1996; Meleis, 2007; Nurse Recruiter, 2017). She provided care to injured soldiers in the Islamic battles at the time of Prophet Mohammed [Peace & Blessings Upon Him (PBUH)]. Written accounts of Rufaidah Al-Aslamia's contribution are sparse with negligible recognition in nursing and healthcare literature. It was therefore not surprising that when 2020 was designated the 'Year of the Nurse and Midwife' in honor of Florence Nightingale (World Health Organization [WHO], 2019) Rufaidah Al-Aslamia's historical contributions and legacy were omitted. The WHO Eastern Mediterranean regional office released a 580-word statement in which a sum-total of 25 words hinted at the contribution of Rufaidah Al-Aslamia: 'In our Region, the history of nursing goes back to earlier days; there is a reference to Rufaidah Al-Aslamia as the first female Muslim nurse, …' (Al-Mandhari, 2020). This paucity of focus triggered the conduct of a scientific study to appraise Rufaidah Al-Aslamia as the pioneer of Islamic nursing.

Methods

Initially, the integrative literature review framework by Whittemore and Knafl (2005), which consists of five phases - problem identification, literature search, data evaluation, data analysis, and data presentation - was used similar to the nursing education historical study by Aljohani (2020). The paucity of results turned up using bibliographic databases such as EBSCO-CINAHL, PubMed, Ovid, Google Scholar, and Web of Science reinforced that scientific publications on Rufaidah Al-Aslamia were scarce, as the results were initially 13 publications. Therefore, the search expanded into grey literature and information, which are resources not produced by academic publishers and considered hard-to-find, including research theses, conference proceedings, social media, blogs, and archival materials that are not necessarily available or part of systematic literature reviews (Adams et al., 2016; Durai, 2022). Given the wider focus, the literature study evolved into a qualitative research project in December 2020 as a response to the research problem. The project period was 17 months up to April 2022 and yielded a total of 32 items that consisted of 21 scientific articles and 11 grey literature resource items relevant to the research inquiry. The final resource items were 24 in total with direct reference to Rufaidah Al-Aslamia's contributions and legacy after excluding items that lacked adequate or verifiable referencing of sources.

The research problem was identified as the deficient recognition of Rufaidah Al-Aslamia as the first Muslim nurse and pioneer of Islamic nursing. It was acknowledged that a modicum of customary informal recognition existed in Muslim countries where Rufaidah Al-Aslamia is celebrated as a historical nursing figure as borne out by three relatively well-known references, namely Hussain (1981), Jan (1996), and Meleis (2007). However, the noted insufficiency of coverage propelled the formal scientific historical inquiry. The generated research objectives included: (i) explore literature for evidence of Rufaidah Al-Aslamia's nursing contributions; (ii) describe Rufaidah Al-Aslamia's pioneering legacy, (iii) explain the scope of Rufaidah Al-Aslamia's nursing contributions, (iv) interpret the extent of Rufaidah Al-Aslamia's involvement in the Islamic battles, and (v) provide the nursing care context of the Islamic battles, and Madinah community care. The research design was a qualitative research historical inquiry that was exploratory, descriptive, explanatory, interpretive, and contextual. This method of qualitative historical inquiry is supported by Wilson (2007), who illustrates how the narrative history of the state librarians in Idaho, USA from 1901 to 2005 was reconstructed using stories in academic and grey literature resulting in vivid narratives spanning the 104-

year-old history despite 13 of the 15 state librarians being deceased. Brinkmann et al. (2014) indicate that qualitative research captures historical 'voices' that include conceptual, internal, and repressed history to represent vibrant, integrated perspectives that are rich and diverse from evolved social history. Langtree et al. (2019) advocate separating fact from fiction by employing strategies for improving the rigor of data trustworthiness that include checking credibility, confirmability, dependability, and transferability. These relate to investigative sources of historical information to collate data, identify sources of criticism and analysis, prolonged engagement, reflexive bracketing, and historical dissemination patterns (Korstjens & Moser, 2017; Korstjens & Moser, 2018). Ethical considerations were not required in this study as there were no human subjects, and there is an absence of personal identification of any current research study participant (Hamilton, 2005).

Purposive sampling was employed to collect the information-rich historical literature (Etikan et al., 2016) on, specifically, Rufaidah Al-Aslamia's nursing contributions. At the outset of the study in December 2020, time was not determinant, but on later reflection, the prolonged engagement of 17 months until April 2022 serendipitously fulfilled the rigor criterion in respect of obtaining rich and thick descriptive data (Hamilton, 2020). Trustworthiness of data and scientific rigor were emphasized for credibility by triangulation (Stahl & King, 2020), namely data triangulation, in that historical literature could be sourced from scientific publications and grey literature that included Islamic publications, and investigator triangulation, through the use of multiple investigators, as described later, for obtaining data from varied historical materials. Prolonged engagement is regarded as a criterion of rigor (Hamilton, 2020), which Grant and Lincoln (2021) confirm, is established over time by contemplative qualitative researchers with a high recognition for trustworthiness and quality of data. Gill et al. (2018) link trustworthiness and rigor in historical qualitative research to the constructivist paradigm that engages discursive historical narratives as conceptualizations that tell stories beyond a repository of facts to form interpretive narratives from naturalistic inquiry on past situations or existences. They indicate further that emergent historical research data are arranged to become a vivid and coherent reconstruction of a past reality in its complexity that is conveyed with authenticity, and an interpretive understanding of the components in a historical situation, activity, and/or context. They reflect on Lincoln and Guba's (1985) original credibility techniques of prolonged engagement and persistent observation where researchers engage with the content and context of a study, and its sources, for extended periods as sustained interaction with the ultimate goal to reconstruct a comprehensive picture of a historical event, person, and/or activities (Gill et al., 2018).

Constructivism in historical research is supported by Reus-Smit (2008) who regards it as a renaissance in approach after the Cold War, whereby a rediscovery of history occurred embracing past reality, involving historical identities, beliefs, values, incidents, and past experiences that are context-specific. Hong (2013) advocates the dynamic use of constructivism to surpass description by capturing culture in the uniqueness of persons or groups by refocusing the responses to past events or situations. Simon (2019) advocates social historical reconstruction by balancing scholarly constructivism with the historical sensibility for valuing historical representation of the past. Similarly, Sherif (2018) asserts that secondary analysis of qualitative research data has become prevalent in educational and social sciences for in-depth interpretations and understanding to gain comprehension of the lives, relationships, attitudes, adaptations, and social contexts of historical occurrences. Cypress (2017) advises that rigor be built into the data collection process proactively and not after the inquiry activities, and emphasizes reflexivity that involves critical self-reflection about potential bias and inclinations, for which bracketing is used by the re-

searcher to ensure objective inquiry in the data collection and data analysis processes. Exploratory research probes were used in rigorous data collection to describe, explain, and interpret historical data (Graham et al., 2007; Harrell & Bradley, 2009; Mason, 2018) on Rufaidah Al-Aslamia's existence and activities. Four levels of research probes were constructed (Brown, 2018; Celikoglu et al., 2017; Kassan et al., 2018, Mason, 2018), namely: (i) evidential probes by asking what is descriptive, relevant, and appropriate in the data; (ii) illustrative or evocative probes by asking what, where, who, and how to explain data to gain understanding, convey meaning, and/or portray a situation or event; (iii) interpretive or narrative probes by asking why and how for authentic and meaningful occurrences/nuances; and (iv) reflexive or multivocal probes by asking the combination of what, who, why, when, where, and how to capture meaningful experiences and/or perspectives in the historical data.

It was at this point in the data collection process that two further coauthors were invited with expertise in Islamic Sciences, and Translation Studies, for verifying the authentic Arabic texts, and for English accuracy in translation. A key data source was a historiographical study by Saputra and Rahmatillah (2020) in the Malay language that was translated into English and verified for authenticity of content by a second Malay language education expert. Data analysis was conducted in two parts. The first part used qualitative document analysis (Bowen, 2009) for review of explicit meaning to gain an understanding and interpretation of the data. This included identifying descriptions, phrases, patterns of responses, references to cultural artefacts, and social facts (Bowen, 2009; Morgan, 2022). Using a combination of measures for trustworthiness and rigor, the following steps were used in the initial retrieval of documents: (i) employ purposive data sampling; (ii) review the document initially to confirm the content and context; (iii) read again for descriptive elements related to research inquiry; (iv) identify rich data aspects for interpretation; and (v) set aside for further thematic and content analysis (Bowen, 2009; Gill et al., 2018; Hamilton, 2020; Korstjens & Moser, 2017; Korstjens & Moser, 2018; Langtree et al., 2019; Morgan, 2022; Stahl & King, 2020).

The second part of data analysis entailed thematic analysis and content analysis which permits the researcher to discern the meanings within the data (Crowe et al., 2015) that portray narrative descriptions of the subjective experiences, content, or context related to the research inquiry, with thematic analysis being a procedure of interpretation aimed at finding meaning across the data, and content analysis depicting a range of data that represents clusters of responses and/or descriptions (Assarroudi et al., 2018; Nowell et al., 2017; Park et al., 2017; Vaismoradi et al., 2013; Vaismoradi & Snelgrove, 2019).

Integral to qualitative data analysis is the focus on deductive, inductive, and abductive logical reasoning for formulating arguments and generating supportive statements on the emerging results in qualitative inquiry (Aljaroodi et al., 2020; Heit & Rotello, 2010; Lipscomb, 2012). Deductive reasoning is intended to provide an assurance of the truth of the conclusions based on premises that are considered to be true, while inductive reasoning puts forward an argument that is verifiable that makes it less likely to be untrue by conclusion (Aljaroodi et al., 2020; Heit & Rotello, 2010), and abductive reasoning makes a probable conclusion from what is known from observations such that the plausible conclusions or inferences are based on the best available data or findings (Awuzie & McDermott, 2017; Conaty, 2021; Lipscomb, 2012).

Results

An overview of the results illustrates that Rufaidah Al-Aslamia's scope of evolving nursing practice followed an open systems approach in the organization of nursing care provision as she progressed with input, throughput, output,

and feedback elements (Luhmann et al., 2013; Zehetmeier et al., 2015), evidenced by the dynamics of activities that follow in the discussion. The multifaceted activities in the open systems were guided by data reduction to gain clarity and consistency within data analysis, mindful of retaining the textual data-rich content (Richards & Morse, 2012; Constantinou et al., 2017; Richards, 2020). Further, Richards (2020) refers to theme topics to capture the contextual meaning of related emergent themes that embrace the empirical data as the descriptions evolve for narrative reconstruction (Constantinou et al., 2017; Richards & Morse, 2012). The essential factors in reporting narrative results are the chronological and logical order and sequence as the story evolves in stages for graphic descriptiveness of historical reconstruction (Richards, 2020; Richards & Morse, 2012; Yin, 2009). Moreover, while flexibility is employed in the historical narrative reconstruction, Richards and Morse (2012) emphasize methodological congruence that is a logical alignment of the research problem with the research question, and in turn with research method that includes data collection, data analysis, and reporting of results for optimally harmonizing of all research activities (Richards, 2020; Yin, 2009). The three theme topics are: (i) nurse-focused activities; (ii) patient-focused activities; and (iii) system-focused activities. The five emergent themes in reconstructing the historical narrative on Rufaidah Al-Aslamia include efficient organizer, clinical practice teacher, effective communication, community care, and spiritual care. These emergent themes are considered as retrograde and transverse in relationship to the theme topics of nurse-focused, patient-focused, and system-focused that will be exemplified in the discussion (Callaghan, 2017; Longman, 2018; Vo & Desai, 2021). The discussion therefore is an integrated evidential, evocative, interpretive, reflexive, and historical narrative that is a comprehensive historical account of Rufaidah Al-Aslamia that combines results and findings to prevent fragmentation of the narrative (Brown, 2018; Celikoglu et al., 2017; Kassan et al., 2018; Mason, 2018). The discussion outcome that follows is a coherent narrative that provides a comprehensive and holistic perspective (Hill et al., 2005; Koch et al., 2014; Sandelowski & Barroso, 2002; Yin, 2009) that is methodologically congruent with the historical qualitative research design that was exploratory, descriptive, explanatory, interpretive, and contextual.

Discussion

The construction of the historical narrative in the discussion straddles narrative case reports (Hurwitz, 2017; Whiffin et al., 2021) using thematic synthesis for creating a holistic retrospective account of lived experiences, and storytelling that retains the integrity of the findings as the narrative is re-created. Cavazzino (2021) advocates that narrative reporting is the outcome of investigative exercises that dynamically reconstruct the history of persons, events, and situations that link contextualized structural style with interpretation for deepening the understanding of the main features as the story unfolds with consistency. McAlpine (2016) and Cavazzino (2021) concur that reconstruction overcomes the dichotomy of information versus opinion by endorsing the interpretive component in re-creating past realities and existences. The narrative discussion has a threefold emphasis that portrays the following historical components: (i) sociocultural, which focuses on cultural historical narratives and experiences of individuals and groups as the story unfolds; (ii) naturalist, which focus on rich descriptions on the content of stories, and related meanings of the experiences and events that occurred as reported; and (iii) literary, which may comprise either sociocultural and/or naturalist elements, contain discourse with powerful images and metaphors that influence the interpretive and contextual reconstructions, and provide historical texture while maintaining integrity of emerging themes (Cavazzino, 2021; McAlpine, 2016). The reconstructed empirical narrative of Rufaidah Al-Aslamia commences with her biography and an historical overview of the nursing contributions and legacy that position her as

a pioneer in Islamic history, followed by an integrated discussion that incorporates her skills, and the implied evidence from the data and findings using deductive, inductive, and abductive logical reasoning as applicable.

Biography and historical overview: Rufaidah Al-Aslamia of the Bani Aslam tribe was born around 597AD in the city of Yathrib before the arrival of Prophet Mohammed (PBUH) (Albukhari, 1989; Hussain, 1981; Saputra & Rahmatillah, 2020). Yathrib later became known as the city of Madinah. She was one of the first women to become Muslim, and was in her early twenties when the Prophet (PBUH) arrived to live in Madinah (Hussain, 1981; Jan, 1996; Saputra & Rahmatillah, 2020). She gained respect amongst the Ansar women as the daughter of a physician and surgeon, Sa'ad Al-Aslamia, for the clinical skills she gained as his medical and surgical assistant (Hussain, 1981; Jan, 1996; Muslim Heritage, 2020; Nataatmadja, 2015; Nordin, 2018). Her nursing role commenced around 620AD at the age of 23 – 25 years during the time of Prophet (PBUH) (Al-Asqalany, 1992; Albukhari, 1989; Al-Dossary et al., 2008; Al-Mahmoud et al., 2012; Al-Malki et al., 2011; Al Mutair & Redwan, 2016; Hussain, 1981; Islamic Board, 2018; Ibn Saad, 1968; Muslim Heritage, 2020; Saputra & Rahmatillah, 2020). Rufaidah Al-Aslamia's activities illustrate the open system approach of input, throughput, output, and feedback elements (Luhmann et al., 2013; Zehetmeier et al., 2015), evidenced by care provision approaches that include first responder on the battlefields for retrieval of injured soldiers, emergency care, acute care, quarantine by isolation nursing of injured soldiers on the battlefield, rehabilitation, and long-term care with a person-centered care attitude (Albukhari, 1989; Hussain, 1981; Ibn Saad, 1968; Meleis, 2007; Saputra & Rahmatillah, 2020). An overarching system that she put in place with consistency was her insistence on the hygiene and cleanliness of environments in the ventilated tents where shade was afforded patients from the harsh desert climate, as was a regular supply of clean drinking water (Hussain, 1981; Jan, 1996; Saputra & Rahmatillah, 2020). The feedback mechanism, that included assessment by the Prophet (PBUH), was that Rufaidah Al-Aslamia was a kind, empathic nurse, and an efficient organizer during times of the battles, while in peace times she was valuable in addressing social problems related to disease, and provided community care especially to children in need, orphans, and people who were handicapped and poor (Albukhari, 1989; Ibn Saad, 1968; Jan, 1996; Kasule, 2003; Muslim Heritage, 2020; Nataatmadja, 2015; Nurse Recruiter, 2017; Saputra & Rahmatillah, 2020). Further historical evidence of the open system approach used by Rufaidah Al-Aslamia is the establishment of the first nursing school in 622AD to train the women companion followers of the Prophet (PBUH) and some of his wives as nurses for the purpose of supporting him and the Muslim army during Islamic battles (623-630AD) by taking care of the wounded soldiers at the rear of the army at the battles of Badr, Uhud, Khandaq, and Khaibar (AlAsqalany, 1992; Albukhari, 1989; Ibn Saad, 1968; Jan, 1996; Kasule, 2003; Muslim Heritage, 2020; Nataatmadja, 2015; Nordin, 2018; Nurse Recruiter, 2017; Saputra & Rahmatillah, 2020). Likewise, during peace times, she focused on the education of young girls and women in response to the instructions of the Prophet (PBUH) to promote their ongoing education (Saputra & Rahmatillah, 2020), and eventually recruited them as nurses as part of the output element of her systems approach (Hussain, 1981; Jan, 1996; Muslim Heritage, 2020; Nataatmadja, 2015; Nordin, 2018).

The threefold activity-based narrative of Rufaidah Al-Aslamia is captured by the topic themes whereby an exemplary illustration of nurse-, patient-, and system-focused activities by Rufaidah was her distinguished leadership of the volunteer nurses who approached the Prophet (PBUH) for permission to join the Muslim army at the various battles to treat the injured men aimed at organizing a care provision system for wounded soldiers (Al-Asqalany, 1992; Albukhari, 1989; Ibn Saad,

1968; Jan, 1996; Lovering, 2008; Muslim Heritage, 2020; Nataatmadja, 2015; Saputra & Rahmatillah, 2020). Rufaidah Al-Aslamia and her team of standby nurses at the back of the Muslim army represents the throughput and output elements of the established early nursing care system (AlAsqalany, 1992; Albukhari, 1989; Hamisan, 2020; Ibn Saad, 1968; Jan, 1996; Nataatmadja, 2015; Nordin, 2018; Nurse Recruiter, 2017; Saputra & Rahmatillah, 2020). The feedback element of Rufaidah Al-Aslamia's open system is reinforced by the Prophet (PBUH) who is reported to have been so highly impressed with the nursing care provided by Rufaidah and the Ansar nurses that he gave Rufaidah and her team a share of the war bounty equivalent to that of soldiers who had fought at the frontlines (AlAsqalany, 1992; Albukhari, 1989; Ibn Saad, 1968; Kasule, 2003; Muslim Heritage, 2020; Nataatmadja, 2015; Nurse Recruiter, 2017; Saputra & Rahmatillah, 2020), which was regarded as recognition of her outstanding nursing organization and care delivery. Much of this extraordinary legacy of Rufaidah Al-Aslamia is believed to have been passed down probably in oral history only, and therefore was possibly forgotten until 1981 when Dr. Soad Hussein Hassan, the first Arab PhD nurse, published her classical work on Rufaidah Al-Aslamia that is regarded as the resurgence on the appraisal of Rufaidah Al-Aslamia (Hussain, 1981, Jan, 1996; Meleis, 2007; Saputra & Rahmatillah, 2020).

The discussion of the five emergent themes that follow includes efficient organizer, clinical practice teacher, effective communication, community care, and spiritual care with accompanying descriptions and explanations from the data yield from the literature combined with interpretative and contextual perspectives. Each of the five emergent themes is discussed in relation to the theme topics of nurse-, patient-, and/or system-focused according to the focus of the empirical data, that is retrograde and transverse in nature when reconstructing the historical narrative (Callaghan, 2017; Longman, 2018; Vo & Desai, 2021).

Efficient organizer: Rufaidah Al-Aslamia demonstrated management and leadership skills as an efficient organizer in several activities with the Ansar nursing team (Jan, 1996; Hamisan, 2020; Nataatmadja, 2015; Nordin, 2018; Nurse Recruiter, 2017; Saputra & Rahmatillah, 2020). She set up a field tent hospital known as 'Khaimah Rufaidah' for treating injured soldiers on the battlefield, and a tent hospital for people of Madinah at the site of the existing Prophet's (PBUH) grand mosque in Madinah for attending to sick children and adults (Albukhari, 1989; AlAsqalany, 1992; AlMalki et al., 2011; Al Mutair & Redwan, 2016; Ibn Saad, 1968; Islamic Board, 2018; Jan, 1996; Kasule, 2003; Lovering, 2008; Meleis, 2007; Miller-Rosser et al., 2006). She demonstrated decision-making and problem-solving skills, and managed the material resources required by nurses to provide patient care (Al Mutair & Redwan, 2016; Islamic Board, 2018; Jan, 1996; Miller-Rosser et al., 2006). Evidence of nurse-, patient-, and system-focused approaches by Rufaidah Al-Aslamia include the action of ensuring that patients were nursed in the shade with adequate ventilation, and her consistency in ensuring sites were clean, hygienic, and comfortable with the availability of clean drinking water for patient hydration (Al-Asqalany, 1992; Albukhari, 1989; Ibn Saad, 1968; Jan, 1996; Muslim Heritage, 2020; Saputra & Rahmatillah, 2020). Her organizational efficiency was endorsed by the Prophet (PBUH) who reportedly was impressed by the efficient provision of care in that he gave instructions for specific injured companions to be taken directly to Rufaidah Al-Aslamia especially at the sites of the battles of Badr, Uhud, Khandaq, and Khaibar (AlAsqalany, 1992; Albukhari, 1989; Ibn Saad, 1968; Muslim Heritage, 2020; Nataatmadja, 2015; Nurse Recruiter, 2017; Saputra & Rahmatillah, 2020).

Clinical practice teacher: Rufaidah Al-Aslamia, based on the experience gained from assisting her physician-surgeon father Sa'ad Al-Aslamia, recognized that women were required as nurses to care for injured Muslim army members. This insight resulted in her starting a clinical teach-

ing program for volunteer Ansar women to teach provision of care to the sick, which evolved and was established as the first nursing school, which was integral to her system-focused approach (AlAsqalany, 1992; Albukhari, 1989; Hussain, 1981; Ibn Saad, 1968; Jan, 1996; Miller-Rosser et al., 2006; Nataatmadja, 2015; Nordin, 2018; Nurse Recruiter, 2017; Saputra & Rahmatillah, 2020). Rufaidah Al-Aslamia was commended by the Ansar women for instilling confidence in the volunteer nurses while she taught them the scope of nursing skills to provide needed care (Jan, 1996; Saputra & Rahmatillah, 2020). This nurse-focused approach is recognized in the reports from the wives of the Prophet (PBUH) who respected the clinical abilities of Rufaidah Al-Aslamia (Al-Asqalany, 1992; Albukhari, 1989; Allatifi, 2017; Ibn Saad, 1968; Jan, 1996; Muslim Heritage, 2020; Nataatmadja, 2015; Nordin, 2018; Saputra & Rahmatillah, 2020).

Effective communication: Rufaidah Al-Aslamia was particularly noted for her ability to communicate effectively, which was learnt during her time as medical-surgical assistant to her physician-surgeon father while he treated patients, reflecting a combined patient- and system-focused approach, which was capped by follow-up to ensure that the treatment of patients was carried out competently, aimed at rapid recovery (Al-Asqalany, 1992; Albukhari, 1989; Al-Dossary et al., 2008; AlMahmoud et al., 2012; Al Mutair & Redwan, 2016; Ibn Saad, 1968; Islamic Board, 2018; Jan, 1996; Miller-Rosser et al., 2006; Muslim Heritage, 2020; Nataatmadja, 2015; Saputra & Rahmatillah, 2020). The skill of effective communication was conveyed by her characteristic manner of respect, integrity, veracity, and sincerity to the extent that Rufaida established the first code of nursing ethics to communicate standards for guiding volunteer nurses in conduct during the Islamic battles that embodied a nurse-focused approach (AlAsqalany, 1992; Albukhari, 1989; Hussain, 1981; Ibn Saad, 1968; Jan, 1996; Meleis, 2007; Saputra & Rahmatillah, 2020).

Community care: Rufaidah Al-Aslamia readily adapted the system of nursing care provision during peace times evidenced by her determination to provide care in diverse settings and by her sustained community outreach in promoting the recovery of patients and their restoration of health (AlAsqalany, 1992; Albukhari, 1989; Al-Malki et al., 2011; Hussain, 1981; Ibn Saad, 1968; Jan, 1996; Saputra & Rahmatillah, 2020). She was the first in documented history to provide community care in mobile care units across the Madinah community in response to the identified healthcare needs (Saputra & Rahmatillah, 2020; Yahya, 2017). During the Battle of the Trench, that is also known as the Battle of Khandaq, Prophet Muhammad (PBUH) referred injured soldiers and companions to the mobile care units and field tent hospital that was set up in the vicinity of the current Madinah site of the Mosque of the companion Salman al-Farisi (Al-Asqalany, 1992; Albukhari, 1989; Ibn Saad, 1968; Saputra & Rahmatillah, 2020; Yahya, 2017). The input by Rufaidah Al-Aslamia distinguished her as an empowered and visionary woman who in turn empowered other Ansar women to become volunteer nurses with essential clinical nursing skills that were required for provision of patient and community care, which were the fundamentals of establishing a reliable system for care provision (AlAsqalany, 1992; Albukhari, 1989; Al-Malki et al., 2011; Ibn Saad, 1968; Jan, 1996; Saputra & Rahmatillah, 2020; Yahya, 2017). These triple features of Rufaidah Al-Aslamia's commitment embody the three topic themes of nurse-, patient-, and system-focused activities.

Spiritual care: Prophet Mohammed (PBUH) acknowledged the compassion in the provision of nursing care by Rufaidah Al-Aslamia, and particularly her distinct inclusion of Islamic spiritual care for Muslim patients who had come close to possible death in their experiences of suffering (AlAsqalany, 1992; Saputra & Rahmatillah, 2020) to the extent that he referred injured companions and soldiers by name specifically to her for nursing and spiritual care

(AlAsqalany, 1992; Albukhari, 1989; Hussain, 1981; Ibn Saad, 1968; Jan, 1996; Saputra & Rahmatillah, 2020). Rufaidah Al-Aslamia laid the foundations for acute care provision combined with compassionate nursing care beyond the physical to incorporate the emotional, mental, and spiritual domains in the experience of health, illness, healing and dying across the milestones from birth to death (AlAsqalany, 1992; Albukhari, 1989; Alshmemri & Ramaiah, 2021; Azim & Islam, 2017; Hussain, 1981; Ibn Saad, 1968; Jan, 1996; Meleis, 2007; Saputra & Rahmatillah, 2020).

Limitations in this study apply to the timeline and possible access to primary archival sources of historical data with Saudi Arabia having only recently commenced the heritage commission in March 2019, in the Ministry of Culture, with a strategic roadmap on the rich historical heritage to champion this sector as part of Saudi Vision 2030 (Ministry of Culture, 2021). Therefore, it is hoped that future historical research on Rufaidah Al-Aslamia, and other historical nursing figures in Islamic history will be funded and supported to enrich and enhance the recognition of more Islamic pioneers.

Conclusion

The life, contributions and legacy of Rufaidah Al-Aslamia as the first Muslim nurse and pioneer in Islamic nursing remain relevant and applicable for all nurses at various levels in modern day nursing because the values that underpin nurse-, patient-, and system-focused activities from the time of Rufaidah Al-Aslamia are foundational in contemporary nursing care provision locally and globally.

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References

Adams, J., Hillier-Brown, F.C., Moore, H.J., Lake, A.A., Araujo-Soares, V., White, M., & Summerbell, C. (2016). Searching and synthesising 'grey literature' and 'grey information' in public health: Critical reflections on three case studies. *Systematic Reviews, 5* (1), 164. doi: 10.1186/s13643-016-0337-y.

AlAsqalany, A.A. (1992). *Alisabah fe tamyyes al'sahabah* [The morning in the company of the companions]. (First, Vol. 8). Dar Aljeel.

Albukhari, M.I. (1989). *Aladab Almufeed* [Sayings and Teaching of the Prophet] (3rd ed., Vol. 1). Dar Albasher.

AlDossary, A., While, A. & Barriball, L. (2008). Health care and nursing in Saudi Arabia. *International Nursing Review*, *55*, 125–128.

Aljaroodi, H.M., Chiong, R., & Adam, M.T.P. (2020). Exploring the design of avatars for users from Arabian culture through a hybrid approach of deductive and inductive reasoning. *Computers in Human Behavior, 106*, 106246. doi: 10.1016/j.chb.2020.106246.

Aljohani, K. A. S. (2020). Nursing education in Saudi Arabia: History and development. *Cureus, 12* (4): e7874. doi: 10.7759/cureus.7874.

Allatifi, A. (2017, February 8). *Saidatuna Rufaida Al-Aslamia RA*. The Companion. Retrieved from http://sohabih.blogspot.com/2017/02/saidatuna-rufaida-al-aslamia-ra.html

AlMahmoud, S., Mullen, P.M., & Spurgeon, P. (2012). Saudisation of the nursing workforce: Reality and myths about planning nurse training in Saudi Arabia. *Journal of American Science, 8* (4), 369–379.

AlMalki, M., Fitzgerald, G., & Clark, M. (2011).

The nursing profession in Saudi Arabia: An overview. *International Nursing Review, 58* (3), 304–311. doi: 10.1111/j.1466-7657. 2011.00890.x.

Al-Mandhari, A. (2020). *Message from the Regional Director WHO Eastern Mediterranean Region on world health day*. World Health Organization. Retrieved from: https://applica tions.emro.who.int/docs/RDM-7-Apr-2020-Eng.pdf?ua=1

Al Mutair, A., & Redwan, F. (2016). Undergraduate Saudi nursing students' attitudes towards nursing profession. *Journal of Nursing Care, 5* (1), 329. doi: 10.4172/2167-1168.1000329.

Alshmemri, M.S. & Ramaiah, P. (2021). Historical perspectives: Nursing practice and evolution. *International Journal of Modern Agriculture, 10* (2), 1898–1904.

Assarroudi, A., Heshmati Nabavi, F., Armat, M. R., Ebadi, A., & Vaismoradi, M. (2018). Directed qualitative content analysis: The description and elaboration of its underpinning methods and data analysis process. *Journal of Research in Nursing, 23* (1), 42–55. doi: 10.1177/1744987117741667.

Awuzie, B., & McDermott, P. (2017). An abductive approach to qualitative built environment research: A viable system methodological exposé. *Qualitative Research Journal*, 17(4), 356–372. doi: 10.1108/QRJ-08-2016-0048.

Azim, M.T., & Islam, M.M. (2018). Social support, religious endorsement, and career commitment: A study on Saudi nurses. *Behavioral Sciences, 8* (1), 8. doi: 10.3390/ bs8010008.

Bowen, G.A. (2009). Document analysis as a qualitative research method. *Qualitative Research Journal, 9* (2), 27–40. doi: 10.3316/ QRJ0902027.

Brinkmann, S., Jacobsen, M.H., & Kristiansen, S. (2014). Historical overview of qualitative research in the social sciences. In P. Leavy (Ed.), *The Oxford Handbook of Qualitative Research* (pp. 17–42). Oxford Academic.

Brown, J. (2018). Interviews, focus groups, and Delphi techniques. In P. Brough (Ed.), *Advanced Research Methods for Applied Psychology: Design, Analysis and Reporting* (1st ed., pp. 95– 06). Routledge.

Callaghan, M. (2017). Everything new is old again: On the curiously retrograde world of big data. *Newsletter of the Canadian Anthropology Society*. Retrieved from: https://casca cultureblog.wordpress.com/2017/10/23/ever ything-new-is-old-again/

Cavazzino, V. (2021). Narrative reporting as a journalistic genre in Spain between literature and journalism. *Comunicación y Sociedad* [Communication and Society], e7751. doi: 10.32870/cys.v2021.7751.

Celikoglu, O.M., Ogut, S.T., & Krippendorff, K. (2017). How do user stories inspire design? A study of cultural probes. *Design Issues*, *33* (2), 84–98. doi: 10.1162/DESI_a_00441.

Conaty, F. (2021). Abduction as a methodological approach to case study research in management accounting – An illustrative case. *Accounting, Finance & Governance Review*, *27* (1), 21–35. doi: 10.52399/001c. 22171.

Constantinou, C.S., Georgiou, M., & Perdikogianni, M. (2017). A comparative method for themes saturation (CoMeTS) in qualitative inter-views. *Qualitative research*, *17* (5), 571–588. doi: 10.1177/1468794116686650.

Crowe, M., Inder, M., & Porter, R. (2015). Conducting qualitative research in mental health: Thematic and content analyses. *The Australian and New Zealand Journal of Psychiatry*, *49* (7), 616–623. doi: 10.1177/ 0004867415582053.

Cypress, B.S. (2017). Rigor or reliability and validity in qualitative research: Perspectives, strategies, reconceptualization, and recommendations. *Dimensions of Critical Care Nursing*, *36* (4), 253–263. doi: 10.1097/ dcc.0000000000000253.

Durai, S. (2021). Designing the literature review: Historical, narrative, theoretical, integrative, and scoping reviews. *Indian Journal of Continuing Nursing Education*, *22* (1), 75–79. doi: 10.4103/ijcn.ijcn_51_21.

Etikan, I., Musa, S.A., & Alkassim, R.S. (2016). Comparison of convenience sampling and purposive sampling. *American Journal of Theoretical and Applied Statistics*, *5* (1), 1–4. doi: 10.11648/j.ajtas.20160501.11.

Gill, M.J., Gill, D.J., & Roulet, T.J. (2018). Constructing trustworthy historical narratives: Criteria, principles, and techniques. *British Journal of Management*, *29* (1), 191–205. doi: 10.1111/1467-8551. 12262.

Graham, C., Rouncefield, M., Gibbs, M., Vetere, F., & Cheverst, K. (2007). How probes work. *OZCHI '07: Proceedings of the 19th Australasian conference on Computer-Human Interaction: Entertaining User Interfaces*, *Adelaide, Australia*, 29–37. doi: 10.1145/ 1324892.1324899.

Grant, M.R., & Lincoln, Y. (2021). A conversation about rethinking criteria for qualitative and interpretive research: Quality as trustworthiness. *Journal of Urban Mathematics Education*, *14* (2), 1–15. doi: 10.21423/jume-v14i2a403.

Hamilton, A. (2005). The development and operation of IRBs: Medical regulations and social science. *Journal of Applied Communication Research*, *33* (3), 189–203. doi: 10.1080/00909880500149353.

Hamilton, J.B. (2020). Rigor in qualitative methods: An evaluation of strategies among under-represented rural communities. *Qualitative Health Research*, *30* (2), 196–204. doi: 10.1177/1049732319860267.

Hamisan, N.S. (2020). Special features of the 'women of Ansar': An analysis from Sahih Al Bukhari and Muslim. *Proceedings of the 7th International Prophetic Conference (SWAN) 2020)*, 41–51.

Harrell, M.C., & Bradley, M.A. (2009). *Data collection methods: Semi-structured inter-views and focus groups.* RAND National Defense Research Inst.

Heit, E., & Rotello, C.M. (2010). Relations between inductive reasoning and deductive reasoning. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, *36* (3), 805–812. doi: 10.1037/a0018784.

Hill, C.E., Knox, S., Thompson, B.J., Williams, E.N., Hess, S.A., & Ladany, N. (2005). Consensual qualitative research: An update. *Journal of Counseling Psychology*, *52* (2), 196–205. doi: 10.1037/0022-0167.52.2.196.

Hong, Y.-Y. (2013). A dynamic constructivist approach to culture: Moving from describing culture to explaining culture. In R. S. Wyer, C.-Y. Chiu, & Y.-Y. Hong (Eds.), *Understanding Culture: Theory, Research, and Application* (pp. 18–38). Psychology Press. doi: 10.4324/9781441605054.

Hurwitz, B. (2017). Narrative constructs in modern clinical case reporting. *Studies in history and philosophy of science*, *62*, 65–73. doi: 10.1016/j.shpsa.2017.03.004.

Hussain, S. (1981). Rufaida Al-Aslamia. *Islamic Medicine*, *1* (2), 261–262.

Ibn Saad, M. (1968). *Altabaqat Alkubra [The Book of the Major Classes]* (First, Vol. 8). dar Sader.

Islamic Board. (2018). *Rufaida Al-Aslamia RA*. Retrieved from https://www.islamicboard.com/companions-of-the-prophet/134350437-rufaida-al-aslamia-ra.html

Jan, R. (1996). Rufaida al-Asalmia, the first Muslim nurse. *Image: The Journal of Nursing Scholarship*, *28* (3), 267–268. doi: 10.1111/j. 1547-5069.1996.tb00362.x.

Kassan, A., Goopy, S., Green, A., Arthur, N., Nutter, S., Russell-Mayhew, S., Vazquez, M.S., Silversides, H. (2020). Becoming new together: Making meaning with newcomers through an arts-based ethnographic research design. *Qualitative Research in Psychology*, *17* (2), 294–311. doi: 10.1080/14780887. 2018.1442769.

Kasule, O.H. (2003). *Historical roots of the nursing profession in Islam.* Islamic Research Foundation International, Inc. Retrieved from https://www.irfi.org/articles/articles_401_450/rufaidah_bint_sa.htm

Koch, L.C., Niesz, T., & McCarthy, H. (2014). Understanding and reporting qualitative research: An analytical review and recommendations for submitting authors. *Rehabilitation Counseling Bulletin, 57* (3), 131–143. doi: 10.1177/0034355213502549.

Korstjens, I., & Moser, A. (2017). Series: Practical guidance to qualitative research. Part 2: Context, research questions and designs. *The European Journal of General Practice, 23* (1), 274–279. doi: 10.1080/13814788.2017.1375090.

Korstjens, I., & Moser, A. (2018). Series: Practical guidance to qualitative research. Part 4: Trustworthiness and publishing. *The European Journal of General Practice, 24* (1), 120–124. doi: 10.1080/13814788.2017.1375092.

Langtree, T., Birks, M., & Biedermann, N. (2019). Separating “fact" from fiction: Strategies to improve rigour in historical research. *Forum Qualitative Sozialforschung/Forum: Qualitative Social Research, 20* (2), 26. doi: 10.17169/fqs-20.2.3196.

Lincoln, Y.S., & Guba, E.G. (1985). *Naturalistic Inquiry*. Sage.

Lipscomb, M. (2012). Abductive reasoning and qualitative research. *Nursing Philosophy, 13* (4), 244–256. doi: 10.1111/j.1466-769X.2011.00532.x.

Longman, C. (2018). Women’s circles and the rise of the new feminine: Reclaiming sisterhood, spirituality, and wellbeing. *Religions, 9* (1), 9. doi: 10.3390/rel9010009.

Lovering, S. (2008). *Arab Muslim nurses’ experiences of the meaning of caring*. [Doctoral dissertation, The University of Sydney]. Sydney eScholarship Repository. http://hdl.handle.net/2123/3764

Luhmann, N., Baecker, D., & Gilgen, P. (2013). *Introduction to systems theory*. Polite Press.

Mason, J. (2018). *Qualitative researching* (3rd Ed.). SAGE Publications.

McAlpine, L. (2016). Why might you use narrative methodology? A story about narrative. *Eesti Haridusteaduste Ajakiri*. [Estonian Journal of Education], *4* (1), 32–57. doi: 10.12697/eha.2016.4.1.02b.

Meleis, A.I. (2007). *Theoretical nursing: Development and progress* (4th Ed.). Lippincott Williams & Wilkins

Miller-Rosser, K., Chapman, Y., & Francis, K. (2006). Historical, cultural, and contemporary influences on the status of women in nursing in Saudi Arabia. *Online Journal of Issues in Nursing, 11* (3), 8.

Ministry of Culture. (2021). *Saudi Arabia Heritage Commission Roadmap*. Retrieved on 14 November 2020 from https://www.moc.gov.sa/en/roadmap

Morgan, H. (2022). Conducting a qualitative document analysis. *The Qualitative Report, 27* (1), 64–77. doi: 10.46743/2160-3715/2022.5044.

Muslim Heritage. (2020). *Rufaida Al-Aslamia*. Retrieved from https://muslimheritage.com/people/scholars/rufaida-al-aslamia/

Nataatmadja, B. (2015, June 19). *570-632 Rufaida Al-Aslamia*. Scientica Islamia. Retrieved from http://nataatmadja.blogspot.com/2015/06/570-632-rufaida-al-aslamia.html

Nordin, M.M. (2018). Keeping communities healthy: The Islamic paradigm. *International Journal of Human and Health Sciences, 2* (2), 49–54. doi: 10.31344/ijhhs.v2i2.26.

Nowell, L. S., Norris, J. M., White, D. E., & Moules, N. J. (2017). Thematic analysis: Striving to meet the trustworthiness criteria. *International Journal of Qualitative Methods, 16* (1). doi: 10.1177/1609406917733847.

Nurse Recruiter. (2017). *Many centuries before Florence Nightingale, this Muslim woman introduced nursing to the Arabic world*. Retrieved from https://blog.nurserecruiter.com/many-centuries-before-florence-nightingale-this-muslim-woman-introduced-nursing-to-the-arabic-world/

Park, S.Y., Shon, C., Kwon, O.Y., Yoon, T.Y., & Kwon, I. (2017). A qualitative thematic content analysis of medical students' essays on professionalism. *BMC Medical Education*, *17* (1), 79. doi: 10.1186/s12909-017-0920-5.

Reus-Smit, C. (2008). Reading history through constructivist eyes. *Millennium: Journal of International Studies*, *37* (2), 395–414. doi: 10.1177/0305829808097647.

Richards, L. (2020). *Handling qualitative data: A practical guide.* SAGE Publications.

Richards, L., & Morse, J.M. (2012). *Read me first for a user's guide to qualitative methods* (3rd Ed.). SAGE Publications.

Sandelowski, M., & Barroso, J. (2002). Finding the findings in qualitative studies. *Journal of Nursing Scholarship*, *34* (3), 213–219. doi: 10.1111/j.1547-5069.2002.00213.x.

Saputra, A.H., Kusdiana, A., & Rahmatillah, T. (2020). Rufaidah Al-Aslamiyah: Perawat pertama di dunia Islam (Abad 6–7 M.) *Historia Madania: Jurnal Ilmu Sejarah, 4* (1), 1–30. doi: 10.15575/hm.v4i1.9184.

Sherif, V. (2018). Evaluating preexisting qualitative research data for secondary analysis. *Forum Qualitative Sozialforschung/Forum: Qualitative Social Research*, *19* (2), 26–42, 7. doi; 10.17169/fqs-19.2.2821.

Simon, Z.B. (2019). Historicism and constructionism: rival ideas of historical change. *History of European Ideas*, *45* (8), 1171–1190. doi: 10.1080/01916599.2019.1653351.

Stahl, N.A., & King, J.R. (2020). Expanding approaches for research: Understanding and using trustworthiness in qualitative research. *Journal of Developmental Education*, *44* (1), 26–28.

Vaismoradi, M., & Snelgrove, S. (2019). Theme in qualitative content analysis and thematic analysis. *Forum Qualitative Sozialforschung/Forum: Qualitative Social Research, 20* (3), 23. doi: 10.17169/fqs-20.3.3376.

Vaismoradi, M., Turunen, H., & Bondas, T. (2013). Content analysis and thematic analysis: Implications for conducting a qualitative descriptive study. *Nursing & Health Sciences*, *15* (3), 398–405. doi: 10.1111/nhs.12048.

Vo, T., & Desai, M. (2021). Immigrant Southeast and East Asian mothers' transnational postpartum cultural practices: A meta-ethnography. *Women's Health (London, England), 17*, 17455065211060640. doi: 10.1177/17455065211060640.

Whiffin, C.J., Gracey, F., & Ellis-Hill, C. (2021). The experience of families following traumatic brain injury in adult populations: A meta-synthesis of narrative structures. *International Journal of Nursing Studies*, *123*, 104043. doi: 10.1016/j.ijnurstu.2021.104043.

Whittemore, R., & Knafl, K. (2005). The integrative review: Updated methodology. *Journal of Advanced Nursing*, *52* (5), 546–553. doi: 10.1111/j.1365-2648.2005.03621.x.

Wilson, R.A. (2007). Combining historical research and narrative inquiry to create chronicles and narratives. *The Qualitative Report*, *12* (1), 20–39. doi: 10.46743/2160-3715/2007.1642.

World Health Organization. (2019). Executive Board designates 2020 as the "Year of the Nurse and Midwife". Retrieved from https://www.who.int/news/item/30-01-2019-executive-board-designates-2020-as-the-year-of-the-nurse-and-midwife-

Yahya, S. (2017). *Rufaida Al-Aslamia - the first Muslim nurse*. Saudi Gazette. Retrieved from https://saudigazette.com.sa/article/175811

Yin, R.K. (2009). *Case study research: Design and methods* (4th Ed.). Sage.

Zehetmeier, S., Andreitz, I., Erlacher, W., & Rauch, F. (2015). Researching the impact of teacher professional development programmes based on action research, constructivism, and systems theory. *Educational Action Research, 23* (2), 162–177. doi: 10.1080/09650792.2014.997261.

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Beyond the Boundaries of Nursing Care: A Phenomenological Study

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Abstract

The COVID-19 pandemic created an emergency and challenging situation, especially for nurses, who have experienced feelings including fear and questions concerning their job responsibilities and professional ethics. They needed to maintain safety on the basis of their knowledge and skills. This study aimed to explore nurses' experiences related to the pandemic. This research was conducted by using qualitative research with a descriptive phenomenological design. The participants were 15 nurses on duty in COVID-19 units at hospitals and who were delivering or had delivered direct care to patients with COVID-19. Data were collected from in-depth interview and analyzed with Colaizzi technique. The nurses experienced psychological disorders while they were performing their roles through the professional care models, and coping with the management of their workload during the pandemic. These circumstances were caused by the responsibility of nurses to give all forms of support and protection to patients. The study has shown that nurses faced some challenges regarding nursing workload to provide nursing care during the pandemic.

Keywords: coping management, nurses' management, professional care, psychological disorder

Abstrak

Melampaui Batas Asuhan Keperawatan: Sebuah Studi Fenomenologi. *Pandemi COVID-19 menimbulkan situasi darurat yang menantang, terutama bagi perawat yang mengalami berbagai perasaan dalam menghadapi pandemi termasuk rasa takut, tanggung jawab pekerjaan, dan etika profesi. Perawat perlu menjaga keselamatan dengan pengetahuan dan keterampilan mereka. Penelitian ini bertujuan untuk mengetahui pengalaman perawat terkait pandemi. Penelitian ini dilakukan dengan menggunakan metode kualitatif dengan desain deskriptif fenomenologi. Partisipan dalam penelitian ini adalah 15 perawat yang bertugas di unit COVID-19 di rumah sakit dan sedang atau pernah memberikan perawatan langsung kepada pasien COVID-19. Data dikumpulkan melalui wawancara mendalam dan dianalisis dengan teknik Colaizzi. Penelitian ini menemukan gangguan psikologis pada perawat dalam menjalankan perannya, manajemen koping terkait beban kerja keperawatan, dan model asuhan profesional selama masa pandemi. Kondisi ini disebabkan oleh tanggung jawab perawat dalam memberikan segala bentuk dukungan dan perlindungan terhadap pasien. Penelitian ini menemukan bahwa perawat menghadapi berbagai tantangan dalam menjalankan beban kerja mereka untuk memberikan asuhan keperawatan selama masa pandemi.*

Kata Kunci*: gangguan psikologi, manajemen koping, mekanisme perawat, model asuhan keperawatan*

Introduction

Countries around the world are dealing with circumstances that were previously unimaginable. The emergence of a virulent new virus in 2019 affected all countries and changed lives (Mendrofa et al., 2021; Rock, 2020; Sadang et al., 2021). The high prevalence of COVID-19 in some countries, its new and highly contagious properties, and high morbidity and mortality rates mean the conditions of service have changed. This study reviewed the phenomena in nursing care during the COVID-19 pandemic around the world, specifically in Indonesia. For example, the situation of nursing care that has existed during the COVID-19 pandemic, from the process of receiving patients to the nursing actions involved, in addition to the admission to hospitals of critically ill patients and treatment following COVID-19 protocols, and care demands on nurses and care assistants, which have increased in the community (Maben & Bridges,

2020). The job demands of nurses are getting higher due to the increasing number of patients during the pandemic. The proportion of nurses and patients who are treated becomes unbalanced and causes excessive workload. (Maben & Bridges, 2020).

During the COVID-19 pandemic, nurses have been at the forefront of health and social care in the most extreme situations. They are not only faced with the danger of disease transmission, but also with fatigue as the number of nurses is not proportional to the number of patients (Maben & Bridges, 2020). Nurses provide care and develop creative and innovative solutions based on their knowledge and skills to deal with health crises (Jackson et al., 2020).

The role of nurses in providing care during the COVID-19 pandemic has had to be modified in terms of the protocols they must follow. Secure nursing care needs complete personal protective equipment for nurses to securely deliver the nursing care to their patients during the COVID-19 pandemic. The complicated personal protective equipment consisting of gowns and masks, together with the strict protocols, are necessary for nurses to protect their clients (Mendrofa et al., 2021; Zhang et al., 2021).

Nurses are not only delivering nursing care as usual, but they also need to be responsible for the performance of such care in new and potentially stressful working environments. The new protocols for nursing care may increase the workload for nurses as they are concurrent with their routine tasks (Jackson et al., 2020). During the pandemic, nurses have had to be resilient, have high empathy, and be professional (Maben & Bridges, 2020). Previous studies of infectious respiratory disease outbreaks have shown great concern among nurses for personal health in the face of direct contact with potentially deadly viruses and for a balance between the regulation of stressful personal circumstances and their work associated with providing care (Cai et al., 2020). At the same time as these worries, nurses have to continue delivering care during the pandemic, despite concerns about the lack of personnel and personal protective equipment (PPE) or about the proper nursing care management systems during COVID-19 pandemic (Kim & Choi, 2016).

The challenges faced by nurses in providing care during the pandemic require a study to understand how to perform their responsibilities of providing optimal nursing care, especially in COVID units. This study explores the nursing care during the pandemic.

Methods

This study used a qualitative method with a phenomenological approach to explore the experience of nurses treating COVID-19 patients in Semarang City, Indonesia. The participants were selected based on the aim of the study with the appropriateness of the sample composition and size considering the quality and trustworthiness of this study. The criteria for participant inclusion included that they were nurses in COVID-19 units and delivering care for COVID-19 patients at four hospitals in Semarang City.

Data collection took place from April to June 2020 through the involvement of willing participants after they had received an explanation of the research. Data were collected through in-depth interviews conducted through recorded online video calls. The interviews explored the participants' feelings in treating COVID-19 patients, performing their nursing duties and providing nursing care in the pandemic situation, and how their families responded to their duties. Data saturation was reached by the 15th participant, so the data collection was ended. In addition, the availability of time and resources was also taken into consideration in completing the collection.

Thematic content analysis was conducted based on the Colaizzi approach. Keywords found in the interview transcripts were organized into categories, subthemes, and themes. The whole

study was conducted in Bahasa, and the data were then translated into English. The study was declared to have passed the ethical review by the Research Ethics Committee of Karya Husada Health and Science College of Semarang No: 720/KH.KEPK/KT/III/2020.

Results

The study results describe the experience of nurses in carrying out their role in the COVID unit. Three themes were identified: psychological disorders; performing the nursing role; and professional care models.

The participants were 15 nurses working in Covid-19 units, six of whom were women. They were 26 – 45 years old, with 1 – 30 years' work experience. Thirteen of the participants were married with children, while two were single. Almost all the participants were bachelor nurses, although one was a diploma nurse.

Psychological Distress Among Nurses in Performing Their Roles. All the participants said that they had psychological disorders and expressed their fears and worries, and their denial of the pandemic environment. They felt fear when giving direct treatment to patients.

> *"Sure, I feel anxious, all the staff over there…."* (P1, P4)

> *"Tasks in this Covid unit rotate. When the schedule came out in the second week, there was my name, I felt confused."* (P1, P2)

> *"Yes…it is a natural feeling as a human being, I felt anxious"* (P1, P4)

> *"I feel… between fear and confusion, overthought about what I need to prepare."* (P2, P3, P4, P10)

> *"At first, I felt worried. Not because I'm a woman, but as a mother with two children."* (P5)

> *"I am in denial. I am not sure if I am charged with this duty."* (P6, P15)

> *"I feel worries. Being the first person to treat isolated patients, I am so afraid of getting infected."* (P8, P18)

> *"As the others, I feel worries, afraid of getting infected"* (P9, P11)

Eight participants felt throat pain. They sometimes felt this when swallowing, but this was indicated as somatoform, in which individuals felt physical discomfort, but nothing abnormal was shown when examined.

> *"It is hard to breath, I feel tight"* (P1, P7, P14)

> *"…suddenly feel discomfort in my throat, but it is not a sore throat…"* (P1, P4, P9)

> *"Suddenly, the pain when swallowing feeling unwell."* (P4, P7)

All of the participants were worried about the pandemic.

> *"I feel worried not only about myself, but I worry if my family are also infected."* (P1, P4, P11, P15)

> *"I felt sorry when my colleagues died from COVID-19"* (P3, P8, P9)

Coping Management Regarding the Nursing Workload. The study shows that all the participants experienced a rejection phase. They were unable to believe that this pandemic was happening.

> *"From the beginning of this pandemic, I was charged in the Covid-19 unit... yes... what kind of feeling is it? I feel... how come I'm here."* (P1, P5)

> *"How come this virus has been in my room…" (P2)*

"In my first experience (in the COVID unit), I deny it." (P3)

"If only I can reject this duty, it makes me scared." (P4, P10)

"In transforming into a COVID-19 unit, I can't believe it, but it is the fact." (P8, P9)

The participants assumed that it was not a pandemic and needed to continue performing their roles calmly. The feeling was experienced by nurses who were at first in the COVID-19 unit and wanted to bargain to the manager about their duty.

"I wish I could refuse it, but I can't. I have to keep delivering the nursing care." (P8, P9)

"But after thinking for days, and coming back to my will, the intention to worship, the intention to be responsible at work, I finally faced it." (P5, P6)

After two weeks of performing their duties, all the participants were in the final stages of grief. Finally, they accepted their duty in the pandemic situation.

Professional Care Models During the Pandemic. The nurses were faced with greater demands and higher risk during the pandemic, with increased responsibility in providing nursing care. All the participants were required to apply professional nursing methods in delivering nursing care, specifically in the COVID units.

"It is the same nursing care as usual, but the high risk of the infectious virus has been of special attention." (P3, P12)

"The isolation room has been there for a long time, but it is a COVID room now." (P4)

"COVID-19-confirmed patients are treated in a certain room called the COVID unit that needs strict health protocols." (P8)

"COVID is a new case, so the patients are placed in a special room." (P10)

The nurses also had to use team-based nursing care to provide an excellent service.

"After the order was issued to work in the Covid unit, we were given a briefing in a team." (P1)

"We are equipped with COVID service management." (P3)

"We work in shifts as usual, only our schedule is made in such a way as to minimize fatigue." (P9, P12)

Hospital management is fully supportive of the nurses in performing their role in providing nursing care. Such support is not only from the hospitals where the nurses work, but also from professional bodies and governments.

"I was given special housing facilities for temporary stays." (P3)

"We were equipped with skills, immune boosters such as vitamins, then PPE, such as masks." (P7)

"We are routinely scheduled for rapid tests and PCR test, possibly to ensure our condition is healthy." (P10, P15)

Discussion

Coping Management Regarding Psychological Distress Among Nurses. Nurses make various forms of response to their professional roles and responsibilities. Nursing is a uniquely hazardous occupation. in providing health services, nurses face various occupational risks including exposure to disease or viruses. During the COVID-19 pandemic, nurses realized the greater risk of exposure to viruses and disease. This is a stressor for nurses, as in addition to performing their roles in caring for patients, they also have a role in caring for their families.

The issue of burnout in nurses appears to be related to physical, psychological, and emotional exhaustion (Choi et al., 2018).

Various roles and responsibilities, not only in their profession, but also their individual roles within their families, require nurses to be able to adapt to the environment and situations that have an impact on their duties (Pujiyanto et al., 2022; Pujiyanto & Hapsari, 2020), including in the pandemic situation. The study found that at the beginning of the pandemic the nurses experienced situations that were previously unimaginable, so hope was only a dream. There was a sense of rejection of the bad situation at hand. At this time, the nurses' negative responses appear to have been more dominant, with positive ones appearing gradually (Sun et al., 2021). They often felt they could not believe that the virus that had become a national and even international disaster has reached their workplace. However, the obligation to perform their professional role made the nurses accept the situation that had to be faced during the COVID-19 virus outbreak (Ornell et al., 2020). Their acceptance of the situation was in line with their great efforts to manage their emotions, their anxiety about the situation, their feelings of insecurity, and ultimately being able to adapt to the conditions (Cowlan, 2020; Kim, 2018).

Knowledge and awareness of the dangers of the virus increased nurses' concerns about being infected. As shown in this study, the nurses felt worried, afraid, and anxious about performing their duties in the Covid isolation room, in addition to their increased fatigue. Worries were felt not only for the nurses themselves, but also for their closest family (Jennings & Yeager, 2020). However, on the other hand, the knowledge they possessed was a reinforcement for completing their tasks (Alharbi et al., 2020; Cowlan, 2020; Gupta & Sahoo, 2020). This condition is defined as the strength of one's mind to face danger or endure pain with courage, which is currently felt by nurses while on duty (Cai et al., 2020; Garcini et al., 2022).

Nurses' efforts to improve their ability to respond to situations that cause anxiety help them adapt to such circumstances (Feng et al., 2020; Pujiyanto & Hapsari, 2020). The response of concern was felt by nurses in the first week on duty in the Covid unit. However, their knowledge and skills about caring for infectious disease patients and their encouragement to follow COVID-19 issues was able to reduce these concerns, enabling them to continue performing their duties (Han et al., 2020; Smith et al., 2017).

Nurses have experienced a different care situation than before the pandemic. In performing their duties and functions for patients with confirmed COVID-19, they are required to strictly adhere to health protocols (Huang et al., 2020; Shanafelt et al., 2020). They are also finally able to adapt to the treatment room settings that are specifically designed to treat infectious patients, and ensure safety for health workers (Jennings & Yeager, 2020). For nurses, the pandemic should not be an obstacle as professionals. Current research shows that psychological factors, as well as support from various parties including family, can increase nurses' willingness to execute their duties (Mak et al., 2009; Ornell et al., 2020; Zhang et al., 2021).

Professional Nursing Care Model as A Lesson Learned from the Pandemic. The task of nursing care during the COVID-19 pandemic is slightly different because nurses not only use their knowledge and skills, but also need good adaptability to the outbreak (Mishra et al., 2016; Mo et al., 2020). Nurses are involved with various issues of trauma and fear, both physically and psychologically. During the pandemic, nurses have delivered more complicated nursing care. However, nurses have opportunities for self-actualization by being actively involved in care during the pandemic (Kang et al., 2020; Piredda et al., 2020). With a sense of responsibility towards the profession, nurses receive positive enthusiasm and support from various parties, which encourage them to stay focused on their work as nursing care

providers (Kang et al., 2020). Nursing care during a pandemic emphasizes the use of personal protective equipment at several levels, including hazmats, masks, and full gloves (Chen et al., 2020; Huang et al., 2020). However, PPE often causes discomfort and various limitations in communicating. Often nurses modify the form of communication with patients and the implementation of nursing actions. They are required to think critically about the safety of nurses and patients, and be creative in making therapeutic communication (Mo et al., 2020).

Inconvenience in using complete personal protective equipment is not a reason for nurses not to provide professional nursing care by following the ethics of the nursing profession (Mo et al., 2020). The COVID-19 pandemic has in fact stimulated various nursing care methods in the form of case methods in which nurses provide care within a certain time span until the patient returns home from treatment in the isolation room. COVID-19 is prone to rapid spread of transmission, so the applied nursing care model requires modification between cases and functionalities. Nurses often have to use digital technology as an intermediary in providing nursing care before they meet directly with patients (Keesara et al., 2020). Hospital management provides guidance to its staff, especially nurses, about their roles and duties during treatment in the COVID-19 unit. In addition, management provides support in the form of moral support facilities for nurses, enabling them to provide nursing care professionally (Adams & Walls, 2020). Both material appreciation and mental support are supporting factors found in this study, which explain that there is a demand for nurse professionalism in providing care during a pandemic (Adams & Walls, 2020; Waugh, 2013). Nurses are continuing to be strong in performing their obligations, even though at the same time there is a fear of both nurses and the community in the midst of the COVID-19 pandemic. Therefore, limitations are not an obstacle for nurses in carrying out their functions and roles, but rather there is a positive spirit against fear that increases adaptability in providing nursing care during a pandemic (Carbone & Echols, 2017).

Conclusion

Through phenomenological approaches, this study has described the experience of nurses delivering their care in COVID-19 units. It found that their initial response, when given the task, was to refuse it or not believe it, bargaining until they finally accepted the situation. Such response mechanisms are reasonable when a person obtains a piece of information or is given a task that is out of their experience. This is related to new and challenging assignments, where nurses must be in a specific room and use personal protective equipment according to the protocol, while still fulfilling their responsibilities in providing optimal nursing care. The results of this study describe the initial response of nurses to tasks in the covid unit with various acceptances that are sought as a distraction to their anxiety. Nursing services during a pandemic situation are not a limitation in providing nursing care. The spirit of professionalism of nurses to carry out their professional responsibilities actually enables challenging nursing services. Nurses in a pandemic situation experienced the process of accepting for their assignments and completing nursing care tasks in an excellent service.

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References

Adams, J.G., & Walls, R.M. (2020). Supporting the health care workforce during the COVID-19 global epidemic. *Jama, 323* (15), 1439–1440. doi: 10.1001/jama.2020.3972.

Alharbi, J., Jackson, D., & Usher, K. (2020). The potential for COVID-19 to contribute to compassion fatigue in critical care nurses.

Journal of Clinical Nursing, 29 (15-16), 2762-2764. doi: 10.1111/jocn.15314.

Cai, H., Tu, B., Ma, J., Chen, L., Fu, L., Jiang, Y., & Zhuang, Q. (2020). Psychological impact and coping strategies of frontline medical staff in Hunan between January and March 2020 during the outbreak of coronavirus disease 2019 (COVID) in Hubei, China. *Medical Science Monitor*, *26*, e924171-1. doi: 10. 12659/MSM.924171.

Carbone, E.G., & Echols, E.T. (2017). Effects of optimism on recovery and mental health after a tornado outbreak. *Psychology & Health*, *32* (5), 530–548. doi: 10.1080/08870446.2017. 1283039.

Chen, X., Tian, J., Li, G., & Li, G. (2020). Initiation of a new infection control system for the COVID-19 outbreak. *The Lancet. Infectious Diseases*, *20* (4), 397–398. doi: 10.1016/ S1473-3099(20)30110-9.

Choi, B.-S., Kim, J.S., Lee, D.-W., Paik, J.-W., Lee, B.C., Lee, J.W., Lee, H.-S., & Lee, H.-Y. (2018). Factors associated with emotional exhaustion in South Korean nurses: A cross-sectional study. *Psychiatry Investigation*, *15* (7), 670–676. doi: 10.30773/pi.2017.12.31.

Cowlan, E. (2020). COVID-19: A perspective of a frontline worker. *Transfusion and Apheresis Science*, *59* (3), 102783. doi: 10.1016/j.transci. 2020.102783.

Feng, M.-C., Wu, H.-C., Lin, H.-T., Lei, L., Chao, C.-L., Lu, C.-M., & Yang, W.-P. (2020). Exploring the stress, psychological distress, and stress-relief strategies of Taiwan nursing staffs facing the global outbreak of COVID-19. *Hu Li Za Zhi*, *67* (3), 64–74. doi: 10.6224/ JN.202006_67(3).09.

Garcini, L.M., Rosenfeld, J., Kneese, G., Bondurant, R. G., & Kanzler, K.E. (2022). Dealing with distress from the COVID-19 pandemic: Mental health stressors and coping strategies in vulnerable latinx communities. *Health and Social Care in the Community*, *30* (1), 284–294. doi: 10.1111/hsc.13402.

Gupta, S., & Sahoo, S. (2020). Pandemic and mental health of the front-line healthcare workers: a review and implications in the Indian context amidst COVID-19. *General Psychiatry*, *33* (5), e100284. doi: 10.1136/gpsych-2020-100284.

Han, L., Wong, F.K.Y., She, D.L.M., Li, S.Y., Yang, Y.F., Jiang, M.Y., Ruan, Y., Su, Q., Ma, Y., & Chung, L.Y.F. (2020). Anxiety and depression of nurses in a North West Province in China during the period of novel coronavirus pneumonia outbreak. *Journal of Nursing Scholarship*, *52*, 564–573. doi: 10.1111/jnu.12590.

Huang, L., Lin, G., Tang, L., Yu, L., & Zhou, Z. (2020). Special attention to nurses' protection during the COVID-19 epidemic. *Critical Care*, *24*, 120. doi: 10.1186/s13054-020-2841-7.

Jackson, D., Bradbury-Jones, C., Baptiste, D., Gelling, L., Morin, K., Neville, S., & Smith, G.D. (2020). Life in the pandemic: Some reflections on nursing in the context of COVID-19. *Journal of Clinical Nursing*, *29* (13-14), 2041–2043. doi:10.1111/jocn.15257.

Jennings, B.M., & Yeager, K.A. (2020). From fear to fortitude: Using the power within the nursing profession to fight COVID-19. *Nursing Outlook*, *68* (4), 391–392. doi: 10.1016/j.outlook.2020.04.008.

Kang, L., Li, Y., Hu, S., Chen, M., Yang, C., Yang, B.X., Wang, Y., Hu, J., Lai, J., & Ma, X. (2020). The mental health of medical workers in Wuhan, China dealing with the 2019 novel coronavirus. *The Lancet Psychiatry*, *7* (3), e14. doi: 10.1016/S2215-0366(20)30047-X.

Keesara, S., Jonas, A., & Schulman, K. (2020). Covid-19 and health care's digital revolution. *New England Journal of Medicine*, *382* (23), e82. doi: 10.1056/NEJMp2005835.

Kim, J.S., & Choi, J.S. (2016). Factors influencing emergency nurses' burnout during an outbreak of middle east respiratory syndrome corona-virus in Korea. *Asian Nursing Research*, *10* (4), 295–299. doi: 10.1016/j. anr.2016.10.002.

Kim, Y. (2018). Nurses' experiences of care for patients with Middle East respiratory syndrome-coronavirus in South Korea. *American Journal of Infection Control*, *46* (7), 781–787. doi: 10.1016/j.ajic.2018.01.012.

Maben, J., & Bridges, J. (2020). Covid-19: Supporting nurses' psychological and mental health. *Journal of Clinical Nursing*, *29* (15-16), 2642-2750. doi: 10.1111/jocn.15307.

Mak, W.W.S., Law, R.W., Woo, J., Cheung, F.M., & Lee, D. (2009). Social support and psychological adjustment to SARS: The mediating role of self-care self-efficacy. *Psychology & Health*, *24* (2), 161–174. doi: 10.1080/08870440701447649.

Mendrofa, F.A.M., Hani, U., & Nurhidayat, Y. (2021). Could coronavirus 2019-infected disease patients get cope with the treatment?: A qualitative study. *International Journal of Public Health Science*, *10* (4), 880–887. doi: 10.11591/IJPHS.V10I4.20912.

Mishra, P., Bhadauria, U.S., Dasar, P.L., Kumar, S., Lalani, A., Sarkar, P., Chauhan, A., Godha, S., & Vyas, S. (2016). Knowledge, attitude and anxiety towards pandemic flu: A potential bio weapon among health professionals in Indore city. *Przeglad Epidemiologiczny*, *70* (1), 41–45.

Mo, Y., Deng, L., Zhang, L., Lang, Q., Liao, C., Wang, N., Qin, M., & Huang, H. (2020). Work stress among Chinese nurses to support Wuhan in fighting against COVID-19 epidemic. *Journal of Nursing Management*, *28* (5), 1002–1009. doi: 10.1111/jonm.13014.

Ornell, F., Halpern, S.C., Kessler, F.H.P., & Narvaez, J.C.de M. (2020). The impact of the COVID-19 pandemic on the mental health of healthcare professionals. *Cadernos de Saúde Pública*, *36*, e00063520. doi: 10.1590/0102-311X00063520.

Piredda, M., Candela, M.L., Mastroianni, C., Marchetti, A., D'Angelo, D., Lusignani, M., De Marinis, M.G., & Matarese, M. (2020). "Beyond the boundaries of care dependence": A phenomenological study of the experiences of palliative care nurses. *Cancer Nursing*, *43* (4), 331–337. doi: 10.1097/NCC.0000000000000701.

Pujiyanto, T.I., & Hapsari, S. (2020). Performance enhancement of nurse with quality of nursing work life model. *International Journal of Psychosocial Rehabilitation*, *24* (7), 7736–7743. doi: 10.37200/IJPR/V24I7/PR2700744.

Pujiyanto, T.I., Mendrofa, F.A.M., & Hani, U. (2022). Burnout among nurses working in COVID-19 pandemic. *International Journal of Public Health Science*, *11* (1), 113–120. doi: 10.11591/ijphs.v11i1.21267.

Rock, G. (2020). Theme: Information on the Covid-19 pandemic. *Transfusion and Apheresis Science*, *59* (3), 102791. doi: 10.1016/j.transci.2020.102791.

Sadang, J.M., Macaronsing, S.I. P., Alawi, N.M., Taib, N.M., & Pangandaman, H.K. (2021). Hypertension self-care management during covid-19 pandemic crisis in the meranao tribe: A phenomenological inquiry. *Jurnal Keperawatan Indonesia*, *24* (2), 74–81. doi: 10.7454/jki.v24i2.1308.

Shanafelt, T., Ripp, J., & Trockel, M. (2020). Understanding and addressing sources of anxiety among health care professionals during the COVID-19 pandemic. *Jama*, *323*(21), 2133–2134. doi: 10.1001/jama.2020.5893.

Smith, M.W., Smith, P.W., Kratochvil, C.J., & Schwedhelm, S. (2017). The psychosocial challenges of caring for patients with Ebola virus disease. *Health Security*, *15* (1), 104–109. doi: 10.1089/hs.2016.0068.

Sun, R., Blayney, D.W., & Hernandez-Boussard, T. (2021). Health management via telemedicine: Learning from the COVID-19 experience. *Journal of the American Medical Informatics Association*, *28* (11), 2536–2540. doi: 10.1093/jamia/ocab145.

Waugh, C.E. (2013). The regulatory power of positive emotions in stress a temporal-functional approach. In M. Kent, M.C. Davis, & J.W. Reich (Eds.), *The resilience handbook: Approaches to stress and trauma* (pp. 73–85). Routledge.

Zhang, X., Jiang, Z., Yuan, X., Wang, Y., Huang, D., Hu, R., Zhou, J., & Chen, F. (2021). Nurses reports of actual work hours and preferred work hours per shift among frontline nurses during coronavirus disease 2019 (COVID-19) epidemic: A cross-sectional survey. *International Journal of Nursing Studies Advances*, *3*, 100026. doi: 10.1016/j.ijnsa. 2021.100026.

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Cluster Analysis of the Productivity of Nurses' Work

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Abstract

Productivity is a measure of performance, including effectiveness and efficiency. The importance of work productivity for nurses includes its evaluation role in contributing to continuous improvement. The purpose of this study is to determine the classification of nurses in clusters based on work productivity in the inpatient room. It is an analytic study with a cross-sectional design. The study sample were 130 nurses in the inpatient room at the Bengkulu Provincial Hospital, selected using the proportional random sampling technique. A questionnaire was employed for the data collection. Data analysis was performed univariately, and multivariately with cluster analysis. The study results involved clusters I-III, which comprised nurses with high, medium and low work productivity. The variables of motivation, management, work environment, achievement opportunities, work climate, income, workload, work ethic, and work discipline have a significant effect on the formation of the cluster ($p < 0.001$). Cluster I comprised 69 nurses, cluster II 53 nurses and cluster III eight. A need is shown for clarity of organizational structure, job descriptions, the granting of authority and responsibility, creation of a work system that encourages innovation, provision of facilities, clarity of Nursing Care Standard (NCS), work guidelines, and Standard Operational Procedure (SOP).

Keywords: cluster analysis, nurses, work productivity

Abstrak

Analisis Klaster Produktivitas Kinerja Perawat. *Produktivitas merupakan salah satu alat ukur kinerja, termasuk efektivitas dan efisiensi. Produktivitas menjadi penting bagi perawat karena menjadi tolak ukur dalam evaluasi untuk perbaikan yang berkelanjutan. Tujuan penelitian ini adalah untuk mengetahui klasifikasi perawat dalam klaster berdasarkan produktivitas kerja di ruang rawat inap dengan menggunakan jenis penelitian analitik dan desain studi* cross-sectional. *Sampel pada penelitian adalah 130 perawat pelaksana di ruangan rawat inap di Rumah Sakit Provinsi Bengkulu, diambil dengan teknik proportional random sampling. Pengumpulan data menggunakan kuesioner. Analisis data dilakukan secara univariat dan multivariat dengan analisis klaster. Hasil penelitian terdiri dari klaster I-III yang menunjukkan perawat dengan produktivitas kerja tinggi, sedang, dan rendah. Variabel motivasi, manajemen, lingkungan kerja, kesempatan berprestasi, iklim kerja, penghasilan, beban kerja, etos kerja, dan disiplin kerja berpengaruh signifikan terhadap terbentuknya klaster ($p < 0,001$), dan jumlah anggota klaster I adalah 69 perawat pelaksana, jumlah anggota klaster II adalah 53 perawat pelaksana, sedangkan jumlah anggota klaster III adalah 8 perawat pelaksana. Perlunya kejelasan struktur organisasi, uraian tugas, pemberian wewenang, dan tanggung jawab, dapat menciptakan sistem kerja yang mendorong inovasi, penyediaan fasilitas yang mendukung kinerja, kejelasan standar asuhan keperawatan, pedoman kerja, dan standar operasional prosedur.*

Kata Kunci**:** *analisis klaster, perawat, produktivitas kerja*

Introduction

The contribution of nursing to the quality of health services depends on management, and one measure of the success of good nursing services is the level of nurses' productivity in providing effective care to patients and their families. Awareness of patient safety is very important and influences positive attitudes towards hospitals (Nurumal et al., 2020). Productivity is a cultural, logical attitude to work and life, whose goal is to work smarter to achi-

eve a better life (Iranzadeh & Tahouni, 2014). Productivity in nursing organizations is realized through the provision of nursing care, which guarantees quality and quantity based on predetermined standards, as well as effectiveness and efficiency (Siagian, 2013).

Nurses' work productivity is one of the biggest challenges for managers of health organizations and is aimed at improving service quality and reducing costs (Navidian et al., 2014). Productivity can be seen from two dimensions, namely the individual and organizational. The individual considers the productivity of nurses in relation to their individual personality characteristics that appear in the form of mental attitudes and imply the desires and efforts of individual nurses who are always trying to improve the quality of their knowledge. On the other hand, the organizational dimension considers the productivity of nurses within the framework of the technical relationship between inputs and outputs. From this point of view, an increase in work productivity in a hospital is not only seen from the quality aspect, namely the increase in the progress of nurses, but is also based on the satisfaction ofpatients, the recipients of services (Masram & Mu'ah, 2015).

The importance of nurses' work productivity is that it provides evaluation material to make continuous improvements to all hospital components, thus improving the quality of outcomes. A consequence of hospitals with low productivity will be a decrease in the number of patients due to the low quality of services provided, as patients will move to other hospitals that have higher work productivity and service quality (Siagian, 2013).

According to Sedarmayanti (2016), the factors that influence work productivity are motivation, income level, work environment, achievement opportunities, management, and nutritional status. Simanjuntak (2015) states that there are several factors that affect employee work productivity, namely training, the mental and physical abilities of employees, and the relationship between superiors and subordinates. The research of Putri et al. (2014) also shows that the work productivity of nurses is influenced by factors of motivation, training, work climate, and salary. Altakroni et al. (2019) also show that the work productivity of nurses can be influenced by marital status. Married nurses were associated with a 1.66 point decrease in productivity index scores compared to nurses who had never married.

The results of Hermansyah and Riyadi's (2018) research at RSUD Dr. M. Yunus Bengkulu show that the average work productivity score of nurses was 184.13, with a standard deviation of 20.230 (scores of 0 – 260); and that there was a relationship between work climate ($p = 0.008$), workload ($p < 0.001$), work ethic ($p < 0.001$), and work discipline ($p < 0.001$) with nurses' work productivity. Four factors affect the work productivity of nurses in hospital inpatient rooms: work support (37.72%), the reward system (15.55%), job demand (12.32%), and characteristic factor Individual such as age, education, length of work and traning (8.36%). The most influential factor on the work productivity of nurses in the inpatient room of RSUD Dr. M. Yunus Bengkulu was that of job demands (OR = 2.280 (95% CI: 1.123 – 4.630). The purpose of our study is to classify nurses in clusters based on work productivity.

Methods

A cross-sectional design was used. The research population was all the nurses at Hospital Y Bengkulu Province in 2019, a total of 240. The research sample amounted to 130 nurses, who were selected using the proportional random sampling technique. Data were collected using a questionnaire to measure the factors that affect work productivity (age, education, training, length of work experience motivation, management, work environment, achievement opportunities, work climate, income, workload, work ethic, and work discipline) using a rating scale of 0 – 10. The questionnaire was adopted from the research of Fajariadi (2014) and

Susanti (2014), and had been tested for validity and reliability. The calculated r value of all the statements on the questionnaire was greater than the value of the r table (0.44), meaning all the questionnaire items were valid. In the reliability test, Cronbach's alpha value was 0.966 > 0.8 (Fajariadi, 2014).

Data analysis was performed univariately, with multivariate analysis also conducted through cluster analysis on the variables of age, education, training, length of work experience, motivation, management, work environment, opportunity for achievement, work climate, income, workload, work ethic, and work discipline, all of which affect the work productivity of nurses. The research passed the research ethics test stage at the Research Ethics Committee of the Bengkulu Ministry of Health Poltekkes, and obtained a statement showing it to be free from research ethical problems, with the number DM.01.04/010/8/2019.

Results

Table 1 shows that the average age of the respondents is 35.68, which is in the productive age range, and their average length of education is 4.3 years, which shows that the education of the nurses is up to Bachelor of Nursing/*Ners* refer to work experience and training, average duration of training is 27.43 hours.

Table 2 shows the average management score is 120.04, the average work environment score is 109.58, the average work climate score is 152.37, the average work ethic score is 93.7, and the average score for the work discipline of the nurse is 80.78. This value is very different from the mean value of the variable score, so it can be concluded that the nurse at RSUD Y Bengkulu Province has a very good opinion about the management, work environment, work climate, work ethic, and work discipline in the hospital.

Assumption Test. The sample taken can truly represent the existing population. The Kaiser-Mayer-Olkin test is conducted to determine the adequacy of a sample. If the KMO value ranges between 0.5 and 1, the sample can be said to represent the population or is a representative sample. The results of the analysis show that the KMO value = 0.775 > 0.5, meaning that the sample can represent the population and the variables can be used for further analysis.

Multicollinearity Assumption. Multicollinearity is the existence of a perfect or definite linear relationship between some or all of the variables. It is better if this does not occur andthere is no multicollinearity between the variables. One way to identify the presence of multicollinearity is to calculate the variance inflation factor (VIF). Based on the results of the analysis, it was established that the VIF value for all the variables is < 10 and that they all have a tolerance value of > 0.10. This means that no variables indicate multicollinearity.

Table 3 shows that the variables of age, education, motivation, management, work environment, opportunities for achievement, work climate, income, workload, work ethic, and work discipline have the greatest average cluster distances in cluster 1; that the training variable has

Table 1. Distribution of Respondents Based on Characteristics (Age, Education, Length of Work Experience and Training)

Variable	Mean	Standard Deviation	Minimum	Maximum
Age	35.68	4.956	24	52
Education (years)	4.3	0.945	3	5
Length of Work (years)	10.86	4.345	3	30
Training (hours)	27.43	117.251	0	960

Table 2. Distribution of Respondents Based on Motivation, Management, Work Environment, Achievement Opportunities, Work Climate, Income, Workload, Work Ethic, and Work Discipline, and Work Productivity

Variable	Mean	Standard Deviation	Minimum	Maximum
Motivation	94.12	20.052	29	136
Management	120.04	24.523	16	231
Work Environment	109.58	18.3	32	130
Opportunities for Achievement	43.75	19.483	0	80
Work Climate	152.37	24.701	26	190
Income	32.39	11.701	0	50
Workload	57.2	15.057	12	80
Work Ethic	93.7	16.14	28	120
Work Discipline	80.78	13.728	14	100
Work Productivity	184.13	20.230	133	265

Table 3. Final Results of the Average Distance of Nurses' Work Productivity to the Clusters

Variable	Cluster		
	1	2	3
Zscore (Age)	0.11043	-0.11530	-0.18860
Zscore (Education)	0.06592	-0.03792	-0.31732
Zscore (Training)	-0.12938	0.20327	-0.23075
Zscore (Length of Work Experience)	0.01852	-0.07669	0.34831
Zscore (Motivation)	0.58291	-0.44839	-2.05707
Zscore (Management)	0.45881	-0.24854	-2.31061
Zscore (Work Environment)	0.42622	-0.16247	-2.59980
Zscore (Opportunity for Achievement)	0.68773	-0.76270	-0.87879
Zscore (Work Climate)	0.61813	-0.46791	-2.23145
Zscore (Income)	0.54738	-0.55922	-1.01637
Zscore (Workload)	0.15709	0.01930	-1.48273
Zscore (Work Ethic)	0.17483	0.03963	-1.77048
Zscore (Work Discipline)	0.22577	0.08716	-2.52469

an average large cluster distance in cluster 2; while the length of work variable has the largest average cluster distance in cluster 3. A negative value (-) means the data are below the total average, while a positive value (+) means the data are above the total average.

The average value in the cluster can be calculated based on the score of the average value of the distance to the center of the cluster, with the formulation: $x = \mu + z\sigma$, where x is the sample mean, μ is the population average, σ is the standard deviation, and z is the standardization value of the average distance to the cluster center. This can be exemplified as follows:

Average age of cluster I: 35.68 + (0.11043 x 4.956) = 36.23.
Average age of cluster II: 35.68 + (-0.11530 x 4.956) = 35.11

Average age of cluster III: 35.68 + (-0.1888x 4.956) = 34.75

The clusters can be interpreted as follows:
Cluster I. Cluster I contains nurses whose age, education, length of work, perceptions of motivation, management, work environment, achieve-

ment opportunities, work climate, income, workload, work ethic and work discipline are above the average population, but have had less training hours than the population average. Nurses who are in cluster I have high work productivity.

Cluster II. Cluster II contains nurses whose age, education, length of work, perceptions of motivation, management, work environment, opportunities for achievement, work climate, and income are below that of the average population, but whose hours of training, perceptions of workload, ethos work and work discipline are above the average population. Nurses in cluster II have moderate work productivity.

Cluster III. Cluster III consists of nurses whose age, education, training hours, perceptions of motivation, management, work environment, achievement opportunities, work climate, earnings, workload, work ethic and work discipline are lower than the average population, but have longer working period than the average population. Nurses in cluster III are nurses have low work productivity.

Table 4 shows that the variables of motivation, management, work discipline have a value of $p = 0.000 < 0.05$, meaning that they significantly influence the formation of clusters. The largest F value is in the work climate variable (96.499), with a p value of 0.000, meaning that the perceptions of the nurses in the inpatient room of the work climate at Hospital Y Bengkulu Province are very different from the characteristics of the three clusters. It can be explained that the perceptions of the implementing nurses in the inpatient room of the work climate are very different from one cluster to another. A very small F value and p value of > 0.05 in the variables of age, education, training, and length of work indicate that these variables in the three clusters are very similar.

Table 4. Variable Differences in Each Work Productivity Nurse Cluster

Variable	F	p
Zscore (Age)	0.914	0.403
Zscore (Education)	0.587	0.557
Zscore (Training)	1.912	0.152
Zscore (Length of Work Experience)	0.649	0.524
Zscore (Motivation)	70.684	0.000
Zscore (Management)	56.101	0.000
Zscore (Work Environment)	70.799	0.000
Zscore (Opportunity of Achievement)	74.507	0.000
Zscore (Work Climate)	96.499	0.000
Zscore (Income)	34.617	0.000
Zscore (Workload)	11.179	0.000
Zscore (Work Ethic)	17.021	0.000
Zscore (Work Discipline)	47.065	0.000

Tabel 5. Number of Members in each Nurse Work Productivity Cluster

Cluster	Number of Members	Percentage (%)
Cluster I	69	53.1%
Cluster II	53	40.8%
Cluster III	8	6.1%
Total	130	100%

Table 6. Education Type Based on Nurses' Work Productivity Cluster

Variable		Cluster			Total
		1	2	3	
Education	Health Nurse Senior High School (SPK)	0	1	1	2
		0.0%	50.0%	50.0%	100.0%
	Nursing Diploma 3/ (DIII keperawatan)	21	18	3	42
		50.0%	42.9%	7.1%	100.0%
	Nursing Diploma 4 (DIV keperawatan)	2	1	0	3
		66.7%	33.3%	0.0%	100.0%
	Nursing Bachelor/Nursing Profession (S1 kep/Ners)	46	33	4	83
		55.4%	39.8%	4.8%	100.0%

Table 7. Training Description Based on Nurses' Work Productivity Clusters

Variable		Cluster			Total
		1	2	3	
Training	Never	48	34	6	88
		54.5%	38.6%	6.8%	100.0%
	Ever	21	19	2	42
		50.0%	45.2%	4.8%	100.0%

Table 5 shows that the number of cluster I members is 69 nurses, the number of cluster II members is 53 nurses and the number of cluster III members is 8 nurses. It can be seen that the most respondents are in cluster I, while the least respondents are in cluster III, with no missing variables. Thus, all respondents were 130 people, completely mapped to the three clusters.

Validation and Cluster Profiling of Nurse Work Productivity. The formed clusters were tested for their validity. A profiling process was then performed to explain the characteristics of each cluster based on a particular profile. In the research, a profile process was conducted withvarious other variables characterized by nor-mal data, namely cross-tabulated education and training variables, formed by cluster results (QCL-1/Cluster).

Table 6 shows that for nurses with an SPK education, l half (50%) all members of clusters 2 and 3, with none in cluster 1; of nurses with DIII Nursing education, 50% were members of cluster 1, with the remainder in cluster 2 and 3; of nurses with DIV Nursing education, more than half (66.7%) belonged to cluster 1, with the remaining one in cluster 2, but none in cluster 3. Finally, amongst the nurses with S1 Nursing/Nursing education, more that half (55.4%) belonged to cluster 1, with the remainder in clusters 2 and 3.

Table 7 shows that more than half (54.5%) of nurses who had never trained were members of cluster 1, with the remainder in clusters 2 and 3. With rergard to nurses who had attended training, 50% were members of cluster 1, and the rest in clusters 2 and 3.

Discussion

Characteristics of the Nurses. Age is one of the personnel factors that affects work productivity (Ilyas, 2014). The results show that the average age of the respondents was 35.68, with a standard deviation of 4.956 years. This is in line with Fajariadi's (2014) research, in which 40% of the nurses were between 31 and 40 years old. However, the figure differs with the research of Putri et al. (2014), who showed that most (77.5%) nurses were 20 – 30 years old.

The results show that the average length of all education of the respondents was 4.3 years, with a standard deviation of 0.945 years. According to Siagian (2013), the higher a person's education, the greater their desire to utilize their knowledge and skills. According to Kurniawan (2016), continuing education is very important and that it is the responsibility of hospital leaders to provide opportunities for their staff to obtain higher education in accordance with their professional needs, which will have an impact on hospital services. The results show that the average length of service of the respondents was 10.86 years, with a standard deviation of 4.345 years. According to Siagian (2013), the length of work will affect a person's experience; the longer they work, the more experience they will have, meaning that work productivity can increase. The results of this study are in line with Fajariadi's (2014) research, in which more than half (56.7%) of nurses had 5 years of ser-vice. The results also show that the average length of the respondents' training was 27.43 hours, with a standard deviation of 117.251 hours. Training is part of the educational process to acquire knowledge and skills (Notoatmodjo, 2011).

Cluster Analysis of Nurses' Work Productivity in the Hospital Inpatient Room. Based on the results of determining the cluster center using the K-means cluster method, it was found that the variables of age, education, motivation, management, work environment, achievement opportunities, work climate, income, workload, work ethic, and work discipline had the highest average cluster distance that is 4.05522 in cluster 1. The training variable had the highest average cluster distance in cluster 2, while the length of work variable had the highest average cluster distance in cluster 3. The results also show that cluster I contained nurses who had above average age, education, length of work, perceptions of motivation, management, work environment, achievement opportunities, work climate, income, workload, work ethic and work discipline, but had fewer hours of training than the population average. From the characteristics of cluster I, it can be assumed that the nurses in this cluster are ones with high work productivity.

Cluster II contained nurses whose age, education, length of work, perceptions of motivation, management, work environment, achievement opportunities, work climate, and income were lower than the population average, but who had training hours, perceptions of workload, work ethos and work discipline above the population average. From the characteristics of cluster II, it can be assumed that the nurses in the cluster have moderate work productivity.

Cluster III contained nurses whose age, education, training hours, perceptions of motivation, management, work environment, achievement opportunities, work climate, income, workload, work ethic and work discipline were lower than the population average, but who had longer working period. Work above the population average. From the characteristics of cluster III, it can be assumed that the nurses have low work productivity.

The results show that the variables of motivation, management, work environment, achievement opportunities, work climate, income, workload, work ethic, and work discipline had a significant effect on the formation of clusters ($p = 0.000$). They also show the F value of the work climate 96.499 ($p = 0.000$), which means that the perceptions of nurses in the inpatient room of the work climate at Hospital Y Bengkulu Province greatly differentiate the characteristics of the three clusters (the highest F value). this can be explained by the fact that the perceptions of the nurse in the inpatient room of the work climate at Hospital Y Bengkulu Province are very different from one cluster to another. Nurses' perceptions of the work climate in cluster I (high work productivity) are very good, while in cluster 2 they are good, and in cluster III not good. The results of this study are different from those of Hermansyah and Riyadi (2018), which showed that the most influential factor on the work productivity of nurses in the inpatient room of Hospital RSUD Dr. M. Yunus

Bengkulu was the factor of job demands (OR = 2.280 [95% CI : 1.123 – 4.630]).

The very low F and p-values of > 0.05 for the variables of age, education, training and length of work indicate that these variables in the three clusters are very similar. With this composition, with cluster I being the largest, it is indicated that making changes and improving service quality can be focused on this group.

In the profiling process, cross tabulation between education and training variables, and the variables formed as cluster results (QCL-1/ Cluster), was performed. In the table crossbetween education and clusters, if we consider the number of respondents per column, cluster I is dominated by nurses with DIV Nursing education, cluster II by nurses with DIII Nursing education and cluster III by nurses with SPK education. Therefore, if we want to improve the service quality and performance of the nurses in the inpatient room, the educational levels in each cluster could be focused on. In the cross table between training and clusters, if considering the number of respondents per column, there are more nurses who have never attended training in clusters I and III, while cluster II it is dominated by nurses who have attended training. Consequently, to improve the quality of service and performance of nurses in in the inpatient room, focus could be on providing training to nurses who have never attended training in clusters I and III.

Conclusion

The findings of this study indicate that making changes and improving the quality of service could be achieved by increasing the level of education and training for nurses. As a result of their enhanced knowledge and skills, the quality of services provided should improve.

References

Altakroni, H., Mahmud, I., Elmossad, Y.M., Al-Akhfash, A., Al-Hindi, A., & Joshva, K. (2019). Healthcare productivity, and its sociodemographic determinants, of Saudi female nurses: A cross-sectional survey, Al-Qassim, Saudi Arabia, 2017. *International Journal of Health Sciences, 13* (6), 19–25.

Fajariadi, D. (2014). *Analisis etos kerja, iklim kerja dan disiplin kerja terhadap produktivitas kerja perawat pelaksana di Rumah Sakit Jiwa Provinsi Sumatera Utara* [Master Thesis. Fakultas Keperawatan Universitas Utara]. http://repository.usu.ac.id/handle/123456789/39175.

Hermansyah, & Riyadi, A. (2018). *Analisis faktor-faktor yang berpengaruh terhadap produktivitas kerja perawat di RSUD M. Yunus Bengkulu*. Risbinakes Poltekkes Kemenkes Bengkulu.

Iranzadeh, S., & Tahouni, A. (2014). The relationship between quality of work life and productivity of employees. *Productivity Management, 7* (25), 67–80.

Ilyas, Y. (2014). *Perencanaan sumber daya manusia rumah sakit: Teori, metoda dan formula* (Rev. ed.). Pusat Kajian Ekonomi Kesehatan FKM UI.

Kurniawan, W. (2016). Hubungan pendidikan dan pelatihan perawat dengan kinerja perawat di ruang rawat inap RSUD Cideres Kabupaten Majalengka tahun 2015. *Jurnal Keperawatan dan Kesehatan Medisina Akper YPIB Majalengka, 2* (3), 1–12.

Masram, & Mu'ah. (2015). *Manajemen sumber daya manusia* (1st Ed.). Penerbit Zifatama.

Navidian, A., Saber, S., Rezvani Amin, M., & Kianian, T. (2014). Correlation of quality of work life and job satisfaction in nurses of Kerman University of Medical Sciences. *Journal of Health Promotion Management, 3* (2), 7–15.

Notoatmodjo, S. (2011). *Kesehatan masyarakat, ilmu & seni* (Rev. Ed.). Rineka Cipta.

Nurumal, M.S., Sabran, N.M., Hamid, S.H.A., & Hasan, M.K.C. (2020). Nurses' awareness on patient safety culture in a newly established university hospital. *Jurnal Keperawatan*

Indonesia, *23* (2), 119–127. doi: 10.7454/jki.v23i2.1088.

Putri, D.M., Destriatania, S., & Mutahar, R. (2014). Analisis faktor-faktor yang mempengaruhi produktivitas kerja perawat di RS Bhayangkara Palembang tahun 2014. *Jurnal Ilmu Kesehatan Masyarakat, 5* (3), 183–191.

Sedarmayanti. (2016). *Sumber daya manusia dan produktivitas kerja* (1st Ed.). Penerbit Mandar Maju.

Siagian, S.P. (2013). *Manajemen sumber daya manusia* (1st Ed.). PT Bumi Aksara.

Simanjuntak, P.J. (2015). *Peningkatan produktivitas dan mutu pelayanan sektor pemerintah* (8th Ed.). Penerbit Dewan Produktivitas Nasional.

Susanti, F.A. (2014). *Faktor-faktor yang berhubungan dengan produktivitas kerja perawat pelaksana di ruang rawat inap Rumah Sakit Umum Daerah (RSUD) Cibinong* [Undergraduate Thesis, PSKM FKIK-UIN Syarif Hidayatullah Jakarta]. https://repository.uinjkt.ac.id/dspace/handle/123456789/25556.

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Counselors' Experiences with Infant and Young Child Feeding Tele-Counseling: A Phenomenological Study

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Abstract

The global COVID-19 pandemic has influenced the intervention delivery of Indonesia's stunting reduction program. In this context, e-counseling can be adapted as an innovative approach to deliver interventions. This study aimed to explore counselors' experiences when conducting tele-counseling. The five participants in this phenomenological study were counselors who had received breastfeeding and infant and young child feeding (IYCF) counseling training and participated in counseling service activities. The participants were selected using a purposive sampling technique. In-depth interviews were conducted with each of the participant until data saturation was reached. Each interview was transcribed and analyzed using thematic analysis method. Four themes were found in this study: exciting experiences, essential counseling skills, privacy concerns, and tele-counseling as service solution. The recommendation derived from this study is to continue the IYCF tele-counseling program as a service solution at health facilities.

Keywords: counselor experiences, infant and young child feeding tele-counseling, COVID-19 pandemic, phenomenology

Abstrak

Pengalaman Konselor Telekonseling Pemberian Makan Bayi dan Anak: Studi Fenomenologi. *Pandemi global telah memengaruhi program penanggulangan stunting di Indonesia. Pendekatan e-konseling merupakan intervensi inovatif yang dapat diadaptasi dalam situasi ini. Penelitian ini bertujuan untuk mengeksplorasi pengalaman konselor saat melakukan telekonseling. Sebanyak lima partisipan adalah konselor yang pernah mengikuti pelatihan konseling menyusui, pelatihan konseling Pemberian Makan Bayi dan Anak (PMBA) serta melakukan kegiatan layanan konseling dalam program telekonseling PMBA. Partisipan dipilih dengan menggunakan teknik* purposive sampling. *Setiap partisipan mendapatkan sesi wawancara mendalam satu per satu hingga saturasi data tercapai. Setiap wawancara kemudian ditranskripsi dan dianalisis menggunakan metode analisis tematik. Ada empat tema yang ditemukan dalam penelitian ini, yaitu pengalaman yang menyenangkan, keterampilan konseling yang esensial, perhatian terhadap privasi, dan konseling jarak jauh sebagai solusi layanan kesehatan. Rekomendasi penelitian ini adalah melanjutkan program telekonseling sebagai solusi layanan di fasilitas kesehatan.*

Kata Kunci: *fenomenologi, pandemi COVID-19, pengalaman konselor, telekonseling pemberian makan bayi dan anak*

Introduction

Malnutrition among children is an important problem in Indonesia; stunting, malnutrition, and severe thinness (*wasting*) continue to affect children under five years of age. Stunting demonstrates chronic malnutrition and can have long-term effects, including growth barriers, decreased cognitive and mental abilities, susceptibility to disease, low economic productivity, and low reproductive quality (United Nations Children's Fund [UNICEF], 2020).

Most of these problems can be solved by giving infants and young children optimal, gold-standard food, such as through the early initiation of breastfeeding, exclusive breastfeeding until children reach six months of age, balanced and nutritious complementary food, and breastfeeding until children reach two years of age. To address all forms of malnutrition, maternal nutrition, exclusive breastfeeding, and complementary feeding all require an equal focus and prioritization (UNICEF East Asia dan Pacific Region, 2021). Based on the data from the Indonesian Ministry of Health, out of 90% of mothers who had breastfed their children, 52.5% exclusively breastfed while 47.5% provided their children with other meals (Ministry of Health Republic of Indonesia, 2021). Therefore, enhancing the children' nutritional status is essential.

The global COVID-19 pandemic has influenced the intervention delivery of Indonesia's stunting reduction program, leading researchers and stakeholders to prepare innovations for adoption in health interventions. One such model is the e-counseling approach. This method is expected to support mothers and caregivers in caring for their children, especially during children's first 1,000 days of life (Hamner et al., 2022). Ministry of Health Republic of Indonesia launched health service guidelines for mothers and children during the pandemic (Direktorat Gizi Masyarakat, 2020). One possible health service is e-consultation for either individuals or groups of clients. Therefore, infant and young child feeding (IYCF) counseling can be modified to e-counseling, presenting an alternative counseling method during a pandemic.

Based on World Health Organization (WHO) recommendations, the most effective way to provide breastfeeding counseling is through individual, face-to-face interactions between counselors and clients (World Health Organization, 2018). However, in March 2020, the WHO declared COVID-19 to be a global pandemic. This pandemic disrupted maternal and health services (Lellamo et al., 2021). In response, the WHO urged countries to ensure the continuity of health services and programs as effectively as possible (Menendez et al., 2020). Adapting to the pandemic or other emergencies through the use of electronic technology, such as telephone counseling or other e-counseling approaches, can complement face-to-face counseling. This alternative approach has been successfully utilized in low-, middle-, and high-income countries (Lellamo et al., 2021; Kamulegeya et al., 2020; Pessoa et al., 2016).

e-Counseling is central to electronic counseling services and remote counseling that uses various media and similar terminology, such as online counseling and tele-counseling. Online counseling refers to providing therapeutic assistance services that use electronic communication technology to interact between professional counselors and their clients through telephone, email, written messages on social media platforms, video calls, and online meeting platforms. Previously, in Indonesia, lactation and IYCF counseling had never been conducted online. However, due to the pandemic, tele-counseling was used in an effort to help mothers who needed counseling, and these tele-counseling sessions were conducted for three months in Bandung District, Indonesia, by the Indonesian Breastfeeding Centre. The current research explores these counselors' experiences when conducting the mentioned tele-counseling, and it sought findings that could be used to improve the next tele-counseling service. Thus, this study aimed to elaborate on counselors' experiences in providing IYCF e-counseling.

Methods

Design and Sample. This study used a qualitative design, particularly the phenomenological method, to obtain information on e-counseling experiences from counselors' perspectives. The study's participants were tele-counseling counselors from Indonesian Breastfeeding Centre. The researchers recruited participants who met the study's criteria using purposive sampling techniques. There were five counselors

who met this study's inclusion criteria; which are had participated in breastfeeding and IYCF counseling training and had participated in counseling service activities for three months.

Data Collection. This study was conducted in October–December 2020. Data were collected through in-depth, online interviews using Zoom Meeting with the duration according to an agreement between participants and researchers. Other than the researcher and individual participants, no one else took part in these interviews.

One of the research teams conducted the interviews. During these interviews, the researcher asked participants to consent to the interview's recording. A single researcher conducted each in-depth interview using Zoom for about 45 – 60 minutes. Audio and video recordings of these interviews were used for data collection. Data saturation occurred when the fifth participant was interviewed.

Data Analysis. An inductive, thematic approach was used to analyze the data. The researcher transcribed the interview recordings and analyzed the data using thematic analysis. Two team members took part in the coding process. The researcher identified meaningful statements from the participants before coding and categorizing them. The researcher determined appropriate themes based on categories and subthemes. The themes were derived from the data and analyzed manually, without using software.

Trustworthiness. The data's validity was tested via member checking. After all themes were identified, participants validated the themes. All participants stated that the identified themes appropriately represented their experiences. Researchers conducted peer audits with the research team to identify the themes' accuracy, based on the data.

Ethical Considerations. The researcher explained this study in the WhatsApp group of Indonesian Breastfeeding Centre 's counselors. After a counselor expressed a willingness to participate, the researcher contacted the prospective participant to explain the study's purpose. Consenting participants expressed their decision to participate in this research by filling out a form on Google Forms. This research was reviewed and approved by the Ethics Commission of the Faculty of Nursing, Universitas Indonesia, with the protocol number Ket-269/UN2.F12.D1.2.1/ PPM.00.02/2021.

The study's interviews were conducted in Bahasa Indonesia. Table 1 outlines the questions asked in these interviews.

Results

Table 2 presents a descriptive summary of this study's five participating IYCF counselors. The themes that emerged from participants' experiences conducting tele-counseling or remote counseling about breastfeeding and IYCF reflected the purpose of tele-counseling activities for counselors. Thematic analysis revealed four themes, 10 sub-themes, and 26 categories (see Table 3).

Table 1. Interview Questions

No.	Questions
1.	Tell us about your experience doing online counseling/remote counseling.
2.	How did you feel before interacting and after doing tele-counseling?
3.	What are the perceived obstacles when doing tele-counseling?
4.	Are there any issues of concern?
5.	What is your opinion about this modification being included in the program at Puskesmas (Primary Health Care) or other primary services?

Table 2. Participants' Demographic Characteristics

Participant number	Age (years)	Gender	Professional education	Time working as an IYCF* counselor (years)	Profession
P1	34	Female	Diploma in nutrition	4	Nutritionist
P2	36	Female	Bachelor's degree in Medicine	3	Doctor
P3	33	Female	Bachelor's degree in midwifery	4	Midwife
P4	56	Female	Diploma in nursing	3	Nurse
P5	48	Male	Diploma in nutrition	4	Nutritionist

*Infant and young child feeding

Table 3. Themes and Sub-Themes

Themes	Sub-themes
Exciting experiences	Exciting and amazing new experiences Awkwardness at first Overview of tele-counseling activities
Essential tele-counseling skills	Counseling preparation Remote counseling skills with voice and message Address issues during the process of tele-counseling
Privacy concerns	Essential aspects of a mother's consent
Tele-counseling as a service solution	Tele-counseling as a service solution Various results of tele-counseling Benefits for mothers and counselors

Theme 1: Exciting Experiences. The first theme, *exciting experiences*, was generated from three sub-themes: *exciting and amazing new experiences*, *awkwardness at first*, and *an overview of tele-counseling activities*. Participants considered the tele-counseling activity carried out as an innovation during the pandemic to be an exciting and amazing new experience. This perspective was evident in the following statements.

> *"The experience is amazing because, um . . . it is the first time I join—what is it, . . . counseling, counseling clients via online, right?"* (P1)

> *"Thank you. It was an exciting experience for me."* (P5)

However, this new experience could also cause a sense of awkwardness initially, as the following statements expressed.

> *"At first, maybe it was awkward to talk in front of a cellphone like this."* (P2)

> *"The most important thing is that the information we provide is acceptable to mothers, and I feel the need to use various remote counseling skills to be able to overcome mothers' difficulties not only about IYCF, breastfeeding, but also the situation faced by families related to IYCF."* (P4)

Participants felt this new experience was exciting because it was their first time doing tele-counseling, which was not conducted face-to-face. Some participants said they felt awkward because they were talking on the phone to offer counseling, which usually entailed directly speaking with a mother. Participant 4 also discussed activities that had been carried out during tele-counseling, from solving IYCF problems and breastfeeding to family problems related to IYCF practices.

Theme 2: Essential Tele-counseling Skills. For the second theme, *essential tele-counseling skills,* several sub-themes emerged: *counseling preparation, remote counseling skills with voice and messages*, and *addressing issues during the process of tele-counseling*.

> *"So, [when going to do counseling], we need preparation. For example, if our client is a pregnant woman or a breastfeeding mother, the preparation of tools and media is [different]."* (P2)

> *"How do you do that? Um, maybe it is from the intonation of our voices that, um. . . . What is it? Like, to be more familiar."* (P1)

> *"When using a written message, it becomes a long message because [hopefully] the mother understands. . . . In addition, it utilizes emoticons [to replace nonverbal messages]."* (P1)

According to Participant 1, during tele-counseling, a counselor must adjust their voice intonation and modify their written messages so that their sent messages are received according to educational purposes.

During a pandemic, service innovations face various situations that render the delivery of optimal services challenging. In this context, health workers must consider modifying services to accommodate social distancing. Therefore, during a pandemic, online counseling can present a solution for infant and child feeding counseling services that had previously been conducted face-to-face at Puskesmas (Primary Health Care). The exploration of participants' experience in giving online counseling revealed a meaningful information that the counselor felt online counseling had not been possible before the pandemic.

> *"It will be so hard for us to solve the problem if we do not do it face-to-face, but this [tele-counseling] helps because when I, um, . . . had contact with the other 17 tele-counseling clients, their response showed that they are helped, felt like they have friends to talk to because, when they go to the public health center, they cannot talk freely with the counselor."* (P1)

Theme 3: Privacy Concerns. The third theme, *privacy concerns*, was based on the subtheme of the *essential aspects of a mother's consent*. This theme had become important during contact involving images. Participants said that some mothers were reluctant to participate in video calls because they were embarrassed and did not want to be seen by counselors. For instance, one participant stated:

> *"First, the permission used to be with the mother, although yesterday, someone did not want to show [the video] of breastfeeding. There was also a video call, but when breastfeeding, the camera was not directed at the picture when the mother was breastfeeding, meaning that the mother was not pleased, but there were also those who were pleased."* (P2)

Theme 4: Tele-counseling As A Service Solution. The final theme that emerged in this study was *tele-counseling as a service solution*. This theme was developed from three sub-themes: *tele-counseling as a service solution*, *various results of tele-counseling*, and *benefits for mothers and counselors*. One participant stated that various results and benefits were obtained during the tele-counseling process, so e-counseling can constitute a service solution during the pandemic—especially infant and child feeding e-counseling services. The following participant statements underlined the emergence of these sub-themes and themes.

> *"If the mother finds difficulties in giving complementary food, her child has difficulty eating or obstacles in there are difficulties in breastfeeding, it can be by tele-counseling as a very helpful solution, instead of going to a dangerous Puskesmas [during a pandemic]."* (P4)

> *"So, if the counselor really can play a role as a counselor, it is very good at the public health center."* (P4)

The previous statement was a response to tele-counseling as a possible service solution. Additionally, health workers' tele-counseling can maintain the Ministry of Health's recommendations for information conveyed to mothers. Mothers felt more confident about the information they received from tele-counseling than the information they received from social media, which could be confusing, as the following participant statement expressed.

> *"With a situation like this, this tele-counseling, Insya Allah, can help mothers who do not or still do not know about the information. Maybe there are plenty of information from YouTube or other social media, but because of that the information is too much, so they tend to feel puzzled."* (P2)

Additionally, participants said that both mothers and counselors perceived the benefits of this tele-counseling. Mothers thought they could still take advantage of opportunities to access counseling without having to leave their houses. Meanwhile, counselors felt satisfied that they could still help mothers in various situations.

> *"Can help breastfeeding mothers, pregnant women, as well as children in 1,000 days' first life that, yes, hopefully can give something, not only them, but I also learn a lot because mothers face many situations that make me learn to help these mothers by tele-counseling."* (P2)

> *"So, it makes it easier for people who want counseling without spending a lot of transportation costs, especially in the pandemic situation. Mothers feel this is the right service because it comes from health facilities."* (P3)

> *"It's also good that, during this pandemic, [this IYCF counseling service] is upgraded to a model and modification, namely by tele-counseling."* (P5)

The previous statement indicates how mothers benefit from tele-counseling, while counselors felt that they could learn to help mothers.

Discussion

During the COVID-19 pandemic, such health protocols as physical distancing and avoiding crowds limited health services and led to people reduce their visits to health facilities. Therefore, modifying services so that a community can still use necessary services is essential. Online counseling can modify health services during and after a pandemic.

This study identified the theme of *tele-counseling as a service solution*, especially regarding IYCF counseling. Previous research identified the theme of tele-counseling serving as an alternative future service provision in Malaysia (Mejah et al., 2020). Meanwhile, Kamulegeya et al. (2020) reported that telehealth services had been offered in Uganda before the pandemic. However, these services have become more active because they are safe during the pandemic and can still meet the Ugandan community's healthcare needs. Uganda's telehealth services include teleconsultation, call centers, mobile phone health information dissemination, telepsychiatry, and mobile medical services (tele-laboratory and tele-pharmacy). Additionally, Menendez et al. (2020) stated that, during a pandemic, many innovations are needed to prevent the indirect effects of directly limiting services for a community, especially promotional and preventive services. National programs must continue to provide essential maternal and child health interventions during periods of massive COVID-19 transmission. The provision of advanced or modified services is essential to save mothers' and children's lives.

Tele-counseling As A Health Service Solution. This study shows that participants talk about tele-counseling activities as a solution to health

services. Regarding participant satisfaction, a systematic review study by Dorstyn et al. (2013) also found that feedback from participants in tele-counseling programs was successful and valuable, with completion rates of the programs reaching 75–97%. A literature review showed that telehealth can serve as an innovation to and expansion of health services (dos Santos et al., 2020). During the COVID-19 pandemic, contextual tele-counseling services are an option—although individual, face-to-face counseling is recommended (Lellamo et al., 2021). Accessibility, convenience, and efficiency have become significant benefits of e-counseling (Navarro et al., 2019; Wells, 2021).

Not only in Indonesia but also in Malaysia, tele-counseling services are a concern. Mejah et al. (2020) identified the theme of *acceptance of tele-counseling*. This theme was based on contradictory findings from which experts concluded that tele-counseling does not offer an actual counseling session. Rather, they suggest, tele-counseling is an early-stage process of assisting, emphasizing the intervention and consultation that a client needs. It can be modified with a video call session so that a counselor and a client can see each other's whole bodies and experience an optimal counseling session (Mejah et al., 2020).

Tele-counseling modifies services based on types of teleconsultation services, which are regulated by the Indonesian Ministry of Health during the pandemic. Kamulegeya et al. (2020) found that telehealth activities in Uganda can overcome the pandemic's challenges of accessing medical services without increasing the risk of infection and increase client–hospital–referral interactions for specialist services, the monitoring of diagnostic tests, and hospital administrations.

Counselors start interactions via written messages and agree on additional interactions. However, this approach differs from *telehealth services*, in which doctors interact face-to-face before prescribing drugs to patients so that they can perform a physical examination first (Gajarawala & Pelkowski, 2021). Mothers often experience a lack of confidence, knowledge, and support, so IYCF e-counseling is critical during this pandemic.

Along with findings on the sub-theme *various results of tele-counseling*, which was derived from statements by several participants, the benefits of this remote counseling activity can be analyzed. Lellamo et al. (2021) also stated that IYCF e-counseling has been used successfully in many contexts and countries, such as Australia, India, and China. These services provide timely, critical support for pregnant women and children under two years of age regarding meal plans, feeding practices, and challenges, issues, and concerns about infant and child feeding.

Privacy Concerns. Some mothers are unwilling to attend online conferences or video calls because they are embarrassed and do not want to be known to counselors. Stoll et al. (2020) discussed privacy issues related to online data storage. In contrast to this study, mothers pay more attention to shyness if they know their situation from the counselor. Drum and Littleton (2014) stated that teleconsultation can occur at any time virtually in their homes, thus raising the possibility of exceeding proximity limits.

Essential Tele-Counseling Skills. Prior to delivering tele-counseling activity organized by Indonesian Breastfeeding Centre, these counselors received training for four days to refresh their counseling skills and additional skills in providing remote counseling and addressing feeding difficulties for children with disabilities. Save the Children, Lellamo et al. (2021) noted, has developed guidelines for IYCF tele-counseling services. One of the organization's critical recommendations is that remote counseling must always comply with the principles, skills, and standards of the training that counselors and counseling guides must follow, proving the necessity of training. Guenther et al. (2021) and Drum and Littleton (2014) also obtained the same finding, noting that counselors

involved in telephone counseling programs had received training beforehand to ensure their ability to conduct telephone counseling. Statistically, participants felt satisfied with this service. Counselors demonstrated their ability to help clients after completing this program's e-counseling training.

The COVID-19 pandemic's impact on telehealth has required a rapid transformation in healthcare and education settings (Guenther et al., 2021). Moreover, Guenther et al. (2021) described how to develop telehealth services as part of a nursing education curriculum. Therefore, telehealth services can be implemented by paying attention to competence and the learning process. The result of the study by Guenther et al., 2021 showed the necessity of providing education and training for skilled counselors.

Counseling skills concerning the use of electronic devices or remote counseling require specific exercises, such as assembling sentences through writing and sound. However, Drum and Littleton (2014) stated that, to help distinguish therapeutic communication from social interactions, clinicians who conduct telepsychology should refrain from using chat acronyms, text-message shorthand, excessive punctuation, and emoticons. Reviewing text communications before making them available to clients will help prevent and minimize confusion that arises from miscommunications. For some clients, this approach very helpfully resolves tele-counseling concerns. However, a counselor conveyed that this study suggested that visual content is needed to help mothers develop baby care skills, especially breastfeeding and baby feeding. Therefore, remote counseling using devices that produce visual images—such as video calls and online meetings in this study—is more beneficial in helping breastfeeding mothers and mothers who provide complementary foods.

The challenge of online counseling is determining how to help mothers solve their problems without face-to-face interaction. Based on the participants' experiences shared in this study, if preparation is optimal before tele-counseling, its counseling and counseling evaluation process can be more optimal despite its inability to replace face-to-face counseling. Learning about mothers' experiences and building their confidence requires specific skills that are more optimal during face-to-face counseling. Smith and Gillon (2021) mentioned that a therapist requires environmental adaptation and practice to run the online counseling process as expected.

One of the current study's sub-themes was *obstacles to tele-counseling*. However, since tele-counseling is a modification of the service covered through a teleconsultation policy, if a health facility provides this service, it can reduce service costs. Dos Santos et al. (2020) stated that tele-counseling services provide breastfeeding support at minimal costs. However, in rural communities, this obstacle changes in that internet network challenges and the availability of communication tools require effort. By contrast, Kamulegeya et al. (2020) found that no complaints were expressed about Uganda's limited internet access. Nevertheless, Serwe et al. (2017) suggested that telehealth is a feasible delivery format for a caregiver program's in-person format.

This thematic study found that knowledge and skills concerning the offer of face-to-face and online counseling must be trained. If online counseling can succeed as an alternative service, guidance and training are very important to standardize services. As a modification, tele-counseling has benefited IYCF counseling services. Therefore, guidelines or rules should be developed to support its implementation.

Conclusion

The teleconsultation policy of the Ministry of Health covered tele-counseling activities as a service modification. The implementation of health services that are not yet familiar is itself an experience for counselors, and challenges persist whose solutions require effort. Addi-

tionally, counseling practitioners are health professionals, breastfeeding counselors, and IYCF counselors. Special training is needed to prepare these professionals to develop their capacity.

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References

Direktorat Gizi Masyarakat. (2020). *Pedoman pelayanan gizi pada masa tanggap darurat Covid-19 untuk tenaga kesehatan*. Kementerian Kesehatan Republik Indonesia.

Dorstyn, D.S., Saniotis, A., & Sobhanian, F. (2013). A systematic review of telecounselling and its effectiveness in managing depression amongst minority ethnic communities. *Journal of Telemedicine and Telecare, 19* (6), 338–346. doi: 10.1177/1357633X13501767.

Drum, K.B., & Littleton, H. (2014). Therapeutic boundaries in telepsychology: Unique issues and best practice recommendations. *Professional Psychology: Research and Practice, 45* (5), 309–315. doi: 10.1037/a0036127.

dos Santos, L.F., Borges, R.F., & De Azambuja, D.A. (2020). Telehealth and breastfeeding: An integrative review. *Telemedicine and E-Health, 26* (7), 837–846. doi: 10.1089/tmj.2019.0073.

Gajarawala, S.N., & Pelkowski, J.N. (2021). Telehealth benefits and barriers. *Journal for Nurse Practitioners, 17* (2), 218–221. doi: 10.1016/j.nurpra.2020.09.013.

Guenther, J., Branham, S., Calloway, S., Hilliard, W., Jimenez, R., & Merrill, E. (2021). Five steps to integrating telehealth into APRN curricula. *Journal for Nurse Practitioners, 17* (3), 322–325. doi: 10.1016/j.nurpra.2020.12.004.

Hamner, H.C., Nelson, J.M., Sharma, A.J., Jefferds, M.E.D., Dooyema, C., Flores-Ayala, R., Bremer, A.A., Vargas, A.J., Casavale, K.O., de Jesus, J.M., Stoody, E.E., Scanlon, K.S., & Perrine, C.G. (2022). Improving nutrition in the first 1000 days in the United States: A federal perspective. *American Journal of Public Health, 112* (S8), S817–S825. doi: 10.2105/AJPH.2022.307028.

Kamulegeya, L.H., Bwanika, J.M., Musinguzi, D., & Bakibinga, P. (2020). Continuity of health service delivery during the COVID-19 pandemic: The role of digital health technologies in Uganda. *The Pan African Medical Journal, 35* (Supp 2), 4–6. doi: 10.11604/pamj.2020.35.2.23115.

Lellamo, A., Teshome, S., Flynn, S.O., & Welch, P. (2021). *Practical guidelines for conducting infant and young child feeding (IYCF)*. Save the Children.

Mejah, H., Yazid, A., Bakar, A., & Amat, S. (2020). The provision of tele-counseling in Malaysia: An in-depth qualitative analysis. *Bisma The Journal of Counseling, 4* (3), 291–298. doi: 10.23387/bisma.v4i3.30694.

Menendez, C., Gonzalez, R., Donnay, F., & Leke, R.G.F. (2020). Avoiding indirect effects of COVID-19 on maternal and child health. *The Lancet Global Health, 8* (7), e863–e864. doi: 10.1016/S2214-109X(20)30239-4.

Ministry of Health Republic of Indonesia. (2021). *Buku saku hasil studi status gizi Indonesia*. Ministry of Health Republic of Indonesia.

Navarro, P., Bambling, M., Sheffield, J., & Edirippulige, S. (2019). Exploring young people's perceptions of the effectiveness of text-based online counseling: Mixed methods pilot study. *JMIR Mental Health, 6* (7), 1–15. doi: 10.2196/13152.

Serwe, K.M., Hersch, G.I., & Pancheri, K. (2017). Feasibility of using telehealth to deliver the "Powerful tools for caregivers" program. *International Journal of Telerehabilitation, 9*

(1), 15–22. doi: 10.5195/ijt.2017.6214.

Smith, J., & Gillon, E. (2021). Therapists' experiences of providing online counselling: A qualitative study. *Counselling and Psychotherapy Research*, *21* (3), 545–554. doi: 10.1002/capr.12408.

Pessoa, C., Sousa, L., Ribeiro, A., Oliveira, T., Silva, J.L., Alkmim, M.B., & Marcolino, M.S. (2016). Description of factors related to the use of the teleconsultation system of a large telehealth service in Brazil – the telehealth network of Minas Gerais. *Journal of the International Society for Telemedicine and Health, 3,* e4.

Stoll, J., Müller, J.A., & Trachsel, M. (2020). Ethical issues in online psychotherapy: A narrative review. *Frontiers in Psychiatry, 10*, 993. doi: 10.3389/fpsyt.2019.00993.

United Nations Children's Fund East Asia dan Pacific Region. (2021). *Southeast Asia regional report on maternal nutrition and complementary feeding*. Retrieved from https://www.unicef.org/eap/media/9466/file/MaternalNutritionandComplementaryFeedingRegionalReport.pdf

United Nations Children's Fund. (2020). *Situasi anak di Indonesia: Tren, peluang, dan tantangan dalam memenuhi hak-hak anak*. UNICEF Indonesia.

Wells, R. (2021). The impact and efficacy of e-counselling in an open distance learning environment: A mixed method exploratory study. *Journal of College Student Psychotherapy*. doi: 10.1080/87568225.2021.1924098.

World Health Organization. (2018). *Guideline: counselling of women to improve breastfeeding practices*. World Health Organization.

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Hospital-Acquired Malnutrition in the Pediatric Population: A Cross-Sectional Study

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Abstract

Malnutrition is a global problem, from which hospitalized patients are not exempt. Hospital-acquired malnutrition (HaM) is associated with adverse outcomes in pediatric patients. Therefore, health professionals need to understand the factors related to the issue in such patients. This study aims to identify the factors associated with the prevalence of HaM in pediatric patients. It employed a cross-sectional design involving children from one month to 18 years old who had been hospitalized for at least 72 hours. HaM was determined by a weight loss of more than 2% by the fourth day of hospitalization. The final sample was 373, from which it was indicated that the prevalence of HaM was 7%. There were statistically significant correlations between HaM and predictor factors, including age (p = 0.001), type of disease (p = 0.017), weight on admission (p = 0.001), nutritional therapy (p = 0.012), and class of ward (p = 0.001). However, the correlation between HaM and length of stay was not statistically significant. HaM occurred in younger patients in relation to infectious diseases, low admission weight, enteral nutrition therapy, longer hospital stays, and lower ward class. Nurses are expected to monitor pediatric patients' condition, including regular anthropometric measurement, to identify the initial signs of HaM.

Keywords: child, hospitalization, malnutrition, weight-loss

Abstrak

Malnutrisi Didapat di Rumah Sakit Pada Pasien Anak di Indonesia: Studi Potong Lintang. *Malnutrisi masih menjadi masalah global, termasuk pada pasien di rumah sakit. Malnutrisi didapat di rumah sakit (MDdRS) berkaitan dengan hasil yang buruk terhadap pasien anak sehingga tenaga kesehatan perlu mengetahui faktor yang berkaitan dengan MDdRS pada pasien anak. Penelitian ini bertujuan untuk mengidentifikasi faktor yang berhubungan dengan kejadian MDdRS pada pasien anak. Penelitian menggunakan desain potong lintang pada pasien anak usia 1 bulan hingga 18 tahun dan dirawat minimal 72 jam. MDdRS ditentukan berdasarkan penurunan berat badan lebih dari 2% pada hari rawat keempat. Sampel yang digunakan sebanyak 373 dengan hasil penelitian menunjukkan prevalensi MDdRS sebesar 7%. Faktor yang berpengaruh secara statistik pada kejadian malnutrisi di rumah sakit adalah usia(p = 0,001), jenis penyakit (p = 0,017), berat badan pada awal masuk rumah sakit (p = 0,001), terapi nutrisi (p = 0.012), dan kelas perawatan (p = 0,001). Lama rawat memiliki hubungan yang tidak bermakna secara statistik dengan kejadian MDdRS. Kejadian MDdRS terjadi pada usia yang lebih muda, jenis penyakit infeksi, berat badan awal masuk yang lebih rendah, terapi nutrisi enteral, lama rawat yang lebih tinggi, dan kelas perawatan yang lebih rendah. Perawat diharapkan dapat memantau kondisi pasien anak, termasuk mengukur antropometri secara berkala untuk mengidentifikasi tanda awal MDdRS.*

Kata Kunci: *anak, kehilangan berat badan, malnutrisi, rumah sakit*

Introduction

Malnutrition, including its incidence in the hospital setting, remains a global issue. Pacheco-Acosta et al. (2014) found that 50% of patients in their study suffered from the condition. It may occur when patients are first admitted to hospital and worsens during their stay. In Canada, 39.6% of one month to 19 year old patients who were admitted to hospital were malnourished (Baxter et al., 2014). In Africa, approximately two-thirds of patients are at risk

of malnutrition on admission, and become more malnourished during hospitalization, leading to increased morbidity and mortality (Chimera-Khombe et al., 2022). Such a condition causes deterioration of nutritional status whilst hospitalized. Hospital-acquired malnutrition (HaM) is caused by complex physiological and metabolic changes associated with iatrogenic factors, absorption barriers, and acute inflammatory responses that impair metabolism (Cass & Charlton, 2022). It indicates nutritional inadequacy during the hospital stay. Weight loss could be an indicator of malnutrition in hospitals (Juliaty, 2013). Campanozzi et al. (2009) define HaM as the deterioration of nutritional status after a hospital stay of 72 hours, while Pacheco-Acosta et al. (2014) used two indicators: weight loss of more than 2% and a decline in BMI of up to 0.25 SD. There is still no ideal method to define HaM, especially in children, since the indicator is determined with as based on the expert's judgment.

Malnutrition in hospitals could occur due to certain risk factors, such as being aged less than 24 months, suffering from fever or abdominal pain, or hospital stays of more than 5 days (Campanozzi et al., 2009). A younger age increases children's vulnerability to malnutrition due to their immature immunity; fever is a condition of heat loss that causes risk of malnourished to increase. Abdominal pain at night could hinder children from having enough rest, which therefore disrupts their activity, including eating. Patients who are treated for a long time have been associated with a decreased appetite, meaning their nutritional intake is reduced when they should be receiving adequate to recover.

Malnutrition also occurs in hospitalized pediatric patients in Indonesia; Juliaty (2013) found that its incidence was 11.7%. It often goes undiagnosed and patients do not receive treatment until they are discharged from hospital (Budiputri et al., 2020). Several factors influence the occurrence of malnutrition in pediatric patients in hospitals. By undertstanding these, prevention can be made by providing effective nutritionnal management during treatment and handling nutritional interventions as soon as possible (Villares et al., 2016). Therefore, this study aims to measure the prevalence of HaM and identify the contributing factors to it in pediatric patients in Indonesia.

Methods

The study employed a cross-sectional design. The sample was medical records of patients aged from one month to 18 years old who had been hospitalized for at least 72 hours, selected using the consecutive sampling method. Data from the medical records of patients on pediatric wards were collected over a period of one year at a national referral hospital which fulfilled the inclusion criteria. Patients with tumors and organomegaly, fluid retention, and dehydration were excluded. The study was conducted at a top referral hospital, with the patients coming from various provinces in Indonesia. Five wards, namely the neonatology ward, pediatric surgical ward, pediatric intensive care unit, pediatric emergency unit, and general pediatric ward, were included. The study was approved by Ethics Committee of the Faculty of Medicine, Universitas Indonesia.

First, the patient's ID number was identified. The medical record officer then located and provided the available medical records. In this case, a consent form was not necessary. 373 medical records were analyzed; the data obtained included patients' identity (initials); class of ward; date of admission, and discharge from hospital, from which the length of stay was calculated; date of birth; medical diagnosis; nutritional therapy; and weight on admission. Hospital-acquired malnutrition was assessed through weight loss of at least 2% by the fourth day.

Univariate analysis was conducted on the independent variable in the study to identify the characteristics of the pediatric patients. Age, admission weight and length of stay were collected as numerical data and presented as me-

dian and minimum-maximum scores. In addition, other characteristics, namely type of disease, nutritional route and class of ward, were categorical data, which were analyzed using a proportion test to measure the frequency and percentage of each category. Bivariate analysis was also conducted using the Mann-Whitney test for numerical data and Pearson x^2 for categoric data. Such analysis was performed to measure the correlation between the prevalence of HaM and all the predictive factors.

Results

373 pediatric patient records were examined. Predictive factors considered as having an influence on the incidence of HaM included age, admission weight, length of stay, type of disease, nutritional therapy, and type of ward. These are presented in Tables 1 and 2. The respondents' age ranged from nine months to 18. Their median weight was 15 kilograms and length of stay ranged between 4 and 70 days. The majority of respondents were suffering from non-infectious diseases, were receiving nutrition through the oral route, and were hospitalized in the third-class hospital ward.

Table 3 shows that the prevalence of HaM was 7%. This figure was derived by comparing the number of pediatric patients who had experienced weight loss of > 2% by the fourth day of hospitalization to the number of all pediatric patients.

Bivariate data analysis was conducted to identify the correlation between HaM and all the predictive factors. The correlation between HaM prevalence and age, admission weight, and length of stay was analyzed using a Mann-Whitney test.

Table 1. Age, Admission Weight and Length of Stay of the Respondents (n = 373)

Variable	Median	Min – Max
Age (years)	4.13	0.09 – 18
Admission weight (kg)	15	2.33 – 120
Length of stay (days)	9	4 – 70

Table 2. Type of Disease, Nutritional Therapy and Class of Ward of the Respondents (n = 373)

Variable	n	%
Type of Disease		
Infectious	94	25.2
Non-infectious	213	57.1
Surgery	66	17.7
Nutritional Therapy		
Oral	231	61.9
Enteral	74	19.8
Parenteral	68	18.2
Class of Ward		
Third class	346	92.8
Non-third class	18	4.8
Intensive Care	9	2.4

Table 3. HaM Prevalence (n = 373)

Variable	n	%
HaM		
Yes	26	7
No	347	93

Table 4 shows that the mean rank of age and admission weight in the pediatric patients who experienced HaM was lower than those without HaM. This indicates that increased age was associated with a low prevalence of HaM. As well as admission weight was also associated with lower HaM prevalence. The correlation between HaM and length of stay was positive, which indicated that the longer the stay, the more likelihood of HaM occurring. Moreover, the p-value showed that the prevalence of HaM had a significant correlation with age and admission, but not with length of stay. Bivariate analysis was also applied to the type of disease, nutritional therapy and type of ward variables. The test used was Pearson x^2.

Based on table 5, 94 patients were suffering from infectious diseases, of whom 12.8% suffered HaM. Of the patients with non-infectious diseases, 6.1% suffered from HaM, while 1.5% of the patients with diseases that required surgery experienced the condition. The percentage of pediatric patients who suffered from HaM in the oral, enteral and parenteral nutritional therapy categories was 3.9%, 12.2% and 11.8%. respectively. Of all the patients in third class 5.8% suffered from HaM, while three out of 18 the non-third class patients did. Amongst the PICU pediatric patients, 33.3% suffered from HaM. The p-value in the correlational analysis between the prevalence of HaM and type of disease, nutritional therapy and class of ward was $p < 0.05$, meaning that it could be concluded that the correlation between HaM and these factors was statistically significant.

Table 4. Correlational between HaM and Age, Admission Weight and Length of Stay (n = 373)

Variable	HaM		p
	Yes Median (Min – Max)	No Median (Min – Max)	
Age (years)	1.31 (0.12 – 12.12)	4.47 (0.09 – 18)	0.001
Admission weight (kg)	7.85 (3.8 – 38)	15 (2.33 – 120)	0.001
Length of stay (days)	11 (6 – 36)	8 (4 – 70)	0.075

Age: Mean rank HaM 121.79; No HaM 191.89.
Admission weight: Mean rank HaM 118.48; No HaM 192.13.
Length of stay: Mean rank HaM 223.15; No HaM 184.29.

Table 5. Correlational Analysis between HaM and Type of Disease, Nutritional Therapy and Class of Ward (n = 373)

Variable	HaM				p
	Yes		No		
	n	%	n	%	
Type of Disease					
Infectious	12	12.8	82	87.2	0.017
Non-infectious	13	6.1	200	93.9	
Surgery	1	1.5	65	98.5	
Nutritional Therapy					
Oral	9	3.9	222	96.1	0.012
Enteral	9	12.2	65	87.8	
Parenteral	8	11.8	60	88.2	
Class of Ward					
Third class	20	5.8	326	94.2	0.001
Non-third class	3	16.7	15	83.3	
PICU	3	33.3	6	66.7	

Discussion

Hospital-acquired Malnutrition. The prevalence of HaM in the pediatric patients was 7%. More than 16% of the patients were suffering from weight loss on the fourth day of their hospitalization; however, 36 of them did not reach the HaM indicator determined by the researcher.

These findings are supported by several previous studies. Maryani et al. (2016) found that the prevalence of HaM reached 27%. Their research was conducted at RSUP Dr Sardjito Yogyakarta and involved patients aged 1 month – 18 years using the Walker and Hendricks indicator (percentage of weight loss based on length of stay). Other research conducted in Makassar found that the prevalence of HaM was 8.9% (Juliaty, 2013). Outside Indonesia, a study of hospital malnutrition was also conducted in Brazil, which found that its prevalence was 48.1%, based on the Subjective Global Assessment (SGA) instrument of Waitzberg et al. (2001).

Age. The median age of pediatric patients suffering from HaM in this study was lower than those who were not. Such a finding is in line with the research conducted by Hecht et al. (2015), who demonstrated that age was inversely proportional to the risk of malnutrition. Campanozzi et al. (2009) also proved that an age of less than 2 years was a risk factor for HaM. In Indonesia, Juliaty (2013) demonstrated that the age group of 25 – 36 months was that which suffered most frequently from malnutrition during hospitalization. Children of a younger age are easily exposed to microorganisms, therefore are more likely to suffer from malnutrition. However, Pacheco-Acosta et al. (2014) found that there were no significant differences in the prevalence of HaM at various ages. It can be concluded that children aged less than 1 or 2 years old are more susceptive to suffering from respiratory tract infections that could cause malnutrition.

Type of Diseases. HaM and the type of disease being treated had a significant correlation. Waitzberg et al. (2001) specifically researched the correlation between infection and HaM, and found that infection increased the risk of HaM by 2.6 times. Infection could cause a loss of protein, energy, mineral and vitamins (Rodriguez et al., 2011). During the mounting of immune response, the body needs considerable energy. If the condition is not balanced by adequate nutrition intake, this could cause malnutrition.

The prevalence of malnutrition in patients with non-infectious diseases and ones requiring surgery was 17.9% and 7.7% respectively. Waitzberg et al. (2001) categorized these diseases as body system disorders and showed that the causes of HaM were autoimmune diseases and hematological disorders. A study conducted by Merhi and Aquino (2014) demonstrated that neoplasm was associated with the level of the prevalence of malnutrition in hospitals. Pediatric patients with cancer had a 3.7 times higher possibility of suffering from malnutrition compared to non-oncology one (Waitzberg et al., 2001). Cancer patients have been associated with appetite loss, changes in sensory perception (smell and taste), weight loss, and gastrointestinal disorders (Teixeira et al., 2016).

Weight at Admission. Body weight is one of the nutritional status parameters that is measured when patients are admitted to the hospital. Initial nutritional status on admission could influence subsequent status during hospitalization and after discharge. A previous study by Juliaty (2013) showed that initial nutritional status correlated to HaM. Juliaty (2013) reported that there was a relationship between the initial nutritional status and nutritional intake during treatment with the patient's status when returning home. Admission weight is one of the factors that needs to be considered in managing pediatric patients.

Nutritional Therapy. Malnutrition correlates to the nutritional intervention received by patients. Enteral feeding correlates to the low level of malnutrition in hospitals (Waitzberg et al., 2001). However, the high percentage of

HaM in the enteral and parenteral therapy groups in this study was related to the severity of the disease experienced by the patients, who therefore needed nutritional support. A study conducted by Villares et al. (2017) identified patients who had a high risk of malnutrition based on nutrition feeding type; i.e., oral 33.4%, enteral 83.8%, and parenteral 87.5%. This indicates that various feeding routes could be considered as an intervention for pediatric patients suffering from malnutrition or at high risk of it.

Length of Stay. The correlation between the prevalence of HaM and the length of stay was positive. Statistically, neither was significantly correlated. A study conducted by Teixeira et al. (2016) in Brazil also showed that the length of stay between malnourished and well-nourished patients was not statistically different. However, the length of stay is directly proportional to the malnutrition risk in hospitals. Being hospitalized for more than 5 days could be a risk factor in malnutrition in hospitals (Campanozzi et al., 2009). In Indonesia, Maryani et al. (2016) found that disease status was the factor that influenced the length of stay. A third-class pediatric patient (malignancy, severe sepsis, major surgery, and depression) had a 2.56 times greater risk of suffering from malnutrition. The increase in the length of hospitalization is caused by nutritional deterioration, that can lead to infection, gastrointestinal complications and organ dysfunction, and can also be influenced by hospital policy (Hecht et al., 2015). Thomas et al. (2016) researched elective surgery patients aged 14 – 91 and concluded that the length of stay was influenced by malnutrition, age, malignant tumors, and disease complications. Such conditions show the correlation between length of stay and malnutrition.

Class of Ward. In this study, the correlation between HaM and the class of the ward was statistically significant. It was noted that third class ward was the highest contributor to HaM compared to the other types of ward. The selected class of ward could represent the family's economic status, which also determines the quality and quantity of food consumed (Pravana et al., 2017). The nutritional status of children in a poor family can lead to the risk of malnutrition during hospital care (Tette et al., 2015).

Conclusion

The prevalence of HaM in this study was 7%. The characteristics of pediatric patients that were predictive factors of HaM were age, type of disease, admission weight, nutritional therapy, length of stay and class of ward. Apart from the length of stay, these factors statistically influence the prevalence of malnutrition in hospitals. HaM mostly occurs at younger ages, in those with infectious diseases, low admission weight, enteral nutritional therapy, longer hospital stays, and lower classes of ward.

After conducting the study on the factors contributing to the prevalence of HaM, the researcher recommends that all nursing staff make an overall initial assessment of pediatric patients and control control their condition regularly, especially in terms of nutrition. It is also recommended that nursing staff complete clear documentation related to the patients' progress during their hospitalization.

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References

Baxter, J.-A.B., Al-Madhak, F.I., & Zlotkin, S.H. (2014). Prevalence of malnutrition at the time of admission among patients admitted to a Canadian tertiary-care paediatric hospital. *Paediatrics & Child Health*, *19* (8), 413–417. doi: 10.1093/pch/19.8.413.

Budiputri, G.L., Suryawan, I.W.B., & Dewi, M.R.

(2020). Analisis faktor–faktor yang mempengaruhi kejadian Malnutrisi Rumah Sakit (MRS) pada pasien anak di Bangsal Kaswari, RSUD Wangaya, Bali, Indonesia. *Intisari Sains Medis*, *11* (2), 680–685. doi: 10.15562/ism.v11i2.647.

Campanozzi, A., Russo, M., Catucci, A., Rutigliano, I., Canestrino, G., Giardino, I., Romondia, A., & Pettoello-Mantovani, M. (2009). Hospital-acquired malnutrition in children with mild clinical conditions. *Nutrition*, *25* (5), 540–547. doi: 10.1016/j.nut.2008.11.026.

Cass, A.R., & Charlton, K.E. (2022). Prevalence of hospital-acquired malnutrition and modifiable determinants of nutritional deterioration during inpatient admissions: A systematic review of the evidence. *Journal of Human Nutrition and Dietetics, 35* (6), 1043–1058. doi: 10.1111/jhn.13009.

Chimera-Khombe, B., Barcus, G., Schaffner, A., & Papathakis, P. (2022). High prevalence, low identification and screening tools of hospital malnutrition in critically-ill patients in Malawi. *European Journal of Clinical Nutrition*, *76*, 1158–1164. doi: 10.1038/s41430-022-01087-5.

Hecht, C., Weber, M., Grote, V., Daskalou, E., Dell'Era, L., Flynn, D., Gerasimidis, K., Gottrand, F., Hartman, C., Hulst, C. (2015). Disease associated malnutrition correlates with length of hospital stay in children. *Clinical Nutrition, 34* (1), 53–59. doi: 10.1016/j.clnu.2014.01.003

Juliaty, A. (2013). Malnutrisi rumah sakit pada bangsal anak Rumah Sakit Dr. Wahidin Sudirohusodo Makassar. *Sari Pediatri*, *15* (2), 65–68.

Maryani, E., Prawrirohartono, E.P., & Nugroho, S. (2016). Faktor prediktor malnutrisi rumah sakit pada anak. *Sari Pediatri*, *18* (4), 278–284.

Merhi, V.A.L., & de Aquino, J.L.B. (2014). Determinants of malnutrition and post-operative complications in hospitalized surgical patients. *Journal of Health Population and Nutriton, 32* (3), 400–410.

Pacheco-Acosta, J.C., Gomez-Correa, A.C., Florez, I.D., Cortés, J.E., Velez, D., Gomez, J., Munera, M., & Arboleda, S. (2014). Incidence of nutrition deterioration in non-seriously ill hospitalized children younger than 5 years. *Nutrition in Clinical Practice*, *29* (5), 692–697. doi: 10.1177/0884533614533122.

Pravana, N., Piryani, S., Chaurasiya, S., Kawan, R., Thapa, R., & Shrestha, S. (2017). Determinants of severe acute malnutrition among children under 5 years of age in Nepal: A community-based case–control study. *BMJ Open*, *7* (8), e017084. doi: 10.1136/ bmjopen-2017-01708.

Rodriguez, L., Cervantes, E., & Ortiz, R. (2011). Malnutrition and gastrointestinal and respiratory infections in children: A public health problem. *International Journal of Environmental Research and Public Health, 8* (4), 1174–1205. doi: 10.3390/ijerph8041174.

Teixeira, V.P., Miranda, R.C., & Baptista, D.R. (2016). Malnutrition on admission, length of hospital stay and mortality of hospitalized patients in a tertiary hospital, *Demetra: Food, Nutrition & Health*, *11* (1), 239–251. doi: 10.12957/demetra.2016.18457.

Tette, E.M.A., Sifah, E.K., & Nartey, E.T. (2015). Factors affecting malnutrition in children and the uptake of interventions to prevent the condition. *BMC Pediatrics*, *15*, 189. doi: 10.1186/s12887-015-0496-3.

Thomas, M.N., Kufeldt, J., Kisser, U., Hornung, H-M., Hoffmann, J., Andraschko, M., Werner, J., & Rittler, P. (2016). Effects of malnutrition on complication rates, length of hospital stay, and revenue in elective surgical patients in the G-DRG-system. *Nutrition, 32* (2), 249–254. doi: 10.1016/j.nut.2015.08.021.

Villares, J.M., Calderón, V.V., & García, C.B. (2016). Malnutrition in children admitted to hospital. Results of a national survey. *Anales de Pediatria, 86* (5), 270–276. doi: 10.1016/j.anpedi.2015.12.013.

Waitzberg, D.L., Caiaffa, W.T., & Correia, M.I.T.D. (2001). Hospital malnutrition: The Brazilian national survey (IBRANUTRI): A study of 4000 patients. *Nutrition*, *17* (7–8), 573–580. doi: 10.1016/S0899-9007(01)00573-1.