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E-Mental Health: An investigation of requirement policies and organizational governance for National Health Information System in Indonesia

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Abstract. *This study aims to investigate the needs of policies and organizational governance for the National Health Information System in Indonesia (SIKNAS). Data were collected using survey, observation, and in-depth interview with the representative stakeholders. The results have been confirmed and validated through focus group discussions at two provincial government. The study found that there were gaps in policies and organizational governance in central and regional levels. The implications of research will raise awareness about the importance of information and knowledge to support the government for improving the quality of mental health services. In addition, it can also improve health services knowledge for the community and increase research interest in developing of e-Mental Health and Knowledge Management System (KMS).*

Keywords: e-Mental Health, Health Information System

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1. Introduction

The National Health Information System (SIKNAS) is an integrated system to formulate and support strategic policies in achieving Indonesia's health 2025 as mention in the Decree of the Minister of Health No. 192 of 2012 [1]. Currently, Indonesia has 265 million peoples. Therefore, the national program of socio-economic development is a major need for human resources. The population growth will be causing physical and mental health needs which can impact on the country's economy. However, poor health will lead to low productivity of intellectual asset. Therefore, the strategic policies and organizational governance of health have to support of process mental health, such as promotive, preventive, curative and rehabilitative. Therefore, it is dependent on the availability of health information and knowledge easily accessible.

The Indonesian Government has enacted Government Regulation No. 46 of 2014 concerning Health Information Systems (HIS). But.the implementation process and applications are still poor and not optimal. Although research related to HIS of mental health has increased rapidly, in Indonesia is very limited. Currently, mental health requires special attention because the condition is very concerning. According to the 2013

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regional health research, Indonesia with mental health problems is significantly each year increase. This problem has been accommodated the enactment of Law No. 18 of 2014 concerning Mental Health[2]. It was previously covered by Law No. 3 of 1966[3]. It is in line with the development of e-Health[4], that the HIS of mental health need to be implemented effectively, efficiently and integrated. It isstated in the Decree of the Minister of Health No. 511 of 2002 concerning ofSIKNAS[5]. Unfortunately, the SIKNAS policy still does not imply for mental health and it's not covered explicitly and comprehensively. This is presumably due to the lack of technical guidance, and implementing procedures or the rules for how the e-mental health system must be managed by the SIKNAS.

The e-Mental Health system should be comprehensively integrated system of primary or regional, provincial and central health service levels. It is able to improve the quality of mental health information into knowledge using KMS. Concepts, theories and best practices related to the implementation of KMS and e-Health have been research widespread[6]. Several concepts of KM development in the field of Public Healthcare were specifically disseminated by [7]as well as the analysis of the mechanism of KM in Healthcare Portals by[8]. Thus, in response to mental-atlas-WHO, that stated the mental health information of Indonesia has not been optimally presented. This condition motivated for studying the success factors and strategies for mental health KM in Indonesia which have been investigated in five mental hospitals[6]. So, this research conducted to find the requirements of policies and organizational governance for developing the e-mental health KM in Indonesia.

2. Literature Study

Currently, Mental Disorder is quite alarming because it is increasing in every year. The rapid population of Indonesia can affect the economic system (health, food, and education). Based on regional health research in 2013 there were 1,728 people with severe mental disorders (psychosis/schizophrenia) and the prevalence was expressed at 1.7 per mile [9]. This severe mental disorder can cause a burden on the government, family and the community. It can require a large cost of treatment. Both central and regional governments must allocate a budget for health services. Inadequate facilities and infrastructures cause the sufferer to become a burden on the family and result in the occurrence of suffering in Indonesia. Various attempts have been made by the government to make Indonesia free of 'pasung' because this action violates human rights. This has been mentioned by the World Health Organization (WHO) that Indonesia will become the third country in the world with an increase in mental disorders due to its high population[10]. This estimate would be happened because of the ratio of the number of psychiatrists and the number of the Indonesian population is not balance [11].

According to Law No. 36 of 2009 concerning Health[12], it stated "that everything causes health problems in the Indonesian community will cause a large economic loss to the country, and every effort to improve public health also means investment for the development of the country". Furthermore, this is strengthened by Law No. 18 of 2014 concerning Mental Health[2]. The central government has given important attention in the efforts of mental health services and this should also be the concern of various parties. So, SIKNAS is continuously being developed as the realization of Law. Unfortunately, it is not explicitly covering for Mental Health as mandated on Law No.18 of 2014. However, in article 168 (Law of Health), it is stated that effective and efficient health efforts are needed in cross-sectoral National Narcotics System, which is detailed in Government Regulation No. 46 of 2014 concerning HIS[13]. In article 1 point 1 of this regulation, HIS is a set of arrangements that include

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data, information, indicators, procedures, tools, technology, and human resources that are interrelated and managed in an integrated manner to direct actions or decisions that are useful in supporting healthy development. But, the reality is very contrary to the situation. Information about the profile of the Indonesian Mental Health Report - http://www.kemkes.go.id/ - is still difficult to search and cannot show the facts and conditions of mental health accurately and reliably. It is also reported on the MentalAtlas-WHO. In profile of Indonesia (2018), it was not showing the information of mental health and showed data on 2013 (http://www.who.int/gho/countries/idn.pdf?ua=1).The Indonesian Ministry of Health was seriously prepared to strengthen SIKNAS. The National Information Health System Development Roadmap is also intended for Ministries, Provincial Governments and Regions/Districts by taking into account the principles of data security and confidentiality, standardization, integration, ease of access, representation, ethics, integrity, and quality[4].

Several developed countries continue to promote the implementation of e-Health (Canada, England, Europe, Sweden, America, etc.). Likewise, The International Telecommunication Union (ITU) provides principles and guidelines for e-Health development in developing countries[14]. USAID also helped build the K4Health portal for KM-based health dissemination (https://www.k4health.org/). However, of course, the health information that is built should be in accordance with Indonesia needs.All of devices, infrastructure and network, mobile applications, and alert systems through e-health technology should able to reach remote areas. There are real evidence that shows still many patients who are ‘pasung’ and their families do not know how to anticipate the process of handling mental disorders suffered[9].

3. Research Methodology

The research method used the mixed method and personalization approach. In detail, the research begins with a literature study related to policies on mental health, SIKNAS, and e-health. Data collection through surveys and observations has been carried out at two mental hospitals (the provinces of West Sumatra and East Nusa Tenggara). In addition, in-depth interviews were conducted on 8 informants and the results were analysed using the content analysis method. They are asked about implementation of policies, procedures, and structural organization for mental health services. Verification and confirmation are carried out through focus group discussions (FGD) in each province. A total of 32 participants attended the FGD activities. Each province is identified as a service class level. Class A category is chosen to ensure the completeness of organizational equipment, services, and facilities and infrastructure. In the investigation phase, observations and questionnaires were conducted with an open question system specifically on policies and organizational governance. The results of identification and investigation are then analysed by qualitative method. FGDs were conducted in each province for comparison, confirmation, and validation. Further, findings and recommendation were concluded after Q&A session.

4. Results and Discussion

“*A mental health policy and plan is essential to coordinate all services and activities related to mental health. Without adequate policies and plans, mental disorders are likely to be treated in an inefficient and fragmented manner.****”*** [15].

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4.1. Findings, Problems and Constraints

Based on Khalifastudy (2013) on HIS, he stated that six categories become main barriers and still consistent in many published research[16]. It is also strengthened by Mucic (2016) for e-mental health, there are four main barriers, i.e.: technical (e.g., electricity and Internet access), cultural, financial, and regulatory [17]. It is mostly similar to our study, but we found more complex. We categorized into six barriers that refer to Khalifa (2013). This barriers are following; 1) Human resources, related to lack of skill, competences, knowledge, and experiences 2) Professional and practitioners, related to lack of services, 3) Technical, related to lack of infrastructure and IT engineer, 4) Organizational, related to lack of the organizational and hospital management, 5) Financial, related to lack of budget and funding, and 6) Legal and Regulatory, related to laws, regulations and legislation implementation. We have validated the barriers using FGD and enhanced into the detail as showed in Table 1.

Table 1. Findings, Problems, and Constraints.

Barriers	Describe	Problems	Constraints
Human resources	-Lack of skill and competences -Lack of knowledge and experiences	Mutation/Rotation, Punishment, and a reward is not work	-Limitation of educational formal availability
Professional and practitioners	Lack of services	Special Allowances is not available	-Limitations of Doctors, Psychiatrists, Nurses
Technical	Lack of infrastructure/IT engineer	Integration of Inter-Unit for handling Programs	-Limitations of IT service Facilities -Information System and infrastructure are not integrated yet, and its response to each province
Organization	Lack of organizational and hospital management	-Service Governance is not integrated -Socialization of laws, regulations and legislation implementation	-Limited regional authority for creating social rehabilitation centre
Financial	Lack of budget and funding	Financial/budgeting planning is separated between the centre and local	-Autonomy of regional -Decentralization -Insurance agencies are not familiar
Legal and Regulatory	Lack of execution such as Regional Head Circular (free of ‘pasung’ at 2019 is not working	Coordination between Regional Devices and Related Agencies	Policy & Institutional Support
Others	Lack of training of Health Workers at the Primary Care	-Post-Healing Treatment become "economic empowerment" -The gap between Needs and Provision of Medicines	-Sociological stigma --Lack of support from families for the patient mental disorder -The system has not been integrated into the healing communities, Department of Health Organization, Mental Hospital, Primary Care, and the Social Security administering Body (BPJS)

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4.2. The Requirements of National Mental Health: Policies, Governance, and Systems

National health policies have been issued with a number of tools ranging from Laws, Government Regulations, Minister of Health Regulations, and Regional Regulations, especially for health in general. The policiesare comprehensive, which includes the Law No. 36 of 2009 concerning Health, Government Regulation No. 46 of 2014 concerning HIS, Ministry Regulation No. 92 of 2014 concerning Implementation of Data Communication in Integrated HIS, and No. 97 of 2015 concerning 2015-2019 HIS Roadmap. Specifically for mental health, there are two policies, Law No. 18 of 2014 concerning Mental Health, and Ministry Regulation No. 77 of 2015 concerning Guidelines for Mental Health Examination for the Interest of Law Enforcement. Thepolicies of organizing health information systems and e-health are regulated in Law No. 29 of 2004 concerning Medical Practices, Law No. 11 of 2008 concerning Information and Electronic Transactions, Law No. 14 of 2008 concerning Openness of Public Information, Law No. 36 of 2009 concerning Health, Law No. 44 of 2009 concerning Hospitality, Government Regulation No. 82 of 2012 concerning Implementation of Electronic Systems and Transactions, Government Regulation No. 46 of 2014 concerning Health Information Systems, and Presidential Regulation No. 96 of 2014 concerning Indonesian Broadband Plans.

For mental health recovery, social rehabilitation was regulated through Law No. 11 of 2009 concerning Social Welfare, and Government Regulation No. 39 of 2012 concerning Organizing Social Welfare for Persons with Mental Disabilities, Social Institutions, and Social Rehabilitation Centre. Based on this policy on mental health, it is stated that every individual can carry out activities to realize an optimal level of mental health through the process of approaching promotive, preventive, curative, and rehabilitative. The central, regional or local government, and community can carry it out in a comprehensive, integrated and sustainable manner. This can be realized by providing integrated, comprehensive, and sustainable health services for people with psychiatric problems (ODMK) and people with mental disorders (ODGJ) conform to human rights. Hence, the policies and organizational governance are related to mental health (process, activities, manifested by stakeholder, and e-mental health KM media) are presentedon Table 2. The requirements of organizational governance and e-mental health KM features are presented on Table 3.

Table 2. The mental health process, the Activities, the stakeholders, and e-mental health media.

Process	Activities	The Stakeholder	e-mental health KM media
Promotive	Organizing Mental Health efforts through community mental health activitiesintegrated with reference patterns, communicative, mobile clinics, home visits, disaster mental health crisis service, as well as Support of Free ‘Pasung’ system	-Mental Hospital -Provincial health services -Primary care - Public health organization -NGO of mental disorder (psycho-geriatric,	-Social Media using Twitter, Facebook, Instagram etc. -Website -Hotline centre

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		schizophrenia etc.)	
Preventive	Socialization through communication, information and education about mental health to society	-Mental Hospital Provincial health services -Primary care - Public health organization -Educational formal	-Hotline crisis - 'MAKPASOL' (Mobile Active Community of 'KlikPasung' Online)
Curative	Health service provision activities for People with Mental Disorders (ODGJ) which include the process of diagnosis and proper management so that ODGJ can function properly again in the family, institution, and community	-Doctors -General practitioners -Psychologist -Mental medicine specialist -Regional Health Office -Primary Care -Clinic Care -Clinic Private Special -Home Care - Doctor private -Rehabilitation Communities centre	-the Social Security Administering Body (BPJS) Health Insurance integrated to SIKNAS
Rehabilitative	Activities and/or series of Mental Health service activities aimed at (preventing or controlling disability; restoring social functions; restoring occupational functions, and preparing and giving ODGJ capacity to be independent in the community.	-Public health Office -Social services - Labour offices - Trade and industry offices Small and medium enterprises	-Mobile Monitoring system -Hospital Information System -Day care One Stop Service -Home Care integration

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Table 3. The requirements of organizational governance, and e-mental health KM features.

Process	Described	e-mental health KM features
Regional Planning and Budgeting	-Strategic and capacity planning	e-planning and e-budgeting
Regional Regulation	Regional Regulation & Special Guidelines on Mental Health	e-regulation
Regional Institutions	Organizational Structure and Main Tasks and Function of Regional Devices, Existence of Special Units, government employee and human resources capacity	e-government
Infrastructure	The infrastructure of health facilities, availability of drugs, Network, Data, and IT	Internet of Thing (IoT) and Cloud technology

The authority of regional government in order to mental health facilities comprises of a) Making and utilizing human resources in the field of Mental Health who will work in service facilities in the field of Mental Health, and b) Conduct supervision of the implementation of Mental Health and Resources Efforts in Mental Health Efforts.Based on our analysis, the e-mental health KM system should cover and integrate the stakeholder of ODMK/ODGJ and people with a symptom of mental disorder, primary care that's given services in homeland area, hospitals that given services in local (state) area, and family, social rehabilitation centre, and citizenship/public/society that specific communities or professional association (Figure 1.). The detail of information and knowledge from the sources stakeholder (actors), and e-mental health KM services are presented on Table 4.

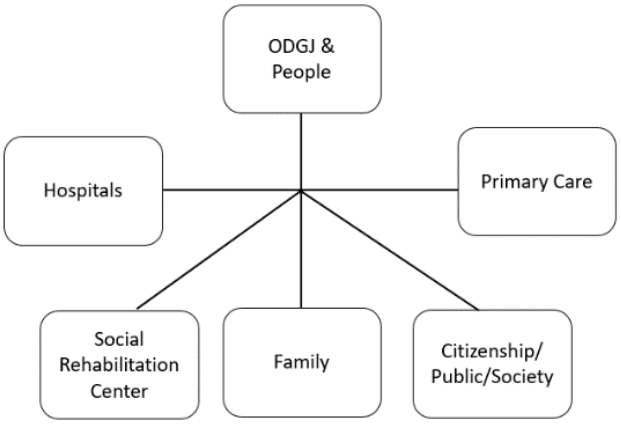

Figure 1. Sources of information and knowledge on e-mental health KM system

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Table 4. The features of e-mental health KM based on sources.

Process	Described	e-mental health KM features
ODMK/ODGJ & Family patients (People and Family)	• Information on Primary Health Care for Mental Health • Pharmacy and Drug Information • Information on BPJS Services/Health Insurance	-accessing to feature of medical records of patient mental disorder -easily to registration of regular medication (periodicals control and medical check-up)
(Doctor & Health Worker) -Hospital -Primary Care)	• Data & Medical Records of ODGJ Patients • Referral Procedure	-Accessing to feature of exchange medical records between mental hospital and therapist (psychiatrist) -easily to access the diagnosis and treatments of medical services previously -easily to exchange the in or outpatient procedure at any mental hospital
- Citizenship/ Public/Society -Social Rehabilitation Centre -Policy Makers (Ministry of Health, related Ministries/Institutions, Department Health Organizations, Society, Communities and Pharmacies and Drugs Unit)	• Data and Information on Existing Conditions • Ingredients	-Accessing to feature of recipes and medications availability -easily to control and monitor of periodical dosage and medical consumes

5. Conclusion

This study has discussed the need for policies, organizational governance, and e-mental health KM systems. This is in line to WHO Plan in 2013-2020. Whereas, according to WHO-Mental Health Action (2013-2020), there are four major objectives of planning[18].

Firstly, the plan of “strengthen effective leadership and governance for mental health (WHO)” become a referral for both governmental centre and province in conducting coordination, and cooperation in developing policies

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for e-mental health implementation. Therefore, the obstacles that arise will be handled properly. Secondly, “provide comprehensive, integrated and responsive mental health and social care services in community-based settings (WHO)” become a baseline to develop facilities and mental health services that support good governance. Third, the “implement strategies for promotion and prevention in mental health (WHO). Indonesia has a roadmap to anticipate the growth of illness. It should improve in the promotion, and preventive activities that supporting from both of centre and regional level. Finally, the ”strengthen information systems, evidence, and research for mental health”, as the main spearhead to leverage the uses of IT sophisticated and literate in response to e-mental health KM system technology advanced.

Even though Indonesia has already to apply to laws, regulation, and legislation, but it still needs to improve, manifest, and practice in many area and level of organization of mental health. All the problems and constraints should be anticipated and mitigated in order to solve the barriers. Specifically, for the good governance the organization, structure, and stakeholder should cooperate and have a good will to undertake policies.

The future research should conduct to elaborate the e-mental health KM system, which is presenting by the features of the application.Therefore, we hope that the research can be a reference and a new concept for the direction of developing e-mental health technology that is in line with the SIKNAS roadmap especially in organizational policies and governance so that application implementation becomes easy, effective and efficient.

References

[1] K. Kesehatan, “Keputusan Menteri Kesehatan Republik Indonesia Nomor 192 Tahun 2012 tentang RoadMap Rencana Aksi Penguatan Sistem Informasi Kesehatan Indonesia.” 2012.

[2] R. Indonesia, “Undang-Undang Republik Indonesia No. 18 Tahun 2014 tentang Kesehatan Jiwa.” p. Pasal 37-39, 2014.

[3] R. Indonesia, “Undang-Undang Republik Indonesia Nomor 3 Tahun 1966 Tentang Kesehatan Jiwa,” no. 9. pp. 1–9, 1966.

[4] K. Kesehatan, “Roadmap Sistem Informasi Kesehatan Tahun 2011-2014.” 2012.

[5] K. Kesehatan, “Keputusan Menteri Kesehatan Republik Indonesia Nomor 511 Tahun 2002 Tentang Kebijakan dan Strategi Pengembangan Sistem Informasi Kesehatan Nasional (SIKNAS).” 2002.

[6] S. Rohajawati, D. I. Sensuse, Y. G. Sucahyo, and A. M. Arymurthy, “Mental health knowledge management: critical success factors and strategy of implementation,” *J. Knowl. Manag.*, vol. 20, no. 5, pp. 980–1003, 2013.

[7] J. Liebowitz, R. A. Schieber, and J. D. Andreadis, *Knowledge Management in Public Health*. Taylor and Francis Group, LLC, 2010.

[8] C. S. Lee, D. H. L. Goh, and A. Y. K. Chua, “An analysis of knowledge management mechanisms in healthcare portals,” *J. Librariansh. Inf. Sci.*, vol. 42, no. 1, pp. 20–44, 2010.

[9] K. Kesehatan, “Riset Kesehatan Dasar (RISKESDAS 2013),” no. 1. pp. 1–303, 2013.

[10] M. Hadzic, F. Hadzic, and T. Dillon, “Tree mining in mental health domain,” *Proc. Annu. Hawaii Int. Conf. Syst. Sci.*, pp. 1–8, 2008.

[11] S. Rohajawati, D. I. Sensuse, Y. G. Sucahyo, and A. M. Arymurthy, “Mental Health Knowledge

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Management: Critical Success Factors and Strategy of Implementation," *J. Knowl. Manag.*, vol. 20, no. 5, 2016.

[12] R. Indonesia, "Undang-Undang Republik Indonesia Nomor 36 Tahun 2009 Tentang Kesehatan." 2009.

[13] R. Indonesia, "Peraturan Pemerintah Republik Indonesia Nomor 46 Tahun 2014 Tentang Sistem Informasi Kesehatan." 2014.

[14] J.-C. J. Healy, "Implementing e-health in developing countries: Guidance and principles," *ICT Appl. Cybersecurity Div. CYB, …*, no. September, pp. 1–53, 2008.

[15] WHO, "Mental Health Policy, Plans and Programmes," pp. 1–68, 2005.

[16] M. Khalifa, "Barriers to health information systems and electronic medical records implementation a field study of Saudi Arabian hospitals," *Procedia Comput. Sci.*, vol. 21, pp. 335–342, 2013.

[17] D. Mucic and D. M. Hilty, *e-Mental Health*. Springer International Publishing Switzerland, 2016.

[18] WHO, "Mental Health Comprehensive mental health action plan 2013–2020," 2013.

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