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Effect of the Development of SIM CAR LASTRI on Nurses' Motivation in Hospital Tanjungpinang, Indonesia

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ABSTRACT
The career ladder system has proven to be effective in supporting nurses' professional development. However, its implementation has not been optimal, partly due to nurses' low motivation. Therefore, a strategy to develop an electronically integrated career ladder information management system, SIMCAR LASTRI, is needed to improve career ladder implementation. This study aims to analyze the effect of SIMCAR LASTRI development on nurses' motivation in implementing career ladder in Tanjungpinang. This study used an analytic quantitative method with a pre-post quasi-experiment design without a control group. Application development was conducted through ADDIE (Analyze, Design, Development, Implementation, Evaluation) and RAD (Rapid Application Development) methods. The research subjects were executive nurses (n=76) with total sampling. Bivariate tests were conducted using the Wilcoxon Signed Rank Test. The results showed a significant effect on nurses' motivation before and after using the web-based SIMCAR LASTRI application, with a p value = 0.000 <0.05. The implementation of web-based SIMCAR LASTRI is feasible and has a significant influence on nurses' motivation in implementing career paths. SIMCAR LASTRI application can be implemented in all hospitals.

Keywords: SIMCAR LASTRI, Nurse Motivation, Career Path, Quasi-Experiment, System Implementation.

INTRODUCTION

Several countries have developed a model of career ladder systems such as australia and the United States using models career pathways blakemore (Harper & Maloney, 2016). Also applied at several hospitals in indonesia, but had not yet been optimal implementation. According to research at the Paru hospital Jember reporting on the implementation of suboptimal career ladder (37,1%). Other studies report that the implementation of credentials in the nurse career ladder system on a regular basis has not gone well (Agusnita et al., 2022).

Not yet the optimum application of the nursing career ladder system is due to many factors. Several studies reported that the causative factors include the perception that staffing and leadership/committees are not the same, time constraints, fear of failure, anxiety of nurses and high credential costs (Dwiantoro et al., 2023; Agusnita, Jepisa et al., 2022; Sukarno &

Santoso, 2021; Rahmawati.et.al.,2020) .

The concept and theory of organizational behavior are developing rapidly. According to ((Robbins & Judge, 2022; Colquitt, Jason, LePine, 2018) Organizational behavior is influenced by individual variables. According to the concept of psychology, these individual variables include the learning process, motivation, perception, and work stress. Several studies report related to individual variables that affect the application of career paths in Indonesia are motivation, learning process, nurses are not ready to take assessments and low awareness of nurses (Nurlina et al., 2021; Baljoon et al., 2018). Based on research istiqomah (2017) stated that nurses have less motivation in increasing their career paths by 39,1%, Other research states 10,9% Respondents have good career ladder motivation (E. Rahmawati & Widuri, 2021). Career development is not only the responsibility of the organization, but also the responsibility of every nurse in improving their own career without relying on management. (Sandehang et al., 2019)

Some ways have been used to improve the implementation of nurses' career paths in hospitals. By Setyono and Inayah (2021) conventionally, the documentation and storage of credential process forms are stored in one folder on the felling cabinet. During interviews with nurses at Sekarwangi Hospital, Cibadak there were difficulties in data collection, mapping nurses takes a long time, data difficult to obtain immediately and lack of updates, (Hamzah, 2021). Literary surveys of barriers in the implementation of credentials include lack of appreciation., time limit to prepare credentials, anxiety and training costs to maintain expensive certification (Garrison et al., 2018).

The latest choice of electronic-based career path system in improving nursing services and nurse competencies. The use of an electronic-based system is expected to make it easier for hospitals to carry out the career path process. By Syam dan Sukihananto,(2019) The use of electronic career paths is beneficial in saving time, reducing paperwork. For this reason, researchers have developed a more comprehensive e-career path application for nurses in hospitals. The application developed to complement the shortcomings of the application of nurse credentials and career paths that have been implemented previously is called the electronic integrated career ladder management information system, abbreviated as SIM CAR LASTRI.

Based on the background description above, the purpose of this study is to determine and analyze the effect of SIM CAR LASTRI development on nurses' work motivation in Tanjungpinang Hospital, Indonesia. Thus, the benefit of this study is to provide deeper insight and understanding regarding the effectiveness of CAR LASTRI SIM implementation in increasing nurses' work motivation in hospitals. This research is expected to serve as a basis for improvement and development of similar health management information systems in other health facilities.

RESEARCH METHODS

This research method uses the development method ADDIE that is Analyze, Design, Development, Implementation and Evaluation, It includes several stages, which is stage 1: analyze with the type of quantitative research with descriptive analytical methods. Tahap II : design and development. The design stage uses the RAD (Rapid Application Development), consists of 3 stages, namely requirement planning, design workshop dan implementation. Stage development where a feasibility test was carried out using an expert test according to the field developed (media expert test and practitioner expert test) and a limited-scale trial of 4 user groups. Stage III : implementation, This type of research is quasy experiment with pre and post test without control group design.

The population and sample in this study are all implementing nurses who applied for career advancement at Tanjungpinang Hospital, with a total sampling of 76 respondents, and was carried out from March to June 2024. This research instrument is in the form of a questionnaire that has been modified by the researcher and a validity and reliability test was carried out at the Raja Ahmad Tabib Hospital, Riau Islands Province for 30 respondents, with r count > r tabel. All instrument tests were carried out 1 time with valid results and declared reliable with Cronbach's alpha > 0.7.

The certificate of ethical fitness is issued from the ethics committee of the Faculty of Nursing, Andalas University with the number No.263.layaketik/KEPKFKEPUNAND. The researcher distributed the pretest questionnaire instrument before the socialization of the use of SIMCAR LASTRI and provided a posttest questionnaire after the respondents used the SIMCAR LASTRI application.

RESULTS AND DISCUSSION

Stage I : Analyze

Univariate analysis

An overview of the sociodemographics of implementing nurses consisting of age, gender, education level, length of service and career level can be seen in the following table:

Table 1. Sociodemographic Frequency Distribution of Implementing Nurses at Tanjungpinang Hospital Year 2024 (n=76)

No	Sociodemography	Frequency (f)	Percentage (%)
1	Age		
	Early adulthood (≥26 - 35 years)	55	72,4
	Late adulthood (36 - < 46 years)	21	27,6
2	Gender		
	Man	6	7,2
	Woman	70	92,8
3	Education		
	Vocational	64	84,2

No	Sociodemography	Frequency (f)	Percentage (%)
	Profession	12	15,8
4	Length of Service		
	New (< 7 Years)	22	28,9
	Long enough (> 7-15 years)	41	54,0
	Long (< 15-22 years)	13	17,1
5	Career Level		
	Pra PK	33	43,4
	PK I	31	40,8
	PK II	12	15,8

Based on Table 1, it shows that the sociodemographics of implementing nurses are almost entirely female (92.8%) with vocational education (84.2%), most of them are early adulthood (72.4%) with a long working period (54%) and almost half are at the level of Pra PK (43%).

The distribution of the frequency of career path implementation and nurse motivation in carrying out career path can be seen in the following diagram:

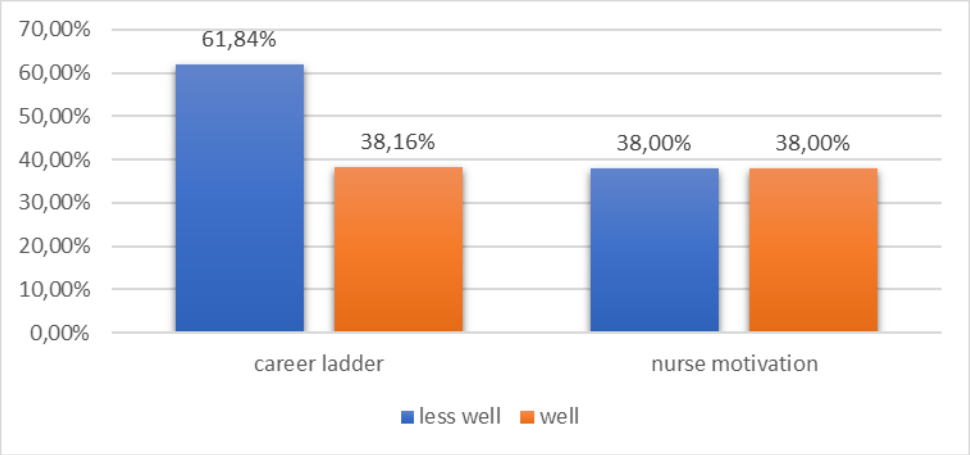

Figure 1. Distribution of Frequency of Career Path Implementation and Motivation of Nurses at Tanjungpinang Hospital Year 2024 (n=76)

Figure 1 illustrates that the implementation of career paths is mostly poor (61.84%) and half of the nurses' motivation is not good (50%).

Stage II (Design & Development)

The design of the application development of the electronic integrated career ladder management information system uses the Rapid Application Development (RAD) method, which is obtained at this stage, namely the data needed to design website design, design and development.

Design design in the form of proposed process flows, use case diagrams, database design, design interface, so that a prototype is formed.

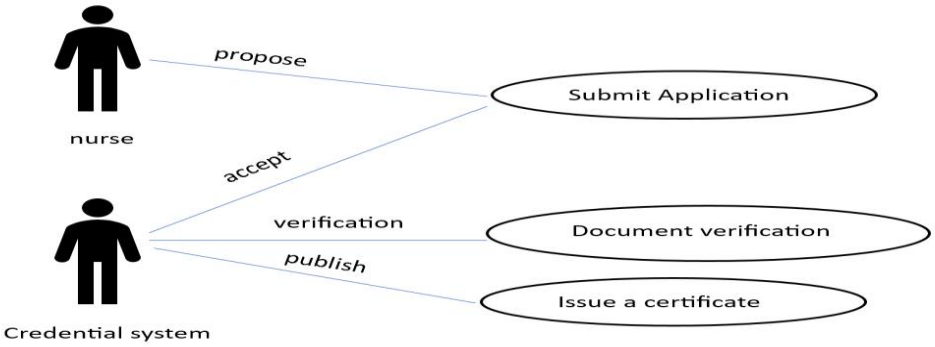

Figure 2. Use Case Diagram Aplikasi SIMCAR LASTRI

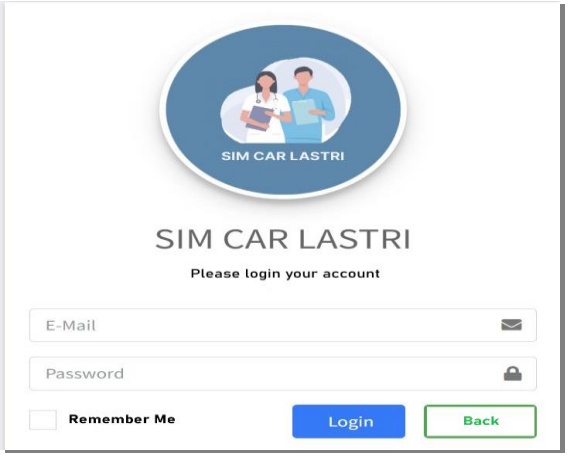

Figure 3. Design Interface login

Stage III : Implementation

Bivariate analysis to determine the effect of the implementation of the electronic integrated career management information system (SIMCAR LASTRI) on nurses' motivation was analyzed using the median because the data was not normally distributed with p value ≤0,05.

Table 2. Analysis of the Influence of Nurse Motivation in Implementing Career Paths Before and After the Implementation of SIMCAR LASTRI at Tanjungpinang Hospital in 2024 (n=76)

No	Variable		Median	Min	Max	Mean Difference	P value
1	Nurse Motivation	Pre test	39,50	36,00	40,00	20,5	0,000
		Post test	60,00	53,00	60,00		

Based on table 2 showing that the results of the mean difference mean that there is an increase between before and after the implementation of SIM CAR LASTRI, it can be concluded that there is a significant influence with the application of SIM CAR LASTRI on the motivation of nurses with p value 0,000.

The results of the sociodemographic data research of the implementing nurses of Tanjungpinang Hospital show that almost all of them are women (92%) with vocational

education (72%) and most of them are early adults (25-35 years old) with a fairly long working period of more than 8 years to 15 years. Almost half (43%) of the last career level is at the level of Pra PK (pra-Clinic Nurse). Research by Fauziah, Jenny Marlindawani Purba,(2021) Sociodemographic data were obtained in the implementation of female nurses' career paths (73.8%), 4-6 years of service (54%), nurse education (86%) with the level of Clinical Nurse level II (51.6%). The conclusion of this study is that most of the implementing nurses are female in accordance with the 2023 nurse data released by BPS as many as 582,023 people and most of them are women.

Based on the pattern of nurse career path development in accordance with the Minister of Health Regulation Number 40 of 2017, for D III Nursing nurses in this case are vocational with ≥ 1 year of work experience and undergoing a level I clinical period for 3-6 years, they should have become Clinical Nurse I (Novice). The requirements for Clinical Nurse I must have a certificate pra klinis, have the ability to perform basic nursing care with an emphasis on nursing technical skills under guidance (Permenkes RI, 2017).

Based on the working period of nurses for a long time above 9 years, vocational education and the level of nurses' career paths are still Pre PK, the implementing nurses should be in Clinical Nurses level I and II. Thus, it can be said that implementing nurses are late in their career advancement, so it is necessary to know what are the obstacles to delaying their career advancement. Broadly speaking, the factors that inhibit credentials are caused by personal factors and organizational factors (Garrison et al., 2018).

Diagram 1 showing that the data on the implementation of career paths was obtained that most of them were not good (61.84%), one of the reasons was due to the lack of motivation of nurses (50%). This condition will have an impact on the career path system not being implemented effectively and cause most nurses not to carry out clinical authority in accordance with the Clinical Authority Details, and the task limits between clinical nurses cannot be applied optimally.

According to the participants, the obstacles felt were from the hospital policy due to the absence of a legal letter or director's decree and the addition of human resources, the nurses in the hospital itself were less motivated by nurses (Nurlina et al., 2021). Research by Fauziah, Jenny Marlindawani Purba, (2021) Nurses get high motivation (61,9%) in the implementation of career ladder. For this reason, it is necessary to innovate digital development.

The researcher made a design of an electronic integrated career management information system called SIM CAR LASTRI, is an application that is designed and used as a *digital tool* to be a solution and answer to overcome the problem of implementing a career path system that is not optimal. This application includes the competency assessment process, credentials/credentials to the issuance of clinical assignment letters (SPK) and details of clinical authority (RKK). Users in this application consist of 4 groups, namely assessors, assessors, reviewers and 3 administrators : field of nursing, nursing committee and manager/director).

From the results of the feasibility test of media and practitioners, it was found that the SIMCAR LASTRI application is feasible to be implemented to users.

Method RAD (Rapid Application Development) that the researcher uses makes it easier for researchers to design the SIMCAR LASTRI application. RAD is a model of the software development process that is classified as an incramental (multi-layered) technique, because in its design it is very short and fast (Jijon Raphita Sagala, 2021). The stages carried out in this study are in accordance with the theoretical stages.

The results of the wilcoxon test showed that the significance value of asymp.sig (2-tailed) was 0.000 < 0.05, meaning that the application of SIMCAR LASTRI had an effect on increasing the motivation of nurses in implementing career paths at Tanjungpinang Hospital. The results of this study are in line with the research (Twistiandayani, 2020) which stated that there was an effect of competency tests in career paths on nurses' motivation to improve competence (p=0.020) with a coefficient value of 0.471, with a contribution effect of 22.22%.

SIMCAR LASTRI is an application of a type of management information system which is an information system that assists hospital management in decision-making (Permenkes RI No.82, 2013), In this case, it is the determination of clinical competence and authority. In addition, another benefit is that the process of implementing the career path system can be carried out efficiently and effectively and increases the motivation of nurses to follow the career path system process.

The career path system includes the process of competency assessment, credentials and the issuance of clinical assignment letters and details of clinical authority. Nurse competency assessment or competency-based nurse performance assessment is a series of processes to collect evidence to decide whether someone is competent or not in carrying out their duties. (Cowan et al., 2008). To carry it out, an assessor is needed, who has the ability to conduct an assessment of nurse competencies accurately and correctly. (Takase et al., 2018). Competence is an integration between knowledge, skills, and attitudes. Nurse competence also improves the quality of nursing care and reduces the incidence of missed nursing care. The core competencies of clinical nursing staff can directly affect the quality of clinical nursing practice and client care outcomes.(Hariyati et al., 2019).

From the nurse profile data of Tanjungpinang Hospital, it was found that as many as 32 nurses are continuing their education to the S1 Nursing professional level for continuous professional development. Thus, the quality of services supported by nurse resources with educational qualifications according to clinical competence and authority will increase. This situation is one of the considerations for nursing management to support and bridge in efforts to improve nursing services with the implementation of SIMCAR LASTRI.

CONCLUSION

It can be concluded that there is a significant effect of implementing an electronic integrated career management information system (SIMCAR LASTRI) on nurse motivation, with a pretest median of 39.5 and posttest median increasing to 60, and there is a difference in the mean motivation of nurses before and after SIMCAR LASTRI implementation with a p-value of 0.000. Future contributions The SIMCAR LASTRI application has the potential to be further developed in other health facilities and hospitals throughout Indonesia. With wider implementation, the system is expected to improve nurses' motivation and performance nationwide, as well as support the development of a more structured and systematic career path. In addition, feature adjustments and needs-based application development in each hospital can be done to optimize the effectiveness of the application in the long term. Further research is also needed to evaluate the impact of SIMCAR LASTRI implementation on clinical performance and the quality of health services provided by nurses.

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