TRANSHARE MODEL (TRANSFER AND KNOWLEDGE SHARING) CONTROLSTHE TRANSMISSION OF PULMONARY TUBERCULOSIS IN PATIENTS WITHDIABETES MELLITUS

Eppy Setiyowati[1], Erika Martining Wardani[2], Netty Mawardah Hatmanti[3], RahayuAnggraini[4]

Article History: Received: 27.04.2023 **Revised:**15.06.2023 **Accepted:** 25.07.2023

Abstract

Pulmonary tuberculosis (TB) is one of the infectious diseases that has become a globalproblem, for developing countries such as Indonesia. TB problems are exacerbated by comorbidities, one of which is Diabetes Mellitus (DM). The purpose of the study was to applythe transhare model (Creation knowledge, Transfer knowledge and knowledge sharing) to control the transmission of Pulmonary Tuberculosis in patients with Diabetus mellitus. Experimental research design with crossectional approach. In accordance with the inclusion and exclusion criteria, a large sample of 17 respondents with DM-TB for the transharemodel intervention group and 17 respondents with DM-TB for the control group were taken based on total sampling. The dependent variable is the transhare model including: create knowledge, share knowledge and transfer knowledge, while TB transmission control includes respondent characteristics, control compliance, medication adherence, and environmental conditions. Statistical analysis of Transhare Model using Ordered probit regression with the help of Stata 16 The results of the statistical ordered probit regression model showed significant valuesin creation knowledge: room temperature (2.061*), control compliance (-2.081***); knowledge transfer: duration of treatment (-1,585*); knowledge sharing: Education (1,022*), room temperature (-4,330***), humidity (3,282**), control compliance (1.794**) .
The conclusion of the study states that home conditions with temperature and humidity,control compliance and medication adherence encourage someone to do knowledge management in overcoming the transmission of pulmonary tuberculosis.

Keywords: Tuberculosis, Diabetus Mellitus, Compliance, Knowledge Management.

[1,2,3]Nursing Department, Faculty of Nursing and Midwifery, Universitas Nahdlatul UlamaSurabaya.
[4]Department of Analyst, Faculty of Health, Universitas Nahdlatul Ulama Surabaya.

[*]Correspondent Author: Eppy Setiyowati
Nursing Department, Faculty of Nursing and Midwifery, Universitas Nahdlatul UlamaSurabaya.
Email: [1*]eppy@unusa.ac.id

DOI: 10.31838/ecb/2023.12.s3.802

1. Introduction

Indonesia as one of the developing countries epidemiologically experiences a double disease burden The burden of infectious diseases is still high but on the other hand the burdenof non-infectious diseases continues to increase (1). Based on the results of the TB prevalence study in 2019/2020 listed in the strategic plan of the Ministry of Health of the Republic of Indonesia 2020 – 2025 It is known that the prevalence of TB with bacteriological confirmationat the age of ≥ 15 is 759 per 100,000 population while the prevalence of all-form TB at all agesis 660 per 100,000 population (2;3). With such a large figure, it is estimated that there are 1.6 million Indonesians experiencing TB. The TB problem in Indonesia is exacerbated by the lowcase notification rate (CNR) which is only 81 per 100,000 population and the lower case notification rate in Bali at 74 per 100,000 population. In other words, most TB cases are not recorded and do not receive treatment properly. When viewed from the treatment process, thesuccess rate is 90% which shows quite good success of therapy in TB patients in Bali (1; 2). This may also be due to the low discovery of cases so that efforts are needed to improve case detection from various points, one of which is through screening patients DM (4). Tuberculosis (TB) is one of the infectious diseases that is a global problem, mostly foundin developing countries. In 2018 there were an estimated 9 million people in the world suffering from TB and 1.5 million people died from TB (5;6). The vast majority (56%) of TB sufferers live in developing countries, particularly in Southeast Asia and the Western Pacific (7; 8). TBproblems are exacerbated by comorbidities, one of which is diabetes mellitus (DM). DM is already known as one of the risk factors for TB infection and hinders the recovery of TB patients who are in treatment (9;10). On the other hand, TB infection is also suspected of making it easier for someone to experience DM (11;12). In 2018 it is estimated that 382 millionpeople in the world experience DM, some of which have not been diagnosed and handled properly so that they can develop and are threatened with complications, one of which is a decrease in immunity so that it is easily infected, including by TB (13;14). The purpose of the study was to analyze the application of the transhare (Transfer and knowledge sharing) model to control the transmission of pulmonary tuberculosis in patients with diabetes mellitus.

2. Method Research Design

Research design with quantitative approach, with quasi-experimental type with pre-postcontrol group design approach. This study studied the effect of the transhare model on the control of pulmonary tuberculosis in patients with diabetes mellitus.

Participants: Participants in this study were patients with comorbid pulmonary tuberculosis diabetes mellitus aged > 20 years who lived in the city of Surabaya. Sampling technique with purposive sampling at the research location, namely 2 community health centers and 1 hospital in the city of Surabaya, with inclusion criteria; pulmonary tuberculosis patients with comorbid diabetes mellitus for 1 year. Researchers managed to get 18 respondents for the intervention group and 18 respondents for the control group.

Measurement

Pre-intervention data collection was carried out by distributing questionnaires to respondents about covering respondent characteristics, control compliance, medication adherence, environmental conditions. Sebelumnya peneliti telah menyebarkan inform consent dan information for consent for willingness to be a respondent and follow the research processto completion. In the transfer and sharing model, there are 3 categories, namely create knowledge, share knowledge and transfer knowledge, with measurements categorized as implemented and not implemented. Variable characteristics of respondents include age, gender, education, length of illness, length of treatment; Control compliance is observed from recorded medical records, medical records are further categorized as compliant and non-compliant. The variable of adherence to taking medication was observed from the records of monitoring taking medication from each patient with pulmonary tuberculosis then categorized as obedient and non-compliant, while environmental conditions were categorized according to standards and non-standards. The analysis used is Stata 16 to determine model 1, namely create knowledge with factors affecting age, sex, education, length of treatment, length of illness, room temperature, room humidity, lighting, control and adherence to taking medication. Model 2 is with knowledge transfer factors with factors affecting age, sex, education, duration of

treatment, length of illness, room temperature, room humidity, lighting, control and adherence to taking medication. Model 3 Sharing knowledge with factors affecting age, sex, education, length of treatment, length of illness, room temperature, room humidity, lighting, control and medication adherence.

3. Research Results

The results of the study displayed descriptive data from the transhare model including create knowledge, transfer knowledge and knowledge sharing with respondent characteristics including age, gender, education, duration of treatment, length of illness; environmental conditions include: room temperature, humidity, lighting; medication control and adherence (Table 1). The results of the ordered probed regression of transhare model analysis appear in (table 2)

Table 1 Descriptive statistics of the Transhare Model (N: 36 respondent)

	Model Transhare								
Variable	**Create knowledge**			**Transfer knowledge**			**Sharing knowledge**		
	Coef	**%**	**P**	**Coef**	**%**	**P**	**Coef**	**%**	**P**
Age	0.056	-20.0	0.666	-0.918	-0.701	0.768	-0.234	-0.662	0.942
Gender	-0.026	-42.7	0.898	-0.420	-1.431	0.415	0.573	-0.580	0.330
Education	0.162	-13.8	0.290	-0.437	-1.156	0.234	1.021	0.036	0.042
Duration of treatment	0.143	-35.1	0.569	-1.585	-2.926	0.021	0.326	-0.1.074	0.647
Long Illness	-0.379	-86.0	0.122	1.395	-0.666	0.061	1.465	-0.226	0.090
Room temperature	0.651	34.8	0.000	-0.427	-2.019	0.598	-4.330	-5.718	0.000
Moisture	-0.257	-87.5	0.413	-0.610	-2.685	0.564	3.282	1.082	0.003
Lighting	0.176	- 029.7	0.465	0.426	-0.779	0.488	0.015	-1.484	0.984
Control compliance	-0.701	-95.3	0.000	0.387	-0.633	0.458	1.793	0.477	0.008
Adherence to taking medication	-0.126	-61.7	0.613	-1.106	-2.467	0.111	-1.121	-2.605	0.138

Table 2 Ordered probit regression of model Transharing (N:36)

Dependent variable: model Transharing (1= Implemented, 2 = not implemented)						
Variable	**Ordered probit regression**					
	Create knowledge		**Transfer knowledge**		**Sharing knowledge**	
Age	0.144	(0.43)	-0.0918	(-0.30)	-0.023	(-0.07)
Gender	-0.066	(-0.13)	-0.420	(-0.81)	0.573	(0.97)
Education	0.415	(1.07)	-0.437	(-1.19)	1.022*	(2.03)
Duration of treatment	0.366	(0.57)	-1.585*	(-2.32)	0.327	(0.46)
Long Illness	-1.037	(-1.38)	1.395	(1.87)	1.466	(1.70)
Room temperature	2.061*	(2.43)	-0.428	(-0.53)	-4.330***	(-6.11)
Moisture	-0.730	(-0.69)	-0.611	(-0.58)	3.282**	(2.93)
Lighting	0.451	(0.72)	0.427	(0.69)	0.0155	(0.02)
Control compliance	-2.081***	(-3.78)	0.387	(0.74)	1.794**	(2.67)
Adherence to taking medication	-0.326	(-0.50)	-1.106	(-1.59)	-1.122	(-1.48)

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

4. Discussion

The results showed that standard room temperature has a probability of 0.651 compared to non-standard room temperature and P of 0.000 for create knowledge. Control compliance has a probability of -0.701 compared to those who do not comply with controls and has a significant value of 0.000 for create knowledge (Table 1).

The duration of treatment of less than 3 months has

a probability of -1.585 compared tothe duration of treatment of more than 3 months, and is significant for knowledge transfer of
0.021. The length of illness of more than 3 months has a probability of 1,395 compared to thelength of illness of more than 3 months with a significant value of 0.061. Higher education level has a probability of 0.162 compared to respondents who have low education level and have a significant value for knowledge sharing of P 0.042. The length of illness of less than 3 months has a probability of -0.379 compared to respondents who have been sick for more than 3 months and have a significant P value of 0.090. Standard room temperature has a probability of 0.651 compared to non-standard room shu and has a significantvalue of 0.000. Standard air humidity has a probability of -0.257 compared to non-standard airhumidity and has a significant value with knowledge sharing of 0.003. The results of the statistical ordered probit regression model test show a significant value in knowledge creation: room temperature (2.061*), control compliance (-2.081***); Knowledge transfer: duration of treatment (-1,585*); knowledge sharing: Education (1,022*), room temperature (-4,330***), humidity (3,282**), control compliance (1.794**) (Table 2). The spread of tuberculosis cases is closely related to the environmental conditions of residential homes such as ventilation, temperature, humidity, occupancy density, lighting, floors and walls (15; 17). Dense, shabby housing, poor air circulation and less sunlight are triggers for bacteria that cause tuberculosis to survive longer, this is because the room is dark,humid, cold and does not have good ventilation (18; 19). Therefore, the construction of pulmonary tuberculosis transmission, knowledge creation is one dimension of the knowledge management process in this study named transhare (32); (33). Knowledge Creation is a process in creating knowledge through discussions between groups of people with comorbid diabetes mellitus pulmonary tuberculosisaccompanied by educational media in the form of modules and knowledge transfer to other people who suffer from comorbid diabetes mellitus (34; 35). By implementing a knowledge creation system in the group of patients with comorbid pulmonary tuberculosis diabetes mellitus well, So the community with comorbid pulmonary tuberculosis diabetes mellitus will continue to improve themselves and produce creative and innovative work on an ongoing basisin the face of changes related to the disease suffered (36; 37). In the application of knowledge creation, what is important to pay attention to is how the knowledge process is created and managed. (38) (38)knowledge creation dalam organisasi. Kerangka dasar tersebut terdiri dari dua dimensi, yaitu epistimologi dan ontologi (39; 40). Knowledge is created through the interaction between the epistimology dimension and the ontology dimension. The epistimological dimension consists of the interaction between tacit knowledge and explicit knowledge. While the ontology dimension shows the level of knowledge from the lowest to the higher level (individual, group, organization, interorganization) (41; 42).

residential houses that meet health requirements must always be considered so that every roomin the house gets a change in clean air flow and gets enough solar lighting so that the risk of disease caused by poor air quality can be reduced (20; 21) TB disease is one that is being promoted prefective and curative efforts for sufferers, especially in the conditions of the home environment which indirectly quite affect the incidenceof pulmonary tuberculosis (22; 23), Because the home environment that is less qualified healthwill affect the number or density of germs in the house (24; 25). In addition, the behavior of residents who do not pay attention to health, environment and individual hygiene also contributes positively to the increase in environmental events which include residential density,ventilation, humidity, type of house floor, type of wall, temperature and lighting (26; 27). The physical condition of the house has a very important role in the spread of pulmonary tuberculosis bacteria to healthy people. The source of transmission of this disease through theintermediary of saliva or sputum of patients containing mycobacterium tuberculosis at home (28; 29) Mycobacterium Tuberculosis is a mesophilic bacterium that grows fast in the temperaturerange of 25-40 °C, but the bacteria will grow optimally at temperatures 31-37℃. Unqualified indoor temperatures will be a growth medium for pathogenic bacteria and can survive for a long time in home air, it will be a source of disease transmission, one of which is mycobacterium tuberculosis bacteria (30; 31). To create innovation and new knowledge related to

Knowledge sharing is a method or activity in knowledge management used to provide and disseminate knowledge, ideas, experiences, or skills from someone to create a basis for common needs in controlling the transmission of pulmonary tuberculosis in patients with diabetes mellitus (43). Knowledge sharing is part of knowledge management in order to createideas and innovations that will contribute to sustainability in controlling the transmission of pulmonary tuberculosis in patients with diabetes mellitus (44). Knowledge sharing consists of disseminated understanding related to factors that cause pulmonary tuberculosis transmission (room temperature, air humidity, lighting) with relevant information and build knowledge related to the ability of people with

tuberculosis to control the transmission of pulmonary tuberculosis in patients with comorbid pulmonary tuberculosisdiabetes mellitus (45; 46). Knowledge sharing can grow and develop if it finds suitable conditions determined by three key factors: people, organization, and technology. Knowledge sharing can only be done if each member has a broad opportunity to express their opinions, ideas, criticisms, and comments to other members (47; 48).

Acknowledgments

A thank you to the Chairman of the Higher Education Service institution region VII, through Task Letter 1125/UNUSA-LPPM/Adm-I/VI/2023 Master's thesis grant at the Directorate General of No.

Funding

Thesis grant at the Directorate General of Vocational Education, Ministry of Cultural Education, research and technology for fiscal year 2023

5. Reference

1. World Health Organization. GlobalTuberculosis Report. In: Global Tuberculosis Report.2021.
2. Dinas Kesehatan Provinsi Jawa Timur. Profil Kesehatan Provinsi Jawa Timur 2019. Dinas Kesehatan Provinsi Jawa Timur, [Internet]. 2020;tabel 53. Available from: www.dinkesjatengprov.go.id
3. Purnama SG, Susanna D. Hygiene and sanitation challenge for covid-19 prevention in Indonesia. Kesmas. 2020;15(2):6–13.
4. Karat AS, Gregg M, Barton HE, Calderon M, Ellis J, Falconer J, et al. Evidence for theUse of Triage, Respiratory Isolation, and Effective Treatment to Reduce the Transmission of Mycobacterium Tuberculosis in Healthcare Settings: A Systematic Review. Clinical Infectious Diseases. 2020;72(February 2018).
5. Kielmann K, Karat AS, Zwama G, Colvin C, Swartz A, Voce AS, et al. Tuberculosis infection prevention and control: Why we need a whole systems approach. Infect Dis Poverty. 2020;9(1):1–4.
6. Biermann O, Tran PB, Viney K, Caws M, Lönnroth K, Annerstedt KS. Active case-finding policy development, implementation and scale-up in high-burden countries: A mixed-methods survey with National Tuberculosis Programme managers and document review. PLoS One. 2020;15(10 October):1–17.

Vocational Education, Ministry of Cultural Education, research and technology forfiscal year 2023

Author Contribution

The author contributed to submitting the clearance ethical test, obtaining research permits, collecting data in the field and analyzing data

EthicalApproval

In this study ethical clearance were carried No.070.EC.KEP.RSIAY.09.2022 by researchethics committee chakra brahmanda lentera institution

Conflict Of Interest

7. Westhuizen H mari Van Der, Nathavitharana RR, Pillay C. J Clin Tuberc Other Mycobact Dis The high-quality health system ' revolution ': Re-imagining tuberculosis infection prevention and control. J Clin Tuberc Other Mycobact Dis [Internet]. 2019;17:1–6. Available from: https://doi.org/10.1016/j.jctube.2019.100118
8. Kielmann K, Karat AS, Zwama G, Colvin C, Swartz A, Voce AS, et al. Tuberculosis infection prevention and control: Why we need a whole systems approach. Infect Dis Poverty. 2020;9(1):1–4.
9. Karat AS, Gregg M, Barton HE, Calderon M, Ellis J, Falconer J, et al. Evidence for theUse of Triage, Respiratory Isolation, and Effective Treatment to Reduce the Transmission of Mycobacterium Tuberculosis in Healthcare Settings: A Systematic Review. Clinical Infectious Diseases. 2020;72(February 2018).
10. Nduba V, Van'T Hoog AH, De Bruijn A, Mitchell EMH, Laserson K, Borgdorff M. Estimating the annual risk of infection with Mycobacterium tuberculosis among adolescents in Western Kenya in preparation for TB vaccine trials. BMC Infect Dis. 2019;19(1):1–7.
11. Dorjee K, Topgyal S, Tsewang T, Tsundue T, Namdon T, Bonomo E, et al. Risk of developing active tuberculosis following tuberculosis screening and preventive therapy for Tibetan refugee children and adolescents in India : An impact assessment. PLoS Med [Internet]. 2021;000(january 19):1–18. Available from: https://doi.org/10.1371/journal. pmed.1003502
12. Xu M, Li Y, Liu B, Chen R, Sheng L, Yan S, et al. Temperature and humidity associated with increases in tuberculosis notifications: a time-series study in Hong Kong. Epidemiol

Infect. 2020;1–29.

13. Adu PA, Spiegel JM, Yassi A. Towards TB elimination: how are macro-level factors perceived and addressed in policy initiatives in a high burden country? Global Health. 2021;17(1):1–11.
14. Huang S, Xiang H, Yang W, Zhu Z, Tian L, Deng S, et al. Short-term effect of air pollution on tuberculosis based on kriged data: A time-series analysis. Int J Environ Res Public Health. 2020;17(5).
15. Kim J, Hagen E, Muindi Z, Mbonglou G, Laituri M. An examination of water, sanitation,and hygiene (WASH) accessibility and opportunity in urban informal settlements during the COVID-19 pandemic: Evidence from Nairobi, Kenya. Science of the Total Environment [Internet] 2022;823:153398. Available from: https://doi.org/10.1016/j.scitotenv.2022.153398
16. Khan F. Water availability and response of Tarbela Reservoir under the changing climate in the Upper Indus Basin, Pakistan. Vol. 12, Scientific reports. 2022. p. 15865.
17. Majima S, Wakahara K, Iwano S, Kinoshita F, Nakamura M, Hashimoto N, et al. Airway involvement in inflammatory bowel disease: Inflammatory bowel disease patients have bronchial wall thickening. Respir Investig [Internet]. 2022;60(5):713–9. Available from: https://doi.org/10.1016/j.resinv.2022.06.003
18. Id OO, Adepoju V, Emeka F, Id A. Treatment outcomes of drug susceptible Tuberculosisin private health facilities in. PLoS One. 2021;1535:1–18.
19. Tan C, Kallon II, Colvin CJ, Grant AD. Barriers and facilitators of tuberculosis infectionprevention and control in low- And middle-income countries from the perspective of healthcare workers: A systematic review. PLoS One. 2020;15(10 October):1–18.
20. Kim J, Hagen E, Muindi Z, Mbonglou G, Laituri M. An examination of water, sanitation,and hygiene (WASH) accessibility and opportunity in urban informal settlements during the COVID-19 pandemic: Evidence biomarkers. Lancet Infect Dis [Internet]. 2018;18(7):e199–210. Available from: http://dx.doi.org/10.1016/S1473-3099(18)30111-7
28. Chudasama Y V., Gillies CL, Zaccardi F, Coles B, Davies MJ, Seidu S, et al. Impact of COVID-19 on routine care for chronic diseases: A global survey of views from healthcare professionals. Diabetes and

from Nairobi, Kenya. Science of the Total Environment [Internet]. 2022;823:153398.Availablefrom: https://doi.org/10.1016/j.scitotenv.2022.153398

21. Kim J, Hagen E, Muindi Z, Mbonglou G, Laituri M. An examination of water, sanitation,and hygiene (WASH) accessibility and opportunity in urban informal settlements during the COVID-19 pandemic: Evidence from Nairobi, Kenya. Science of the Total Environment [Internet]. 2022;823:153398. Available from: https://doi.org/10.1016/j.scitotenv.2022.153398
22. Kinikar A, Chandanwale A, Kadam D, Joshi S, Basavaraj A, Pardeshi G, et al. High riskfor latent tuberculosis infection among medical residents and nursing students in India.PLoS One. 2019;14(7):1–12.
23. Colvin CJ, Kallon II, Swartz A, MacGregor H, Kielmann K, Grant AD. 'It has become everybody's business and nobody's business': Policy actor perspectives on the implementation of TB infection prevention and control (IPC) policies in South African public sector primary care health facilities. Glob Public Health. 2020;
24. Ou Q, Pei C, Chan Kim S, Abell E, Pui DYH. Evaluation of decontamination methods for commercial and alternative respirator and mask materials – view from filtration aspect. J Aerosol Sci. 2020;150(May).
25. Tesema T, Seyoum D, Ejeta E, Tsegaye R. Determinants of tuberculosis treatment outcome under directly observed treatment short courses in Adama City, Ethiopia. PLoS One. 2020;15(4):1–12.
26. Lienhardt C. Form Exposure to Disease: The Role of Environmental Factors in Susceptibility to and Development of Tuberculosis. Epidemiol Rev. 2000;23(2):288– 301.
27. Walzl G, McNerney R, du Plessis N, Bates M, McHugh TD, Chegou NN, et al. Tuberculosis: advances and challenges in development of new diagnostics and

Metabolic Syndrome: Clinical Research and Reviews [Internet]. 2020;14(5):965–7. Available from: https://doi.org/10.1016/j.dsx.2020.06.042

29. Secretary of Jan Swasthya Sahyog, Laux TS, Patil S. Predictors of tuberculosis treatment outcomes among a retrospective cohort in rural, Central India. J Clin Tuberc Other Mycobact Dis [Internet]. 2018;12(May):41–

7. Available from: https://doi.org/10.1016/j.jctube.2018.06.005

30. Syed A Sattar, Kathryn E. Wright, Bahram Zargar, Joseph R. Rubino and MKI. Airbone Infectious Agents and Other Pollutants in Automobiles for Domestic Use: Potential Health Impact and Approaches to Risk Migitation. Journal of Environment and public Helath. 2016;2016:1–12.
31. Secretary of Jan Swasthya Sahyog, Laux TS, Patil S. Predictors of tuberculosis treatment outcomes among a retrospective cohort in rural, Central India. J Clin Tuberc Other Mycobact Dis [Internet]. 2018;12(May):41–7. Available from: https://doi.org/10.1016/j.jctube.2018.06.005
32. Graham ID, Kothari A, McCutcheon C, Alvarez G, Banner D, Botti M, et al. Moving knowledge into action for more effective practice, programmes and policy: Protocol for a research programme on integrated knowledge translation. Implementation Science. 2018;13(1):1–15.
33. Rycroft-Malone J, Burton CR, Bucknall T, Graham ID, Hutchinson AM, Stacey D. Collaboration and co-production of knowledge in healthcare: Opportunities and challenges. Int J Health Policy Manag [Internet]. 2016;5(4):221–3. Available from: http://dx.doi.org/10.15171/ijhpm.2016.08
34. Nonaka I, Lewin AY. A Dynamic Theory of Organizational Knowledge Creation Author(s): Ikujiro Nonaka Source A Dynamic Theory of Organizational Knowledge Creation. Organization Science. 1994;5(1):14–37.
35. Urban B, Matela L. The nexus between
41. Rycroft-Malone J, Burton CR, Wilkinson J, Harvey G, McCormack B, Baker R, et al. Collective action for implementation: A realist evaluation of organisational collaboration in healthcare. Implementation Science [Internet]. 2016;11(1):1–17. Available from: http://dx.doi.org/10.1186/s13012-016-0380-z
42. Gersick C. Reflections on Revolutionary Change Re fl ections on Revolutionary Change. 2020;7017.
43. Yi Y, Gu M, Wei Z. Journal of Organizational Change Management Article information : 2017;(April).
44. Nguyen T mai. Online knowledge sharing in Vietnamese tele- communication companies : An integration of social psychology models Recommended citation : Online knowledge sharing in Vietnamese tele- communication companies : An

innovativeness and knowledge management: A focus on firm performance in the hospitality sector. International Journal of Innovation Studies [Internet]. 2022;6(1):2634. Available from: https://doi.org/10.1016/j.ijis.2021.12.002

36. Li Sa ML, Choon-Yin S, Chai YK, Aik Joo JH. Knowledge creation process, customer orientation and firm performance: Evidence from small hotels in Malaysia. Asia Pacific Management Review [Internet]. 2020;25(2):65–74. Available from: https://doi.org/10.1016/j.apmrv.2019.07.002
37. Soon TT, Zainol FA. Knowledge management enablers, process and organizational performance: Evidence from Malaysian enterprises. Asian Soc Sci. 2011;7(8):186–200.
38. Koseoglu MA, Wong AKF, Kim S (Sam), Song SY. Tracing knowledge creation and dissemination of strategic management research in hospitality scholarship from 1960 to 2020. Int J Hosp Manag [Internet]. 2022;104(June 2021):103247. Available from: https://doi.org/10.1016/j.ijhm.2022.103247
39. Leon RD. Fostering intergenerational learning in the hotel industry: A multiple criteria decision-making model. Int J Hosp Manag [Internet]. 2020;91(April):102685. Available from: https://doi.org/10.1016/j.ijhm.2020.102685
40. Castaneda DI, Rios MF. From individual learning to organizational learning. Proceedings of the European Conference on Knowledge Management, ECKM. 2007;(October):192–9.

integration of social psychology models Tuye. 2019;11(4):497–521.

45. Medase SK, Abdul-basit S. External knowledge modes and firm-level innovation performance: Empirical evidence from sub-Saharan Africa. Suma de Negocios [Internet]. 2019;1–15. Available from: https://doi.org/10.1016/j.jik.2019.08.001
46. Ode E, Ayavoo R. The mediating role of knowledge application in the relationship between knowledge management practices and firm innovation. Suma de Negocios [Internet]. 2019; Available from: https://doi.org/10.1016/j.jik.2019.08.002
47. Marchiori D, Franco M. Knowledge transfer in the context of inter-organizational networks: Foundations and intellectual structures. Suma de Negocios [Internet]. 2019;1–10. Available from: https://doi.org/10.1016/j.jik.2019.02.001
48. Access O. The Effect of Organizational

Learning and Knowledge Management Innovation on SMEs ' Technological Capability. 2017;8223(8):5475–87.