

## Research Article

# Hospital readiness at Yogyakarta and surrounding areas to implement telepsychiatry

*Kesiapan penggunaan telepsikiatri sebagai pendukung layanan medis di rumah sakit*

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### Abstract

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**Purpose:** This study aims to determine hospitals' readiness before implementing telepsychiatry. **Methods:** This case study analyses the results of interviews from Head of Psychiatry Department or equivalent, information systems administrator and psychiatrist at 3 Mental Hospitals and 1 General Hospital. Interviews and observations were then compared with related theories. **Results:** RSJS Magelang does not have adequate infrastructure for telepsychiatry implementation. RSUP Sardjito having difficulties in terms of management, infrastructure and the desire to use telepsychiatry. RSJ Grhasia having obstacles in terms of management and fulfillment of infrastructure needs. RSJD Soedjarwadi does not have any obstacles if they start to implement telepsychiatry. **Conclusions:** RSJD Soedjarwadi is ready to implement telepsychiatry. As for other hospitals need further improvement, mainly in their infrastructure

**Keywords:** telepsychiatry; readiness; hospital; organization; infrastructure

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## INTRODUCTION

The distribution of mental health service facilities in Indonesia is not adequate and heavily concentrated at Java. In Yogyakarta, there are 2 Psychiatric Hospital and 1 General Hospital that are able to provide mental health services. If added with some cities around Yogyakarta that can be reached in less than 2 hours, there are 3 other Psychiatric Hospital in Magelang, Klaten, and Solo. This condition is unequal if compared with other islands that have only one Psychiatric Hospital per province. Similarly, this condition also occurred in the distribution of psychiatrists. Based on data from *Badan Pengembangan dan Pemberdayaan Sumber Daya Manusia Kesehatan* in 2016, there are more than 60% of total psychiatrists are located in Java (1).

Mental disorder cases in Indonesia is high, which is 1.7 per 1000 persons for major mental disorder cases (2). This figure is not showing the overall problems of the mental health disorders in Indonesia due to the uneven distribution of mental health service facilities. and the stigma that people who went to a psychiatrist are crazy people (3)(4).

One solution to overcome those problems is using telemedicine. Telemedicine is able to overcome the barriers of distance and time on health care management (5). There are several telemedicine projects currently underway in Indonesia. One successful example of the application of telemedicine is tele-electrocardiography in Makassar. This system sends electrocardiography examination results performed by general practitioners or paramedics to cardiologists to be interpreted (6). With a similar concept, teleoncology and teleradiology are currently developed by Universitas Indonesia and Universitas Gadjah Mada through their respective Academic Health System (7)(8).

Telepsychiatry itself is a branch of telemedicine, focused on mental health. This technology is widely used abroad, first used in the 1950s in the United States of America (9). Yet, this form of telemedicine is still less familiar than other telemedicine applications in Indonesia. There are several varieties of telepsychiatry which could be implemented in Indonesia, such as home-based telepsychiatry, forensic telepsychiatry, and referral telepsychiatry (10). To overcome mental health problems above, healthcare providers need to consider telepsychiatry as a solution. To find out whether telepsychiatry is applicable, a study to assess the readiness of telepsychiatry usage as a support system for medical services is needed.

## METHOD

This case study interviewed 12 respondents from 4 hospitals (RSJ Prof dr Soerojo Magelang, RSUP Dr. Sardjito,

RSJ Grhasia, and RSJD Soedjarwad). Those positions are Head of Psychiatry Department or equivalent, one from information systems administrator and one psychiatrist from each hospital. Interview guidelines are based on the Telehealth Capacity Assessment Tool Questionnaire which published by National Frontier & Rural Addiction Technology Transfer Center (11). Interviews and observations were then compared with related theories.

## RESULTS

### RSJ Prof Dr. Soerojo Magelang

RSJS Magelang has a management team that supports innovations, especially in the field of information technology. They are experienced in implementing changes in the field of information systems, although it requires long preparation. Based on *Keputusan Menteri Keuangan* No.278/KMK.05/2007 and *Keputusan Menteri Kesehatan Republik Indonesia* No.756/Men.Kes/SK/VI/2007, RSJS Magelang started to implement *Pola Pengelolaan Keuangan Badan Layanan Umum*. If RSJS Magelang needs to add staffs, the department who ask for additional staff member needs to report their staff workload to RSJS Magelang Human Resource Development. At this moment, they haven't considering to use telepsychiatry because they're still developing Electronic Medical Record and Electronic Prescribing. They also feel necessary to wait for a national regulation concerning telehealth.

RSJS Magelang Board of Directors

"We are asked to keep on innovating, because the more we innovate, the more our quality will improve. Ministry of Health suggested us to be more superior in every aspect to other hospitals"

RSJS Magelang does not have a room specifically used for teleconferencing yet. They also haven't had a minimum hardware requirement to do teleconference. Internet connection at RSJS Magelang still using radio frequency, which susceptible to radio wave interference that hampers internet connectivity. Currently, RSJS Magelang has its own Hospital Information System (HIS), but still limited to administrative works. To develop HIS, they have their own development team consists of 10 people.

RSJS Magelang IT Administrator

"We have a Hospital Information System team consist of 10 people. Ideally, we need 5 more people. While we wait for additional team members, we are asking for help from hospital staff who able to do programming stuff"

Telepsychiatry is in accordance with the hospital's vision and mission, who wants to become the center of excellence in the national and ASEAN mental health service provider. Psychiatrists emphasize privacy and preliminary physical examination as the main concern

using telepsychiatry. To constrain their staffs, RSJS Magelang has Standard Operation Procedures for every activity, including information system usage.

**RSJS Magelang Psychiatrist**

“Our main concern is the patient’s privacy because in psychology or psychiatry, privacy is very important. Patients sometimes feel uncomfortable to tell their story if their family could hear them. We also need to check a patient’s physical condition. If those could be done by general practitioners, then it would not be a problem”

RSJS Magelang has a staff who had experienced using telepsychiatry. Though psychiatrists at RSJS Magelang had minimum exposure on IT usage, they are eager to learn and adapt to new methods. In implementing a new information system, RSJS Magelang always begins with socialization and continued with training for users.

**RSJS Magelang Board of Director**

“At the early stage, it would be very hard for someone who’s not accustomed to technology. But they are determined to be better. There always be periods of adaptation and learning, which won’t be done in a matter of days, but it would not be a protracted problem”

**RSUP Sardjito**

At RSUP Sardjito, neither hospital management nor Mental Health Department management hasn’t considered telepsychiatry as a priority. Even though many innovators in the department, all of the ideas need to get approval from hospital management. To get financial approval, Mental Health Department needs to make an annual work plan (*Rencana Kerja Tahunan*) and submit it to hospital management. Sometimes, the Mental Health Department/Medical Staff Group had difficulties with neither financial nor human resource fulfillment, because RSUP Sardjito has many other departments to be care of.

RSUP Sardjito Mental Health Department Management “We had many innovators. It’s as if they not dare to share their ideas, but we are bound to the hospital structure of management. If we had ideas for something beyond the director’s policy, surely it won’t be approved”

Mental Health Department themselves does not have a room specifically used for teleconferencing yet. They also lacking hardware fulfillment. This Department feels the bandwidth division from RSUP Sardjito is too small and only enough to support basic internet use. RSUP Sarjito has its own hospital information system, currently limited to help administrative tasks.

**RSUP Sardjito IT Administrator**

“A teleconference is centralized at the Research and Development Department. If anyone wants to use that

facility, they need to ask for permission first. In there, we could guarantee every requirement needed for teleconference”

Generally, telepsychiatry is in accordance with either hospital or department’s vision and mission. To organize every activity in the hospital, RSUP Sardjito has its own Standard Operation Procedures. Psychiatrist feels it’s important to examine patients directly before starts using telepsychiatry.

**RSUP Sardjito Psychiatrist**

“I dare to use it if only I’ve met directly with the patient first. So I could understand the patient’s problems completely. Then at the next meeting, I dare to use telepsychiatry. We could be trained beforehand, and our residents are fluent with technology”

Mental Health Department staff are both inexperienced and had no formal training in telepsychiatry. RSUP Sardjito themselves have training and mentoring amenities to help them implement new modules. But at this moment, psychiatrists on RSUP Sardjito aren’t considering telepsychiatry to improve mental health services due to shortage of psychiatrist.

**RSUP Sardjito Mental Health Department Management**

“Because all of our psychiatrists need to be a civil servant, we are having a hard time to add new staff. We can’t specialize one psychiatrist for telepsychiatry, because currently, our number is not enough to do both health service and mentoring our residents”

**RSJ Grhasia**

RSJ Grhasia board of directors supports innovations, but rather focuses on administrative and business issues. This exacerbated by the short duration of the board of director period, which is about 3 years. RSJ Grhasia implements *Pola Pengelolaan Keuangan Badan Layanan Umum*, with financial resources derived from the Yogyakarta Provincial Revenue and Expenditure Budget and from hospital revenue. Senior staff at RSJ Grhasia are eager to learn new knowledge, including changes in using technology. This could be seen when RSJ Grhasia implements changes in the hospital administrative information system.

**RSJ Grhasia Board of Director**

“A new board of directors is having too short a leadership period. Sometimes they came from the Health Department, not from our staff. Sometimes these changes made programs continuity at risk because every director had their own program”

RSJ Grhasia doesn’t have rooms and hardware specified for telepsychiatry. This hospital internet connection is using radio frequency with 10 Mbps bandwidth. They have their own HIS, managed by *Program Data Teknologi Informasi* team.

RSJ Grhasia IT Administrator

“We have 10 Mbps internet bandwidth, using antenna receiver. With new multiplex feeding, our connection won't be disturbed by bad weather. But that bandwidth is not sufficient. Sometimes we use stop and run technique if there is a meeting that requires big internet usage”

Telepsychiatry is not explicitly contained in the hospital vision and missions, while every change of management will be accompanied by a shift of emphasis from the vision of the mission of the hospital. Psychiatrists feel that telepsychiatry won't collide with the medical culture at RSJ Grhasia. And to ensure that there won't be any problem for staff to run hospital programs, they have used to had Standard Operation Procedures for every business process they had.

RSJ Grhasia Psychiatrist

“When we establish a mental diagnosis, we need to exclude physical diagnosis. For patients who check themselves for the first time, we need to check them directly because there's a possibility that their disease is an exhibit or even caused by physical abnormalities”

Currently, there are no psychiatrists on RSJ Grhasia experienced on telepsychiatry, but some of them are well enough using social media to communicate with patients. This hospital also has training and accompaniment facility before implementing a new information system. Psychiatrists are eager to use telepsychiatry because it could ease patient access with RSJ Grhasia.

RSJ Grhasia Psychiatrist

“If it could help patients, then why not? Sometimes they couldn't go to the hospital, so their family would go to the hospital without bringing them. It became a dilemma for us, patient surely needs our prescription. But we couldn't check patient condition”

### RSJD Soedjarwadi

The board of directors of RSJD Soedjarwadi is very eager to innovate, especially on information technology. They feel no problem to implement innovations that do not yet have specific legislation. Like other hospitals, RSJD Soedjarwadi also implement *Pola Pengelolaan Keuangan Badan Layanan Umum*. They have to experience changes in the information system and doing comparative studies before implementing new ones.

RSJD Soedjarwadi Board of Director

“We are an organization that likes to innovate. We are one step ahead of technology and innovation. Everything we do is intended to facilitate health service for our patients”

RSJD Soedjarwadi already has a studio with complete hardware designated for teleconferencing. Currently, they use 2 separate internet connections, fiber optic from the

provincial government for staff, and radiofrequency from local internet providers for patients and their families. They also had their own hospital information system, though it is currently under construction. All informatics matters are managed by the 5-man-informatic-engineer team, called *Pengolah Data Elektronik*, without specific division of task.

RSJD Soedjarwadi IT Administrator

“At PDE, there are 5 people including myself. Our task is to manage everything related to IT. With no specific division of tasks, we need to have mutual cooperation if we want to succeed in our task”

Like other psychiatrists on other hospitals, RSJD Soedjarwadi psychiatrist also considers patients with mental disorders need to directly examined first before continuing with telepsychiatry. Telepsychiatry is also in concordance with hospital vision and missions. Unlike other hospitals, RSJD Soedjarwadi hasn't had Standard Operating Procedures for information system usage, only using user manual instead due to impending changes in the hospital information system.

RSJD Soedjarwadi IT Administrator

“Due to impending changes to our information system, we haven't made any SOP for information system usage. We think that current modules haven't fixed yet. But we ensure that any modules will have their own user manuals”

Currently, no staff at RSJD Soedjarwadi have any experience in using telepsychiatry. But they have experienced on using video conferences to coordinate with the Governor of Central Java. RSJD Soedjarwadi has its own information technology administrators who helped with new information system training and accompaniment. Telepsychiatry will be accepted with open arms by psychiatrists because with telepsychiatry they could reach more patient and broaden hospital area of service.

## DISCUSSION

Organizational readiness of a hospital in applying a new information system is mainly determined by the management. Innovative management, such as found in RSJD Soedjarwadi and RSJS Magelang, will be very open to technological developments. This is in accordance with the theory that telepsychiatry-related knowledge from hospital leaders greatly affects the development of telepsychiatry in an institution (12). The hospital experience from previous information systems applications can help hospitals if they want to develop telepsychiatry because the hospital already knows what to do and what to prepare when designing a new information system (13)(14). The implementation of the



*Pola Pengelolaan Keuangan Badan Layanan Umum (PPK BLU)* can facilitate the hospital to manage the financing of programs to be run by the hospital. If the hospital finds it difficult to collect funds from the Regional Revenue and Expenditure Budget, they can collect funds from the hospital's internal revenue (15).

Infrastructure readiness is strongly influenced by the staff of information technology administrators. The existence of these administrators could help in mediating the wishes for a new system (16). The internet network required for video calls should guarantee the stability of the internet connection. The room and hardware equipment needed to conduct telepsychiatry itself is not too complicated, as long as they are able to guarantee patient confidentiality and able to guarantee 2-way communication. The successful development of an information system itself is not dependent on the use of third parties as a developer, but rather the ability to describe the needs of a system (17).

Hospital vision and missions describe the direction and purpose of the hospital that has been agreed upon. If the hospital has a vision and mission that supports telepsychiatry, it is expected that all employees can participate in supporting telepsychiatry. The telepsychiatry application itself is prone to cause conflict with the existing culture in the hospital. One way to mitigate the occurrence of such conflict is by having standard operating procedures or standard business processes (18).

Workforce readiness is strongly influenced by the user's interest in using the information system. Medical personnel often feel reluctant to apply a new way of doing health services using information technology (19). Training facilities prior to implementing new information systems can assist users in understanding the ins and outs of the new system. In addition to training, hospitals also need to provide assistance to overcome the difficulties of users when starting to use the new information system. The existence of experienced users using telepsychiatry can also help in telepsychiatry implementation by providing feedback related to the development and invite other staff to participate using telepsychiatry (20).

## CONCLUSION

RSJS Magelang from the organizational, clinical and workforce factors is ready to apply telepsychiatry, but from infrastructure, factor is not ready yet. RSUP Sardjito is clinically ready to implement telepsychiatry, but from organizational, infrastructure and workforce factors are not ready yet. RSJ Grhasia from clinical and workforce factors is ready to apply telepsychiatry but organizational and infrastructure factors is not yet ready. RSJD Soedjarwadi from organizational, infrastructure, clinical and workforce factors is ready to apply telepsychiatry.

Table 1. Hospital Readiness

| Components                                   | RSJS Magelang | RSUP Sardjito | RSJ Grhasia | RSJD Soedjarwadi |
|--|---------------|---------------|-------------|------------------|
| <b>Hospital Organizational Readiness</b>     |               |               |             |                  |
| Innovative leader                            | ✓             | ✓             | ✓           | ✓                |
| Supportive of changes                        | ✓             | ✓             | -           | ✓                |
| Experiences of IT Changes                    | ✓             | ✓             | ✓           | ✓                |
| Financial Resources                          | ✓             | ✓             | ✓           | ✓                |
| Human Resource Fulfillment                   | ✓             | -             | -           | ✓                |
| Stance on the absence of national regulation | -             | -             | -           | ✓                |
| <b>Hospital Infrastructure Readiness</b>     |               |               |             |                  |
| Room   | -             | -             | -           | ✓                |
| Hardware                                     | -             | -             | -           | ✓                |
| Internet Connection                          | -             | -             | -           | ✓                |
| Hospital Information System                  | ✓             | ✓             | ✓           | ✓                |
| Third-party vendor                           | -             | -             | ✓           | ✓                |
| Integration of new modules                   | ✓             | ✓             | ✓           | ✓                |
| IT Administrators                            | ✓             | ✓             | ✓           | ✓                |
| <b>Hospital Clinical Readiness</b>           |               |               |             |                  |
| Accordance with hospital vision and mission  | ✓             | ✓             | -           | ✓                |
| Not conflicted with hospital culture         | ✓             | ✓             | ✓           | ✓                |
| SOP on IT usage                              | ✓             | ✓             | ✓           | -                |
| <b>Hospital Workforce Readiness</b>          |               |               |             |                  |
| Response to technology                       | ✓             | ✓             | ✓           | ✓                |
| Champion User                                | ✓             | -             | -           | ✓                |
| Training and mentoring                       | ✓             | ✓             | ✓           | ✓                |

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