International Journal of Public Health Science (IJPHS)
Vol. 13, No. 3, September 2024, pp. 1433~1441
ISSN: 2252-8806, DOI: 10.11591/ijphs.v13i3.23937

Innovation diffusion in healthcare: evaluating the 'post-treatment' approach in Indonesia

Novliza Eka Patrisia[1], Hardi Warsono[2], Kismartini Kismartini[2,] Reni Shinta Dewi[3]
[1]Public Administration, Faculty of Social Science and Political Science, Muhammadiyah University of Bengkulu, Bengkulu, Indonesia
[2]Department of Public Administration, Faculty of Social Science and Political Science, Diponegoro University, Semarang, Indonesia
[3]Business Administration Study Program, Faculty of Social Science and Political Science, Diponegoro University, Semarang, Indonesia

Article Info

Article history:

Received Sep 18, 2023
Revised Dec 6, 2023
Accepted Dec 15, 2023

Keywords:

Evaluating healthcare
Healthcare services
Innovation diffusion
Knowledge
Post-treatment

ABSTRACT

This article aims to describe and qualitatively analyze the diffusion of innovation in healthcare services, specifically focusing on post-treatment healthcare services in the city of Bengkulu, Indonesia. Based on the innovation diffusion theory and incorporating the theory of reasoned action (TRA), this research explores behavior in the process of organizing and implementing healthcare services to enhance the quality of public services in Bengkulu. The study employs a qualitative descriptive research approach, utilizing data sources such as interviews, direct field observations, and documentation. The results of this study indicate that knowledge serves as the primary foundation in the diffusion of innovation in healthcare services. In the context of post-treatment services, the community lacks knowledge about these services. The findings of this research are expected to provide insights for the local government of Bengkulu, particularly Harapan dan Doa Hospital (RSHD) in Bengkulu, as a healthcare service provider. Through knowledge dissemination among all stakeholders supporting innovation diffusion, each can play their respective roles. Consequently, with knowledge playing a key role in the diffusion of innovation in healthcare services, it is anticipated that it will enhance the quality of healthcare services through effective and efficient service delivery, with a focus on the goals of innovation.

Corresponding Author:

Novliza Eka Patrisia
Public Administration Study Program, Muhammadiyah University of Bengkulu
Bengkulu, Indonesia
Email: novlizaekap@umb.ac.id

1. INTRODUCTION

Defines innovation in public sector management as the development of new policy designs and new operating standards generated by organizations aimed at public policy issues, with innovation in public administration being about effectiveness, creativity, and unique responses to new problems or new answers to old problems [1]. According to a leading innovation author, innovation is an idea, practice, or object considered new by certain individuals (one unit) and adopted by others. Innovation, as a characteristic of organizational flexibility, is not just about doing something new, discovering something new, or introducing a new concept, as defined in the general sense [1].

According to innovation as a process involves four stages: i) the idea submission stage, which starts with having an idea first; ii) the evaluation stage of the idea to be pursued; iii) the development stage, which involves refining the concept from an idea to a reality that produces something; and iv) the implementation stage, which strives to make the idea a reality. Innovation diffusion is the process of spreading innovation to

members of a social system through communication channels over a certain period [2]. According to there are four main elements in innovation diffusion: i) innovation, ii) communication channels, iii) a specific time frame, and iv) a social system. In this context, the understanding and key elements of public service innovation diffusion align with the implementation of public service innovation, which involves the availability of public service innovations resulting from the competition of public service innovations [2], [3].

In previous research on innovation diffusion in various sectors such as healthcare, local government, technology, companies, and the environment, several issues have been identified in the implementation of innovation diffusion. These issues include: Incomplete success of diffusion due to the influence of knowledge and public acceptance of the innovation. Limited diffusion efforts mainly through social media and mass media on a small scale. Identifiable barriers in the field, such as budget constraints and human resource limitations. The impact of technological proficiency on how innovations are perceived. Constraints on application due to limited internet access. Various factors affecting the success of innovation diffusion, including the need for clarity in benefits, leadership influence, cultural factors, and the necessity of continuous support [4]–[22].

The post-treatment healthcare service is an initiative undertaken by the Mayor of Bengkulu City in collaboration with the Director of the Bengkulu City Regional General Hospital, which was launched in the previous year, 2017. The provision of this facility is one of the government's efforts to enhance public services for the residents of Bengkulu City in accordance with the mandate of Law No. 25 of 2009 on Public Services. This innovation in post-treatment healthcare services is being implemented at the Bengkulu City Regional General Hospital, which has now transformed in to Harapan dan Doa Hospital. Harapan dan Doa Hospital has introduced innovative healthcare services to provide comfort to patients and their waiting families.

The innovation provided at the City Regional General Hospital (RSUD) is the "Post Treatment" service for patients and their families to ensure they feel refreshed before returning home. This decision is based on the belief that this innovation directly benefits patients and their families. Additionally, hospital healthcare services represent the first level of extended healthcare services after primary care facilities (*Puskesmas*) and are considered a fundamental need in the field of healthcare. "Post Treatment" refers to the services offered to patients after they have recovered from illness, typically when the attending physician authorizes their discharge. These services include hair treatments (cream bath), manicures, pedicures, facials, and foot detox. This service is provided free of charge as part of the hospital's offerings. However, due to limited staffing, the service is currently only available to patients in the VIP class.

To deliver the "Post Treatment" service, graduates of vocational schools (SMK) who have completed certification courses in beauty and fitness care are employed. Currently, there are approximately 2-3 staff members available for this service. This innovation does not require significant expenses, and there is substantial community interest in utilizing this straightforward innovation. If patients are not interested in using the "Post Treatment" service, they can offer it to family members who are caring for them in the hospital.

In this research, one of the elements of diffusion of Innovation theory, namely knowledge, will be used to dig deeper into the diffusion of innovation in health services in Bengkulu City [23]. By using Rogers' theory of diffusion of innovation, this research aims to overcome problems related to the diffusion of innovation in the health sector. The situation in the field shows that people still lack or even ignore the existence of post-treatment health services. Which will certainly hinder the process of diffusion of health services in the future [23]–[28]. Figure 1 as shown in depicts post-treatment health services at RSHD Bengkulu City. This service is currently not very familiar to the people of Bengkulu City. For this reason, researchers will integrate. Behavioral variables from the theory of reasoned action (TRA) as a new addition and differentiator from previous research. Based on previous research, there has been no research that combines behavioral variables in studying the stages of innovation diffusion as proposed [28].

Figure 1. Post treatment service innovation [28]

2. RESEARCH METHOD

2.1. Research design

This research adopts a descriptive research design. The design involves the use of methodological triangulation, which is conducted through observation, interviews, and documentation [29]. The research was conducted in Bengkulu City from February to June 2023.

2.2. Population and sample studies

The data collection was deliberately carried out, involving officials from government agencies, particularly within the environment of Harapan dan Doa Hospital (RSHD) in Bengkulu City, as well as members of the community and various organizations in Bengkulu City. The choice of Bengkulu City as the research location was based on its large and growing population, as well as the presence of a significant number of commercial, financial, educational, governmental, and other activities. This created significant opportunities for the delivery and adoption of innovative services. Informant selection was done using the Purposive Technique, which involves selecting informants for specific purposes. In qualitative research, the number of informants is determined during data collection and usually stops when information saturation is achieved, as described [29]. Explained the key person method, where researchers who have initial knowledge can identify important figures to serve as informants. The primary consideration in selecting informants is their ability to provide relevant information and data related to the research topic. The informants in this study consisted of 5 community members who are service recipients and 2 service providers such as nurses and therapists. They will provide descriptions of the implementation and diffusion of healthcare services [29].

2.3. Data collection

The data sources include both primary and secondary data. Primary data is obtained through in-depth interviews with key informants who possess specific competencies, such as the Head of the Medical and Support Services Division at Harapan dan Doa Hospital (RSHD) in Bengkulu City [29]. The researcher collects this data with the aim of providing a more detailed and in-depth description based on observed conditions, which is then subjected to analysis. The data is analyzed descriptively to provide a better understanding of best practices in healthcare services according to Rogers' Diffusion of Innovations theory [29].

2.4. Informant demographics

Data is collected based on perceptions and information provided by both the public and service providers, including individuals who are knowledgeable and skilled in the health care field. In this case, data was obtained through several informants who were divided into service implementer informants and service recipient informants. Data was also obtained through interviews, observations and documentation in the field related to health services [29].

2.5. Research analysis

The analysis process involves several steps. i) Data reduction: this is the process in which the researcher selects relevant information, and focuses on simplifying, abstracting, and transforming the raw data from research notes into a more comprehensive format. ii) Data presentation: this step involves creating a research report from the collected data so that it is easy to understand and then analyzing the data further to achieve the research objectives. iii) Conclusion: at this stage, the researcher summarizes the results of the analysis taken from the research discussion as explained. iv) Verification: The verification stage which is then followed by data triangulation (interviews, observations and documentation) allows researchers to determine the accuracy of research findings using empirical methods and scientific testing, following the approach mentioned [29].

2.6. Ethical clearance

This research involves humans as sources of information and research objects. Research ethical permission was issued by the Bengkulu City Stikes Sapta Bakti institution @ https://stikessaptabakti.ac.id/ with number 005/FB/KEPKSTIKesSaptaBakti/2024.

3. RESULTS AND DISCUSSION

3.1. Results

States that the definition of knowledge is one of the confusing aspects of knowledge management and is often interchanged with the definition of data and information; even though data, information, and knowledge have different definitions [30]–[32]. Stated almost the same thing, namely that knowledge is not

data, nor is it information, but it is difficult to separate the two [30]–[32]. According to the meaning of knowledge can be explained using the DIKW hierarchy (data-information-knowledge-wisdom); This hierarchy is also called the knowledge hierarchy or knowledge pyramid [30]–[32]. The knowledge hierarchy/pyramid can be seen Figure 2.

Figure 2. DIKW pyramid/knowledge hierarchy/knowledge pyramid

Based on the DIKW Pyramid/Knowledge Hierarchy/Knowledge Pyramid as discussed in the context of the study of the diffusion of innovation in post-treatment healthcare services, individuals or groups go through the following stages of knowledge: Data: The first stage begins with acquiring data. Data refers to conditions or facts that can be roughly observed in the field, either directly or indirectly [30]–[34]. This is the initial collection of information that may be obtained through direct observation or reports related to post-treatment healthcare services. Information: The second stage is information, where individuals or groups process data into a clearer, more accurate, and accountable form. This information provides a deeper understanding of post-treatment healthcare services. Sources of information may come from the experiences of others, reading daily news from local or social media. Knowledge: In the third stage, which is knowledge, individuals or groups can delve deeper by making comparisons, observations, and listening to consequences or impacts, connections, or discussions related to post-treatment healthcare services. This involves a more in-depth analysis and understanding of the topic. This knowledge pyramid reflects the evolution of an individual's or group's understanding of post-treatment healthcare services, starting from the collection of basic data to a deeper and more contextual understanding [35]–[39].

The final concept can be depicted as knowledge being the ability to act on information (information with direction). In simpler terms, knowledge attempts to answer the question "how to utilize post-treatment healthcare information" or "how to use the information?" However, not all individuals or groups in society adapt to knowledge in accordance with the DIKW pyramid/knowledge hierarchy. Sometimes, limitations in understanding, opportunities, and willingness can pose challenges to developing societal knowledge about post-treatment innovations [40]. Based on interviews with the Head of the Medical and Support Services Division at Harapan dan Doa Hospital (RSHD) in Bengkulu City, it was mentioned that. The support staff at RSHD Kota Bengkulu stated:

> *"Post-treatment is indeed intended for patients who have undergone hospital care. So far, what we've observed is that* not *many people in the community are aware of this post-treatment innovation. The coverage is limited to VIP, basically those who have received treatment."* (Interview, on August 15, 2023)

The local government, represented by the Assistant for Governance and People's Welfare of Bengkulu City, who served as the innovator or initiator of the post-treatment innovation, added:

> *"The inception of the Post Treatment innovation was initially a brilliant idea proposed by Mayor Helmi Hasan back in 2017, along with the Director of RSHD. The goal was to enhance healthcare services in Bengkulu City. Regarding how to make the public* aware *of the existence of this post-treatment innovation, there have been banners displayed within RSHD to promote it to the community. However, it's possible that their placement may not have been very visible, which might explain why its presence hasn't been widely recognized."* (Interview, on August 21, 2023)

A similar sentiment was expressed by the Head of Technology and Information Division at the Communication and Information Office of Bengkulu City:

> *"The post-treatment innovation is indeed an advantage for Bengkulu City. Our information technology team fully supports the existence of the post-treatment innovation. Currently, there hasn't been much information shared on social media or the city's media center platform. Most of the information has been disseminated within the hospital environment."* (Interview, on August 18, 2023).

The local government of Bengkulu City, represented by RSHD as the initiator of the innovation, plays a less active role compared to other healthcare service innovations when it comes to the concept of knowledge. The involvement of the technology and information team from the Communication and Information Office of Bengkulu City has not been prominent because they have not been included in promotional activities and other initiatives. The diffusion of this innovation is mainly concentrated within the RSHD environment and is limited to the RSHD area. The use of social media, such as online news or information from the Bengkulu City media center, is not as visible as it is in other healthcare service innovations.

The research findings indicate that the post-treatment healthcare service innovation is a breakthrough in post-care services with a positive response from the service recipients [41]–[44]. Furthermore, it represents a regionally-based policy rooted in local wisdom. However, this post-care service is not accessible to all patients at the moment, as it is currently limited to VIP-class patients, in accordance with its intended purpose. In the future, it is hoped that RSHD can come up with other creative ideas so that similar post-treatment services can also be enjoyed by all post-care patients.

From a knowledge perspective, it can be concluded that the community is not yet aware of the existence of this post-treatment healthcare service innovation. Information is typically obtained when individuals are about to receive post-treatment services. RSHD primarily conducts diffusion within its own environment, which is limited to the RSHD premises and its surrounding area, occasionally appearing on Instagram from RSHD Kota Bengkulu. The use of other social media platforms for diffusion, such as online news or information from the Bengkulu City media center, is not as visible as it is for other healthcare service innovations. In the future, it is necessary to involve other entities, such as the Communication and Information Office of Bengkulu City, to assist in promoting innovation on social media, including the Bengkulu City media center and other media outlets [45]–[47].

3.2. Discussion

In the context above, the diffusion of innovation in post-treatment healthcare services requires the active participation of various stakeholders, including the government, academics, industry/private sector, and civil society [47]–[50]. This is essential to create sustainable regional development innovations while preserving the values of local wisdom. In this regard, participation and engagement can be manifested through behavioral values, where the community's response as service recipients goes beyond being mere recipients but also involves disseminating information and the benefits they receive to a wider and more sustainable audience [50].

The TRA model is used to understand human behavior. In social psychology research, there is evidence that an individual's intention toward a specific behavior is a determining factor in whether that individual will perform the behavior or not. TRA explains that an individual's beliefs can influence their attitude and social norms, which, in turn, shape the individual's intention to engage in a particular behavior. This theory highlights the significant role of an individual's "intention" in determining whether a behavior will occur or not. TRA consists of two main constructs in forming intention: i) attitude toward the behavior and ii) subjective norms related to the behavior.

According theory of the diffusion of innovation, to assess and ensure the diffusion of innovation, knowledge indicators are very important and must be owned by both service recipients and other stakeholders [50]–[52]. Furthermore, to observe the diffusion of innovation, direct behavior (execution) is required in the form of actions that clearly show the diffusion of innovation. Therefore, researchers combine these stages with concepts and theories from the TRA, especially the behavioral component. Figure 3 description of the innovation diffusion process where the first element, namely knowledge, is the basis of research, according:

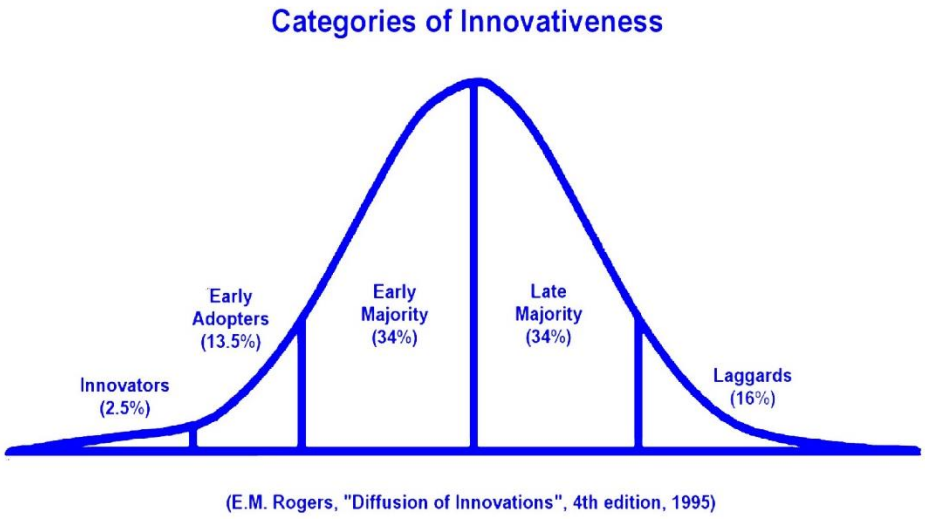

Figure 3. Categories of Innovativeness [52]

Based on innovation diffusion process which has been adapted to field conditions, it appears that in the process of diffusion of health service innovation in Bengkulu City, the knowledge element has not yet reached its maximum potential. It should be noted that in the final stage of diffusion, adoption of the proposed innovation occurs [51]. In this context, the integration of TRA theory is appropriate and in line with the observed situation. Therefore, behavior is essential to assess, demonstrate, and explain the extent to which the diffusion of healthcare innovations has been implemented. It becomes clear that knowledge, when translated into behavior in the dissemination of healthcare innovations, significantly influences the desire and willingness to use aftercare services. This is because it requires not only intention but also a proactive commitment to engage and contribute to aftercare services. In reality, this level of commitment and contribution has not yet reached its maximum potential in the field. Based on previous research, no combination of innovation diffusion elements with behavioral elements was found [51], [52], therefore it is important in the future to review the stages of innovation diffusion combined with behavioral elements simultaneously.

4. CONCLUSION

Based on the above, it can be concluded that the diffusion of healthcare innovation in Kota Bengkulu has not reached its maximum potential. In terms of the stages of innovation diffusion, the knowledge component suggests that the community is not fully aware of the existence of post-treatment healthcare innovation. Information is obtained only when they are about to receive post-treatment services. The diffusion efforts by RSHD are primarily limited to the RSHD environment itself, with minimal outreach beyond its premises, occasionally being covered on the RSHD Kota Bengkulu Instagram page. Diffusion involving other social media platforms, such as online news or the Kota Bengkulu media center, is not as visible as in other healthcare innovations.

In addition, the community's lack of awareness is due to a lack of urgency in their desires or needs. This is caused by a lack of understanding, acceptance, and awareness among the public regarding healthcare services, particularly when they perceive the outcomes as unresponsive or believe they do not require the available healthcare services. Therefore, it is suggested that a combination of knowledge and behavior should be integrated to achieve alignment in the innovation diffusion process, ensuring that the end result, adoption of the innovation, can occur as intended.

ACKNOWLEDGEMENTS

The author would like to express his deepest gratitude to the Muhammadiyah University of Bengkulu for providing research funding support to researchers. This financial assistance is a continuation of the educational and research assistance that researchers received in accordance with number 0214/WR.II/UMB-1/2023.

REFERENCES

[1] F. Acikgoz, A. Elwalda, and M. J. De Oliveira, "Curiosity on cutting-edge technology via theory of planned behavior and diffusion of innovation theory," *International Journal of Information Management Data Insights*, vol. 3, no. 1, p. 100152, Apr. 2023, doi: 10.1016/j.jjimei.2022.100152.

[2] O. O. Deji-Dada, S. A. Dada, J. D. Ogunlusi, and O. A. Solomon, "Patients' satisfaction with emergency care services in a university teaching hospital in south-west, nigeria," *African Journal of Emergency Medicine*, vol. 11, no. 2, pp. 321–324, Jun. 2021, doi: 10.1016/j.afjem.2021.03.015.

[3] B. Endeshaw, "Healthcare service quality-measurement models: a review," *Journal of Health Research*, vol. 35, no. 2, pp. 106–117, Apr. 2020, doi: 10.1108/JHR-07-2019-0152.

[4] A. Jonkisz, P. Karniej, and D. Krasowska, "SERVQUAL method as an 'old new' tool for improving the quality of medical services: a literature review," *International Journal of Environmental Research and Public Health*, vol. 18, no. 20, p. 10758, Oct. 2021, doi: 10.3390/ijerph182010758.

[5] A. A'aqoulah, A. B. Kuyini, and S. Albalas, "Exploring the gap between patients' expectations and perceptions of healthcare service quality," *Patient Preference and Adherence*, vol. Volume 16, pp. 1295–1305, May 2022, doi: 10.2147/PPA.S360852.

[6] I. Frankovic, M. Kuhn, and S. Wrzaczek, "Medical innovation and its diffusion: implications for economic performance and welfare," *Journal of Macroeconomics*, vol. 66, p. 103262, Dec. 2020, doi: 10.1016/j.jmacro.2020.103262.

[7] J. Waid and M. Uhrich, "A scoping review of the theory and practice of positive youth development," *The British Journal of Social Work*, Jan. 2019, doi: 10.1093/bjsw/bcy130.

[8] J. Trischler, M. Johnson, and P. Kristensson, "A service ecosystem perspective on the diffusion of sustainability-oriented user innovations," *Journal of Business Research*, vol. 116, pp. 552–560, Aug. 2020, doi: 10.1016/j.jbusres.2020.01.011.

[9] G. Jameson, M. Stoneham, M. Edmunds, and C. M. Pollard, "Local government venues' sponsorship and signage policies to limit the promotion of harmful products: a western australian public health audit," *Australian and New Zealand Journal of Public Health*, vol. 47, no. 4, p. 100062, Aug. 2023, doi: 10.1016/j.anzjph.2023.100062.

[10] J. P. J. de Jong, C. Rigtering, and L. Spaans, "Heroes of diffusion: making user innovations widely available," *Research Policy*, vol. 52, no. 8, p. 104840, Oct. 2023, doi: 10.1016/j.respol.2023.104840.

[11] D. E. Kalisz, I. Khelladi, S. Castellano, and R. Sorio, "The adoption, diffusion & categorical ambiguity trifecta of social robots in e-health – insights from healthcare professionals," *Futures*, vol. 129, p. 102743, May 2021, doi: 10.1016/j.futures.2021.102743.

[12] K. Fichter and J. Clausen, "Diffusion of environmental innovations: sector differences and explanation range of factors," *Environmental Innovation and Societal Transitions*, vol. 38, pp. 34–51, Mar. 2021, doi: 10.1016/j.eist.2020.10.005.

[13] Y. Kurt, "Diffusion of the airport health accreditation program in the covid-19 period: an assessment with institutional logic and legitimacy approach," *Journal of Air Transport Management*, vol. 94, p. 102078, Jul. 2021, doi: 10.1016/j.jairtraman.2021.102078.

[14] X. Lin, L. Lu, and J. Pan, "Hospital market competition and health technology diffusion: an empirical study of laparoscopic appendectomy in china," *Social Science and Medicine*, vol. 286, 2021, doi: 10.1016/j.socscimed.2021.114316.

[15] S. Allers, F. Eijkenaar, E. M. van Raaij, and F. T. Schut, "The long and winding road towards payment for healthcare innovation with high societal value but limited commercial value: a comparative case study of devices and health information technologies," *Technology in Society*, vol. 75, p. 102405, Nov. 2023, doi: 10.1016/j.techsoc.2023.102405.

[16] E. Barrenho, M. Miraldo, C. Propper, and B. Walsh, "The importance of surgeons and their peers in adoption and diffusion of innovation: an observational study of laparoscopic colectomy adoption and diffusion in england," *Social Science & Medicine*, vol. 272, p. 113715, Mar. 2021, doi: 10.1016/j.socscimed.2021.113715.

[17] A. Riaz and U. Sughra, "Measurement of service quality gaps in dental services using servqual in public hospitals of rawalpindi," *Pakistan Journal of Medical Sciences*, vol. 37, no. 3, Mar. 2021, doi: 10.12669/pjms.37.3.3436.

[18] A. Gilavand and A. Torabipour, "The quality of services of iran university hospitals based on servqual's evaluation model: a systematic review and meta-analysis," *Frontiers in Public Health*, vol. 10, Apr. 2022, doi: 10.3389/fpubh.2022.838359.

[19] A. Cepparulo and A. Zanfei, "The diffusion of public eservices in european cities," *Government Information Quarterly*, vol. 38, no. 2, p. 101561, Apr. 2021, doi: 10.1016/j.giq.2020.101561.

[20] C. Y. Wang, A. Clavarino, and K. Luetsch, "The implementation of a pharmacy residency program – a qualitative study on the diffusion of an innovation," *Exploratory Research in Clinical and Social Pharmacy*, vol. 3, p. 100048, Sep. 2021, doi: 10.1016/j.rcsop.2021.100048.

[21] D. Cobben, W. Ooms, and N. Roijakkers, "Indicators for innovation ecosystem health: a delphi study," *Journal of Business Research*, vol. 162, p. 113860, Jul. 2023, doi: 10.1016/j.jbusres.2023.113860.

[22] L. Liu, D. Wang, X. Qin, Z. Hu, and R. Chen, "The impact of social capital on civil society organizations delivering voluntary counseling and testing hiv/aids service: a cross-sectional study in china," *BioScience Trends*, vol. 14, no. 3, pp. 182–191, Jun. 2020, doi: 10.5582/bst.2020.03110.

[23] R. Madan and M. Ashok, "AI adoption and diffusion in public administration: a systematic literature review and future research agenda," *Government Information Quarterly*, vol. 40, no. 1, 2023, doi: 10.1016/j.giq.2022.101774.

[24] J. M. Martins *et al.*, "Spectinomycin, gentamicin, and routine disc diffusion testing: an alternative for the treatment and monitoring of multidrug-resistant neisseria gonorrhoeae?," *Journal of Microbiological Methods*, vol. 197, p. 106480, Jun. 2022, doi: 10.1016/j.mimet.2022.106480.

[25] C. Trivelli and J. Morel, "Rural youth inclusion, empowerment, and participation," *The Journal of Development Studies*, vol. 57, no. 4, pp. 635–649, Apr. 2021, doi: 10.1080/00220388.2020.1808194.

[26] G. R. Meredith, M. W. Brunson, and S. P. Hardegree, "Management innovations for resilient public rangelands: adoption constraints and considerations for interagency diffusion," *Rangeland Ecology & Management*, vol. 75, pp. 152–160, Mar. 2021, doi: 10.1016/j.rama.2021.01.002.

[27] M. B. Miles, A. M. Huberman, and J. Saldana, *Qualitative data analysis: a method sourcebook edition 3*. SAGE Publications, 2014.

[28] P. Sharareh, T. Leili, M. Abbas, P. Jalal, and G. Ali, "Determining correlates of the average number of cigarette smoking among college students using count regression models," *Scientific Reports*, vol. 10, no. 1, p. 8874, Jun. 2020, doi: 10.1038/s41598-020-65813-4.

[29] R. M. Lerner *et al.*, "Positive youth development in 2020: theory, research, programs, and the promotion of social justice," *Journal of Research on Adolescence*, vol. 31, no. 4, pp. 1114–1134, Dec. 2021, doi: 10.1111/jora.12609.

[30] A. Palm, "Innovation systems for technology diffusion: an analytical framework and two case studies," *Technological Forecasting and Social Change*, vol. 182, p. 121821, Sep. 2022, doi: 10.1016/j.techfore.2022.121821.

[31] M. Milic *et al.*, "Tobacco smoking and health-related quality of life among university students: mediating effect of depression," *PLOS ONE*, vol. 15, no. 1, p. e0227042, Jan. 2020, doi: 10.1371/journal.pone.0227042.
[32] W. Gao, S. Ping, and X. Liu, "Gender differences in depression, anxiety, and stress among college students: a longitudinal study from china," *Journal of Affective Disorders*, vol. 263, pp. 292–300, Feb. 2020, doi: 10.1016/j.jad.2019.11.121.
[33] P. L. Green and P. E. Plsek, "Coaching and leadership for the diffusion of innovation in health care: a different type of multi-organization improvement collaborative," *The Joint Commission Journal on Quality Improvement*, vol. 28, no. 2, pp. 55–71, Feb. 2002, doi: 10.1016/S1070-3241(02)28006-2.
[34] K. Sheehan *et al.*, "Long-term effects of a community-based positive youth development program for black youth: health, education, and financial well-being in adulthood," *BMC Public Health*, vol. 22, no. 1, 2022, doi: 10.1186/s12889-022-13016-z.
[35] J. Peng, J. Zhang, L. Zhao, P. Fang, and Y. Shao, "Coach–athlete attachment and the subjective well-being of athletes: a multiple-mediation model analysis," *International Journal of Environmental Research and Public Health*, vol. 17, no. 13, p. 4675, Jun. 2020, doi: 10.3390/ijerph17134675.
[36] Everett M Rogert, *Diffusion of innovations, third edition*. New York: Macmillan Publishing Co. Inc, 1983.
[37] S. Batsiou, S. Bournoudi, P. Antoniou, and S. P. Tokmakidis, "Self-perception self-esteem physical activity and sedentary behavior of primary greek- school students: a pilot study," *International Journal of Instruction*, vol. 13, no. 1, pp. 267–278, Jan. 2020, doi: 10.29333/iji.2020.13118a.
[38] S. L. Battalio, S. E. Huffman, and M. P. Jensen, "Longitudinal associations between physical activity, anxiety, and depression in adults with long-term physical disabilities.," *Health Psychology*, vol. 39, no. 6, pp. 529–538, Jun. 2020, doi: 10.1037/hea0000848.
[39] M. de Witte, A. da S. Pinho, G.-J. Stams, X. Moonen, A. E. R. Bos, and S. van Hooren, "Music therapy for stress reduction: a systematic review and meta-analysis," *Health Psychology Review*, vol. 16, no. 1, pp. 134–159, Jan. 2022, doi: 10.1080/17437199.2020.1846580.
[40] T. Scheplitz, "Demonstration and evaluation of the digital health innovation interoperability framework," *Procedia Computer Science*, vol. 219, pp. 1404–1411, 2023, doi: 10.1016/j.procs.2023.01.429.
[41] O. Schwabe *et al.*, "A maturity model for rapid diffusion of innovation in high value manufacturing," *Procedia CIRP*, vol. 96, pp. 195–200, 2021, doi: 10.1016/j.procir.2021.01.074.
[42] L. Goldsmith, "Using framework analysis in applied qualitative research," *The Qualitative Report*, Jun. 2021, doi: 10.46743/2160-3715/2021.5011.
[43] W. Majee and A. Anakwe, "Youth engagement: a mixed method investigation of adult and youth perceptions of community resources in rural america," *Community Development*, vol. 51, no. 2, pp. 140–156, Mar. 2020, doi: 10.1080/15575330.2019.1689517.
[44] S. Aalbers, M. Spreen, K. Pattiselanno, P. Verboon, A. Vink, and S. van Hooren, "Efficacy of emotion-regulating improvisational music therapy to reduce depressive symptoms in young adult students: a multiple-case study design," *The Arts in Psychotherapy*, vol. 71, p. 101720, Nov. 2020, doi: 10.1016/j.aip.2020.101720.
[45] S. Talwar, A. Dhir, N. Islam, P. Kaur, and A. Almusharraf, "Resistance of multiple stakeholders to e-health innovations: integration of fundamental insights and guiding research paths," *Journal of Business Research*, vol. 166, p. 114135, Nov. 2023, doi: 10.1016/j.jbusres.2023.114135.
[46] U. Theuretzbacher, "Antibiotic innovation for future public health needs," *Clinical Microbiology and Infection*, vol. 23, no. 10, pp. 713–717, Oct. 2017, doi: 10.1016/j.cmi.2017.06.020.
[47] E. M. Tur, P. Zeppini, and K. Frenken, "Diffusion in small worlds with homophily and social reinforcement: a theoretical model," *Social Networks*, vol. 76, pp. 12–21, Jan. 2024, doi: 10.1016/j.socnet.2023.05.004.
[48] R. C. Vincent and V. Osei Kwadwo, "Spatial interdependence and spillovers of fiscal grants in benin: static and dynamic diffusions," *World Development*, vol. 158, p. 106006, Oct. 2022, doi: 10.1016/j.worlddev.2022.106006.
[49] L. X. Wang, "Global drug diffusion and innovation with a patent pool: the case of hiv drug cocktails," *SSRN Electronic Journal*, 2019, doi: 10.2139/ssrn.3426554.
[50] J. J. Yun, K. Park, S. D. Hahm, and D. Kim, "Basic income with high open innovation dynamics: the way to the entrepreneurial state," *Journal of Open Innovation: Technology, Market, and Complexity*, vol. 5, no. 3, p. 41, Sep. 2019, doi: 10.3390/joitmc5030041.
[51] A. R. Zapata-Moya, J. Freese, and P. Bracke, "Mechanism substitution in preventive innovations: dissecting the reproduction of health inequalities in the united states," *Social Science & Medicine*, vol. 337, p. 116262, Nov. 2023, doi: 10.1016/j.socscimed.2023.116262.
[52] B. Zhang and H. Wang, "Network proximity evolution of open innovation diffusion: a case of artificial intelligence for healthcare," *Journal of Open Innovation: Technology, Market, and Complexity*, vol. 7, no. 4, 2021, doi: 10.3390/joitmc7040222.

BIOGRAPHIES OF AUTHORS

Novliza Eka Patrisia is a Public Administration Professional with a specialization in Public Service Innovation. She teaches Bureaucratic Reform, Republic of Indonesia Administration System, and Research at the Muhammadiyah University of Bengkulu, Indonesia. She earned his bachelor's and postgraduate degrees in Public Administration, and is currently completing his Doctor of Public Administration with a postgraduate specialization in Health Public Service Innovation at Diponegoro University, Indonesia. Research interests include Bureaucratic Reform, Public Service Innovation in the Health Sector, Health Service Administration, health information systems, health human resources, evaluation of public health programs/interventions, and health literacy. She is a member of the IAPA Indonesia Lecturer Organization. She can be contacted atemail: novlizaekap@umb.ac.id.

Hardi Warsono is a Public Administration Professional with a specialization in Public Policy and Public Management. He teaches at the Department of Public Administration, Diponegoro University, Indonesia. He is the Dean of the Faculty of Social and Political Sciences. He can be contacted at email: hardiwarsono.live.undip.ac.id.

Kismartini is a Public Administration Professional with a specialization in Public Policy and Public Management. She teaches at the Department of Public Administration, Diponegoro University, Indonesia. She can be contacted at email: kismartini.live.undip.ac.id.

Reni Shinta Dewi is a Business Administration Professional with a specialization in Business Policy and Business Management. He teaches at the Department of Business Administration, Diponegoro University, Indonesia. She can be contacted at email: renishintadewi.lecturer.undip.ac.id.