

Quality Improvement Approach to Increasing Psychiatric Rehabilitation in the Inpatient Setting

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This clinical practice improvement project (CPIP) sought to increase the rate of referrals to psychiatric rehabilitation units among inpatients on a 44-bed men's ward at the Institute of Mental Health, Singapore. Three root causes of low referral rates were targeted for intervention, and three plan-do-study-act cycles were conducted to address these causes. Interrupted time-series analysis was used to assess

the impact of the interventions. Addressing these causes significantly and sustainably improved the rate of referral. The rate of rehabilitation program attrition did not worsen because of the increased number of referrals. These findings indicate that CPIPs can significantly improve processes.

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Psychiatric rehabilitation is an often overlooked but essential element of recovery from serious mental illness (1). Such programs include symptom management, vocational support, social rehabilitation, and community reintegration (2–4) and can significantly improve prognosis and quality of life for service users. Despite the merits of rehabilitation, several obstacles, such as skepticism about rehabilitation models, insufficient incentives or resources, and ineffective systems integration, interfere with its integration into treatment (5).

Although no local data exist to provide evidence for the generalizability of the benefits of psychiatric rehabilitation in Singapore, these obstacles to rehabilitation are familiar to local clinicians. Rehabilitation first started in the Institute of Mental Health (IMH), the only tertiary psychiatric hospital in Singapore, as an outpatient service of OcTAVE (Occupational Therapy: Activities, Vocation, and Empowerment). In 1993, an 8-week program (called Stepping Stones) was started for inpatients. Later, the Slow Stream Rehabilitation (SSR) unit was opened for inpatients who required >8 weeks of rehabilitation. Eventually, the Stepping Stones program was renamed the Recovery Centre (RC). SSR and RC will be referred to as rehabilitation units for the remainder of this column.

The inpatient and rehabilitation units at IMH differ in care objectives and treatment locations. The inpatient units focus on symptom management through pharmacological methods, whereas the rehabilitation units require that service users be as asymptomatic as possible before participation. Eligible service users are referred for rehabilitation through the hospital's computerized referral system. Rehabilitation units receive the referrals and arrange to interview service users for suitability. Inpatient units are not required

to refer patients to the rehabilitation units. Service users who are symptomatic may be referred for simpler interventions to a separate occupational therapist in the inpatient ward.

This project's setting was a 44-bed inpatient ward for men (Ward 35B). Its average occupancy was 93% (N=41 of 44), and the average length of stay (LOS) was 141 days. During an average week, 37% (N=15 of 41) of service users were referred to inpatient occupational therapy, and only 5% (N=2) were referred to rehabilitation units. Because this disparity in referrals hinted at an underuse of the rehabilitation units, we undertook a clinical practice improvement project (CPIP) to explore the reasons for the low referrals to the rehabilitation units and to develop locally relevant, obstacle-specific strategies to increase referrals to these units.

METHODS

This CPIP followed standard World Health Organization quality improvement methodologies (6), including identifying

HIGHLIGHTS

- Without some familiarity with psychiatric rehabilitation services, users of mental health services may be reluctant to engage in such services.
- Efforts that ensured that stakeholders have a shared understanding of suitability of patients for rehabilitation helped improve referrals to rehabilitation.
- People with hospitalizations >60 days appeared to respond differently to efforts to improve their rate of referral, but high rates of referral of these patients were still achievable.

potential inadequacies in the system responsible for low referral, brainstorming their causes, prioritizing root causes, and sequentially testing strategies that targeted specific causes. The project was conducted from August 5, 2019, to December 1, 2020. It was supported by the Head of Rehabilitation Services and by a service user with firsthand experience on the ward and on one of the rehabilitation units. Inpatient and rehabilitation units participated in the project. The institute's CPIP committee oversaw the project, waiving the need for institutional ethics review. The project team followed the governing committee's guidelines, received regular mentoring, and used aggregated data only. All interventions described below were integrated into standard clinical practice.

Design

We began by creating a flowchart of the current system to visualize the referral process. We then generated hypothetical gaps and causes for the low rate of referral and plotted them in a cause-and-effect diagram. Thirteen root causes were identified and organized into three themes: patient, staff, and procedure. (Details are shown in Table S1 of an online supplement to this column.)

At the patient level, because the rehabilitation units were unfamiliar to them, most service users immediately rejected the referrals. Faced with this high rate of rejection, Ward 35B staff attempted to motivate service users to enroll in rehabilitation in an ad hoc fashion, leading to inconsistent success.

At the staff level, there was no representative from Ward 35B to bridge discussions about rehabilitation between families and service users. Discussions were once again carried out ad hoc with varying success. This process was later delegated to service users' single point of contact (SPoC) assigned at admission. Additionally, because Ward 35B and the rehabilitation units did not attend one another's rounds, there was a lack of common understanding about how to assess a service user's readiness for rehabilitation.

Procedures and Interventions

Payment for health care in Singapore is partially out of pocket. Service users and families turned down referrals to the rehabilitation units once they learned of the additional cost of a longer LOS in the hospital. Thus, hospitalization costs were saved to the potential detriment of a patient not receiving rehabilitation. Furthermore, the cultural context of the family having significant say in a service user's recovery led to disruptions in rehabilitation whenever the family spokesperson changed.

By following the Pareto principle, which asserts that 80% of an issue come from 20% of its identifiable causes, we prioritized the most influential causes and isolated three root causes as potential targets for interventions: service users lacked real-life examples of rehabilitation, Ward 35B had no process to motivate or prepare service users for rehabilitation, and Ward 35B and the rehabilitation

units assessed service users' suitability for rehabilitation differently.

Six interventions were carried out in three plan-do-study-act (PDSA) cycles across 3 months, with each cycle lasting 1 month. The first two interventions targeted the first root cause—service users lacking knowledge of rehabilitation. In the first intervention, Ward 35B service users were briefed about the schedules of the rehabilitation units and were embedded into the units according to their preferred activities, exposing them to a rehabilitation environment. In the second intervention, service user-led goal setting was conducted, first in nurse-led groups and then one on one with the service user's SPoC. This approach helped service users conceptualize individualized goals for rehabilitation.

The next two interventions targeted root cause 2—Ward 35B had no process to motivate or prepare service users for rehabilitation. A video testimonial of a service user who had benefited from rehabilitation was shown on Ward 35B. The video featured a firsthand account of rehabilitation and how it turned the user's life around. The demographic characteristics of this service user matched those of the Ward 35B population, enhancing relatability. In the fourth intervention, service users participated in adapted rehabilitation activities while remaining on Ward 35B. These activities simulated life on a rehabilitation unit and were pilot tested by a Ward 35B service user. This simulation provided the participating service users with some context on what to expect, and it gave other Ward 35B service users confidence to try similarly adapted rehabilitation activities.

The last two interventions targeted root cause 3—Ward 35B and the rehabilitation units assessed service users' suitability for rehabilitation differently. Our fifth intervention provided for interviews of service users jointly by inpatient and rehabilitation unit staff. The service user's SPoC was present at the interviews and used his or her rapport with the service user to address anxieties about the transition. In the sixth intervention, any individualized rehabilitation goals that were unclear were jointly discussed between the inpatient and rehabilitation unit staff. For example, when a service user expressed a vague goal ("to find a job"), staff from the rehabilitation units would provide suggestions for how to better describe the goal. This joint discussion helped calibrate units' understanding of what was achievable in goal setting. Outcomes of the discussion were relayed to the service user via the SPoC.

Outcomes

Our main outcome was the weekly ratio of people successfully referred to inpatient rehabilitation services over the total number eligible. To be eligible for referral to rehabilitation, service users could not be experiencing an acute mental crisis, had to have a LOS >14 days, and had to be interested in rehabilitation. Rehabilitation services included inpatient occupational therapists and a rehabilitation unit stay. For a referral to be considered successful, the service user had to complete the rehabilitation program. We

monitored the number of service users who were rejected by rehabilitation services to ensure that our interventions were not leading to inappropriate referrals.

Analyses

To assess the impact of our interventions, we used single-group interrupted time-series analysis (conducted in Stata 16, with the Interrupted Time-Series Analysis [ITSA] package SJ17-4: st0389_5). To determine whether LOS affected referral trends, we split the sample at a 60-day LOS and performed subgroup analyses.

Observation Period

The observation period for the project covered 70 weeks, from August 2019 to December 2020. This period was affected by an interruption in routine referrals during the first 2 weeks of October 2019 and by staffing disruptions during the last week of December 2019. Additionally, quarantine measures due to the COVID-19 pandemic were implemented from April 7 to June 15, 2020, with a phased decline in restrictions. PDSA cycles were conducted from October 17, 2019, to January 20, 2020. We split the observation period in two at the end of the PDSA cycles, after all our interventions had been implemented. Thus, our baseline period ran from August 2019 to January 2020, and our follow-up period ran from February 2020 to December 2020.

RESULTS

The demographic characteristics of the service users in our sample resembled those generally observed in our men's wards. Two-thirds of the service users had experienced psychosis-related disorders. The remaining users had mood disorders, intellectual disability, personality disorders, or addiction disorders.

On average, Ward 35B accommodated 38 ± 5 service users weekly. Of these, on average 26 ± 3 were eligible for referral to rehabilitation services as defined in Methods. The proportion of service users referred to the rehabilitation services during the CPIP is shown in Figure S1 of the online supplement, and the full results of the ITSA are available in Table S2 of the online supplement. Referral rates before our project were stable but low. However, following the implementation of the interventions described above, referral rates rose steadily and significantly. Every 6 weeks, the total number of successful referrals rose by one service user. This improvement was sustained over the observation period.

Service users with a LOS >60 days in the inpatient unit represented approximately one-third of all service users. Compared with those in the general population of our ward, this group had a lower referral rate before the project began (18% [$N=3$ of 17] vs. 37% [$N=15$ of 41]). After the start of the project, the referral rate of service users with a LOS >60 days steadily increased until referrals ceased because of the pandemic quarantine measures. Immediately after the lifting of

the quarantine, this group had a 23% rise in referrals, eventually reaching 100% referral.

Because the most significant rise in referral rates of service users with a LOS >60 days did not occur at the point of the split into two groups (a dotted line, Figure 1 of the online supplement), we could not conclusively associate the improvements in their referral rate with the implementation of our interventions. Instead, the most significant rise in referral rates occurred after the lifting of quarantine in August 2020.

Moreover, trends in the referral rates of service users with a LOS >60 days appeared to be increasing steadily over the entire observation period, including baseline, unlike for service users with a LOS <60 days, who had no such increase until the end of the baseline period when all PDSAs had been completed. Of note, rehabilitation services rejected only one referral as inappropriate during the observation period.

DISCUSSION AND CONCLUSIONS

This CPIP uncovered and addressed three root causes of low rates of referral to rehabilitation units among users of inpatient mental health services. Implementing strategies to sequentially address these root causes gradually and sustainably improved referral rates. Stakeholder preconceptions about rehabilitation have been shown to impede implementation and use of rehabilitation services (5). It is hence crucial to emphasize the importance of bridging knowledge gaps among service users, their families, and stakeholders within the hospital system.

Emphasizing the role of the service user during the planning of an individualized rehabilitation strategy was an important element of our project. Setting self-concordant goals can increase motivation and satisfaction and can improve service users' sense of empowerment (4). Aside from this, as previously mentioned, our results revealed a clear distinction between service users with a LOS <60 days and those with a LOS >60 days. We posit that the latter group may have had more complex or severe symptomatology requiring longer treatment. Although it is possible that both groups benefited from addressing the barriers to referral, the increase in referrals observed for those with a LOS >60 days after implementation of our interventions was affected by quarantine procedures. Future studies could stratify samples by LOS and statistically power their samples accordingly. It would be useful to examine whether some interventions are more effective for service users with more complex or more severe symptomatology or whether service users with a LOS >60 days merely required additional time in treatment.

The World Psychiatric Association has highlighted psychosocial rehabilitation as an aim for service users with psychiatric illnesses (1). To achieve this aim, coordination and integration of efforts between inpatient and rehabilitation units must be prioritized. Embedding routine rehabilitation programming into inpatient units so that collaborative

efforts can happen is not only more cost-effective but also reduces LOS. Furthermore, assisting service users to refine and consolidate their rehabilitation goals adheres to the principles of shared decision making, strengthening the decision-making power of the service user and leading to improved satisfaction with and outcomes of services (7, 8).

Intervention strategies implemented as part of CPIPs can become sustainable when they are collaboratively developed by stakeholders. The findings and improvements resulting from this CPIP were disseminated to multiple levels of hospital stakeholders (hospital board members and clinical and nursing representatives). This dissemination was crucial, because stakeholder buy-in will be needed for future structural reorganization to build collaborative units and to sustain the impact of this project. This CPIP has since been scaled up to a women's inpatient ward, providing an opportunity for evaluating these interventions when they are implemented with a different service-user population.

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Submissions Invited for Racism & Mental Health Equity Column

Coeditors: Ruth S. Shim, M.D., M.P.H., Michael Mensah, M.D., M.P.H., and Lucy Ogbu-Nwobodo, M.D., M.S.

This column examines the intricate ways that structural racism is embedded in psychiatry and investigates strategies to mitigate the impact of structural racism on mental health service delivery. Contributions to the column will explore antiracism and antioppression frameworks of practice and organizational change in relation to service delivery. Submissions that consider how the intersections of race, ethnicity, class, gender, gender identities, and sexual orientation shape mental health experiences and access to psychiatric services are welcomed. Authors are encouraged to present innovative strategies and solutions to transform and dismantle structures of racism across different dimensions of mental health, including (but not limited to) clinical services, education, training, research, and advocacy.

Submissions (via mc.manuscriptcentral.com/appi-ps) are limited to 2,400 total words, inclusive of a 100-word abstract, two or three one-sentence Highlights, and up to 10 references.