



## Literature Review

# The Usability of Kamishibai Card in Patient Safety: A Literature Review

Gabriella Jermia 

Faculty of Nursing, Universitas Airlangga, Surabaya, East Java, Indonesia

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### CORRESPONDING AUTHOR

Gabriella Jermia  
[gabriella.ester.jermia-2021@fkn.unair.ac.id](mailto:gabriella.ester.jermia-2021@fkn.unair.ac.id)  
Faculty of Nursing, Universitas Airlangga, Surabaya, East Java, Indonesia

### ABSTRACT

**Introduction:** Monitoring patients' safety in real time and compliance required valid instrument. *Kamishibai Card* or K-Card was introduced as an instrument to monitor central line-associated bloodstream infections or CLABSIs associated with nosocomial infection. However, the effectivity of the instrument remains inconsistent. The study aims to review the effectiveness of K-Card.

**Methods:** This study applied systematic review of published papers retrieved from database: Elsevier Science, Web of Science, EBSCO, and Science Direct. Inclusions were made to only full English article published from January 1, 2012 to February 28, 2022. the JBI Critical Appraisal Checklist for systematic reviews and research syntheses were applied for each study. The feasibility study of methodology using CASP tools Meta-analysis was performed to analyze the articles.

**Results:** A total of four articles was retrieved for analysis and synthesis using. The implementation of K-Card as an audit tool showed positive results. It leads to a quick identification of high-risk patients, increasing patient satisfaction, helping the frontline staff educate patients families, and helping the leaders have better communication with their staff. It's simplifying the audit process for patient safety with real-time data and direct feedback to solve problems.

**Conclusions:** The use of K-Card allows the leaders and staff to solve their daily problems in real time that relate to patient safety, allows direct feedback and creates a bond between leaders and staff, increases patient trust and satisfaction, and also enables timely root cause analyses to improve patients care.

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## 1. INTRODUCTION

The World Health Organization in (Redley et al., 2022) defines harm to patients as "disruption of the structure or function of the body and/or the damaging effects arising from it. Hazards include illness, injury, suffering, disability and death". Health care-related patient hazards are defined as "arising out or related to a plan or action taken during the provision of health care, not an underlying illness or injury." The World Health Organization (WHO) estimates that about 646,000 fatal declines occur each year, making the fall the second leading cause of

death worldwide, also estimating that 37.3 million fell severely enough to require medical care (Innab, 2022). Since 1990s, patient safety movement has made progress in terms of knowledge and research leading to a variety of patient risk screening and assessment tools, and also harm prevention guidelines. As health professionals who work closest to patients 24 hours a day, nurses have a primary responsibility to implement many hazard precautions. Hospitals also obtain preventable incidence of harm largely as a result of the quality of care provided (Redley et al., 2022). World Health Organization (WHO) provides a framework to

develop their actions on patient safety which called Global Patient Safety Action Plan 2021-2030. Patient safety always be the concern to prevent errors and adverse effect to inpatients and outpatients. Ideally, hazard prevention activities for high-risk patients should be started early after admission to the hospital to avoid adverse hospital outcomes, but research shows this is rare for a variety of preventable conditions including functional decline (Shay et al., 2020), delirium (Johansson et al., 2018), and pressure injuries (Chaboyer et al., 2016). Furthermore, complexity in individual health conditions and uncertainty about the likelihood, nature and severity of risks make comprehensive harm prevention challenging for nurses (Jones et al., 2015, (Redley & Raggatt, 2017). Standard work and reliable processes are the advantages of Kamishibai's card methodology, making it suitable for projects to eliminate patient falls. These include fall risk assessments, individualized treatment plans, activation of bed or chair alarms, and placement of autumn mats (Gould et al., 2018). The aim of this review is to know the effectiveness of K-Card as an audit tools for patient safety.

## 2. METHODS

Further analysis & synthesis using JBI Critical Appraisal Checklist for systematic reviews and research syntheses using 11 questions and categorized using 'yes', 'no', 'unclear', and 'not applicable'. The feasibility study of methodology using CASP tools. Meta-analysis was performed to analyze the articles (Santos et al., 2018).

### 2.1 Study Design

The design used in this review is systematic review with quantitative approach. This Systematic Review is carried out in journals and research that has been carried out related to the problem of kamishibai card for later reviews. The output of this systematic review is to collect some references that relevant to the formulation of the problem. The protocol and evaluation of the literature review will use the PRISMA checklist to determine the selection of studies that have been found and adjusted to the purpose of the literature review.

### 2.2 Population, Samples and Sampling

Scientific articles published between 1 January 2012 to 28 February 2022 were identified and retrieved from Elsevier Science, Web of Science, Ebsco, Science Direct. Articles collected was 42, using keyword "kamishibai card". Then the articles was sorted and found only three articles to be checked.

### 2.3 Instruments

The feasibility study of methodology using CASP tools. Data was extracted by JBI Critical Appraisal

Checklist for systematic reviews and research syntheses.

### 2.4 Procedure

Researchers create a checklist sheet obtained from the PRISMA template to randomly check the selected article and make adjustments to the guideline. The stages of data collection in this systematic review are as follows:

- 1) A search of the article was conducted through the Elsevier Science database, Web of Science, Ebsco, Science Direct and found 42 articles, then check the duplicated articles and found 34 articles. After that, re-selection of the article was carried out by reviewing the similarities and topics of discussion until it was found only 4 articles. Then the articles are assessed for feasibility until it left 3 articles.
- 2) Conducting study selection, in unsuitable articles will be discarded and recorded in the selection strategy using PRISMA flowchart.
- 3) Conduct analysis on selected articles based on protocols and eligibility criteria to determine study results.

### 2.5 Data Analysis

A JBI Critical Appraisal Checklist for systematic reviews and research syntheses was used to analyze the use of K-Card in scientific articles. The data analysis was performed by meta-analysis.

## 3. RESULTS

The implementation of K-Card as an audit tool showed positive results. Ormsby et al., (2020) conducted a research about Kamishibai card (K-card) rounding for central-line-associated bloodstream infection (CLABSI) prevention. The results showed that maintenance bundle increased significantly from 43% at baseline to 78% at 12 months after implementation ( $p < 0,001$ ). Another research done by Kamity et al., (2021) about kamishibai card as a key card to improve the quality that targeted by family to reduce the pediatric central line associated bloodstream infections (CLABSIs). The results show that after get some intervention from February 2017 to December 2019 the CLABSIs rate was decreased to 0,63/1000 central line days, then the maintenance bundle compliance improved to 97.1% ( $p < 0,001$ ). Another study that supports the results of using Kamishibai Cards is research conducted by Frith et al., (2020) on the Impact of Kamishibai Card Process on Compliance With the Central Venous Line Maintenance Bundle, from research found that there are significant changes in CVL maintenance bundle, namely tubing time and dated ( $p = 0.5$ ). K-card also used for Central Venous Catheter (CVC) case and can be obtained that there are significant improvement on CVC maintenance bundle from 43% at baseline to 78% at 12 months after implementation ( $p < 0,001$ )

form 2321 K-card audits. The CLABSIs decreased from 1,35 to 1,17 during 12 months of intervention (Ormsby et al., 2020). The application of K-Card leads to a quick identification of high-risk patients, increasing patient satisfaction, help the frontline staff educate patients families and help the leaders to have a better communication with their staff. It's simplifying the audit process of patient safety with real time data and direct feedback in solving problem (Frith et al., 2020). K-cards that used in Cardiac Intensive Care Unit (CICU) can improve the care of patients with central line by 50% and it can enhance educational experience by 90% (Plaras et al., 2019).

#### 4. DISCUSSION

Kamishibai card is originally used by Buddhist Monks in Japan to tell a story, but nowadays in Lean manufacturing systems kamishibai is adapted to perform an audit of standard work. It can help prevent patient harm and improve a care tool. There are 4 important elements which can be obtained from the results of the application of kamishibai card, namely standard work, visual system, leadership style, and solving barriers to patient care (Gould et al., 2018). Gould in 2018 conducted a research about Kamishibai Card or called Caring Card that used to prevent patient's fall. That study also showed that falls can be reduced into 50% because of the leaders support, having a coach tone and solve the problem together with the staff. Through that, the competency of staff were increasing rapidly so they can perform a professional care for patients better. In reducing CLABSIs case the use of K-Card can solve the barriers to patient care by empowering and engaging their parents and families to become partner in patient care. The role of patients and families in health care is growing rapidly with changing health care trends, and health professionals play an important role by partnering with patients and families. Partnering with patients and families that inpatients can reduce the harm in adults and pediatric patients. K-card can also be the standard work that can make the staff more open to share their concerns about the audit (Kamity et al., 2021). In leadership aspect Frith et al., (2020) told that leaders were available in assisting to remove barriers and had an engagement to unit. Kamishibai card allows the relationship between leadership and staff have bonding and can encourage the staff in decision-making. This K-Cards can prevent hospital-acquired infections especially CLABSIs by a simply audit process, a real-time data so it can improve the communication and solve some missed issues (Frith et al., 2020). K-card coaching allows team to address gaps of understanding and increasing compliance (Plaras et al., 2019).

#### 5. CONCLUSION

The use of K-Card as an audit tool allows not only can reduce the patient harm but also allows the leaders and staff solve their daily problems in real time especially the problems related to patient safety

by supporting and having coach to team, allows direct feedback and create bonding between leaders and staff also with patients and their families, increase the patient's trust and satisfaction, and also enables timely root cause analyses to improve patients caring.

#### 6. ACKNOWLEDGMENT

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#### 7. CONFLICT OF INTEREST

All authors report no conflicts of interest relevant to this article.

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