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## Abstract

Relapse in schizophrenia poses significant challenges for mental health management, especially in community settings. This quality improvement (QI) project aimed to reduce relapse rates in patients with schizophrenia in Bermuda by leveraging community empowerment and implementing an Assertive Community Treatment (ACT) model. The project engaged a cohort of 59 high-risk patients and focused on interventions such as medication adherence, social support, vocational activities, and training community members and family in relapse prevention. Over a six-month period, from November 2023 to May 2024, the project sought to decrease relapse rates from 87% to 50%. Key findings indicated significant improvements: 92% of patients adhered to prescribed medication regimens, 98% participated in community job placements, and there was a progressive increase in trained community members (from 50% to 100%). The relapse rate was successfully reduced to 51% by May 2024. These outcomes reflect the efficacy of ACT in supporting schizophrenia patients through community-based, holistic care, and enhancing their recovery and integration. The study also highlighted the importance of family engagement, regular follow-up with healthcare professionals, and addressing comorbid conditions. Recommendations include sustained community support, improved nursing education, and the implementation of telepsychiatry for wider service accessibility. The findings suggest that adopting the ACT model can significantly improve relapse prevention and mental health outcomes in community settings.

**Keywords:** Schizophrenia, relapse prevention, Assertive Community Treatment, community empowerment, mental health, medication adherence, nursing education, Bermuda, telepsychiatry, quality improvement



## **1.0 Introduction**

Quality improvement process is one of the important activities in an organizational development process; it helps in upscaling and refining the organization's overall performance to optimum level. Relapse in psychiatric management is one of the major quality improvement concerns. This project aims to tackle the issue of patient relapse in psychiatric illness by leveraging the principles of community empowerment within the framework of Assertive Community Treatment (ACT). Recognizing the complex interplay between individual factors and community dynamics in mental health outcomes. This initiative seeks to enhance patient support networks, promote community inclusion, and strengthen the resilience of individuals with psychiatric conditions. By examining the effectiveness of ACT in fostering sustainable recovery and reducing relapse rates, this project endeavors to contribute to the ongoing improvement of mental healthcare delivery and outcome.

Bermuda Island is one of the British Overseas Territories located in the middle of North Atlantic Ocean with a population estimate stood at 64, 000 as at August 2023 and comprises of 52% black, 31% white, 9% multiracial, 4% Asians, and 4% others. The closest land border which is 600 miles east of North Carolina in the United States and 900 miles north of the Caribbean. The economy is composed of international business of banking and insurance sectors which make up 85% of the island's GDP, whereas Tourism contributes 5% and Bermuda has the 6th highest GDP per capita in the world (Forbes, 2023). For this project 68 patients reside in 6 group homes were identified as discharged from the hospital during the period of the understudy (January 30th, 2023, to October 10th, 2023) and out which 59 relapsed. (87 %). Furthermore, 38 (64 %) of the patients are black, 16 (27 %) white, and 5 (9 %) others.

## **1.1 Problem Description**

Patients' Relapse is one of the major problems in the management of mental illness, especially chronic Schizophrenia that accounts for 70% of mental illness in the Bermuda community. For example, this year's Hospital report (Bermuda Hospitals Report, 2023) indicates that out of 68 schizophrenic patients who were discharged with good response to treatment, 87% or (n-59) relapsed in less than 3 weeks. When we were investigating the causes of these frequent relapses, we found out that this problem is mainly caused by poor social and community integration of patients with mental illnesses, especially those with schizophrenia. Similarly, a survey conducted by the Bermuda Mental Health Foundation (BMHF, 2023) indicated that, lack of suitable accommodation options after discharge from the hospital, stigma and cost of healthcare services and cost of living contribute greatly to relapse. Hence the choice of this topic for the quality improvement (Q.I.) project.

## 1.2 Project Aim

This project aims to decrease the high rate of relapses from 87% to 50% among people with Schizophreniain Bermuda within six months (November 10th, 2023, to May 30<sup>th</sup>, 2024).

## **1.2.1 Specific Objectives**

- i. To identify the community team and family members that will assist in Relapse prevention activities among patients with Schizophrenia within the one-month start of the study.
- ii. To train community members and patients' families on Relapse prevention
- iii. To practice regular home visits to increase compliance with treatment orders within



one-month start of the study.

iv. To engage patients in structured work/employment activities in the community within two months of thestart of the study.

## **2.1 Empirical Literature Review**

Relapse can be explained as the return of illness after recovery; this is one of the major challenges in the management of psychiatric illnesses, especially schizophrenia which is characterized with lack of insight and psychotic features. This situation leads to psychological, social, and economic stresses to the individual, family, society, and healthcare infrastructure. Different factors including stigma attached to mental health illnesses, social rejection and lack of community support may lead to psychiatric relapse. This assertion was affirmed by Almond, et al. (2018) stating that relapse in schizophrenia is associated with social and economic challenges to the family, society, and healthcare system. In addition, inadequate supervision of the medication regime at home and poor social integration could be an important factor for relapse. Almuqrin et al. (2023) indicated that, psychosocial stress, social withdrawal, and interpersonal sensitivity predisposes individuals with schizophrenia to relapse. Furthermore, medication non-adherence, substance abuse, poor social support, and stressful life events have been affirmed by different authors as factors contributing to schizophrenic patients' relapse (Docherty et al., 2020; Latalova et al., 2021, Garcia et al., 2019). Also, substance abuse, particularly of drugs like cannabis and stimulants, can exacerbate symptoms and increase the risk of relapse (Schoeler et al., 2016; Large et al., 2018).

Additionally, inadequate social support and stressful life events, such as unemployment or relationship problems, can contribute to heightened stress levels and exacerbate symptoms, increasing the likelihood of relapse (Ventriglio et al., 2020). Cost and stigma were identified as the major challenges in Bermuda's acute mental health integrated care pathway as reported by the Royal Gazette Newspaper Bermuda (February 8, 2024) and this led to patients' relapse especially those with schizophrenia. We have also observed so far, the lack or poor community support to the patients with schizophrenia in Bermuda as it is evidenced by many schizophrenic patients who do not have homes to return to after hospital discharge, others wandering on roads/streets and in the community without any support. Therefore, this project aims to adopt the Assertive Community Treatment (ACT) model to provide community-based integrated support to schizophrenic patients to improve the quality of their lives and reduce the rate of relapse in Bermuda community. Bond and Drake (2015) reported that, the ACT modelenhances incorporation into the community's way of living and the provision of holistic care by multidisciplinaryteams of mental health professionals: Psychiatric nurses, psychiatrists, social workers, Occupational therapists, Psychologists, and Rehabilitation therapists. Therefore, the ACT model improves patient life through theprovisions of a therapeutic environment and direct coordinated team care in the community.

#### 2.2 Theoretical Literature Review

The study was guided by the Colebrooke Center for Evidence and Implementation Theory of Change (TOC) model.

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#### **Implementation Outcome**

Adherance with medication regimes
 2-Avoids using nonprescriptions drugs
 3- Accepting their health status

## Mechanisms of change

1-Reporting to clinic for medications refill/Assessment

2-Engagement with Addiction Centers and Alcoholics Anonymous (AA) groups

3- Active participation in structured work programs

#### Outcomes

1-50% Reduction in hospitalization due to relapse2- Gainfully engaged in vocational activities of interest3- Improved self-esteem and self-efficacy

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## Figure 1: Change Model

The Theory of Change (TOC) model, as adapted from the Colebrooke Center for Evidence and Implementation, is applied to reduce relapse in patients with schizophrenia in Bermuda. The root causes of relapse include noncompliance with treatment, inadequate social support, social stigma, unemployment, and substance abuse. The problem centers on the relapse of patients within the community, necessitating resources such as engagement with family members, community psychiatric teams, and other healthcare professionals. Activities focus on family engagement, counseling, medication compliance, job placement, and crisis intervention. Implementation outcomes include adherence to medication, avoiding substance abuse, and active self-care. Mechanisms of change involve clinic follow-ups, participation in group activities, and structured work programs. The desired outcomes aim for a 50% reduction in hospitalization due to relapse, increased participation in work activities, prompt resolution of crises, and overall improvement in self-esteem.

#### **2.3 Conceptual framework**

The Health Belief Model (HBM) will serve as the conceptual framework guiding the implementation of this project. Based on the work of Rosenstock (1958, as cited in Hayden, 2019), HBM operates on the premise that health-seeking and health maintenance behaviors are shaped by psychological readiness, situational influences, and environmental conditions. The model comprises five key perceptions: perceived seriousness, perceived susceptibility, perceived benefits, perceived barriers, and cues to action. For this project, HBM is adapted to incorporate sociodemographic factors, including education, employment opportunities, socioeconomic status, and housing, as social determinants affecting the health of individuals with schizophrenia in Bermuda. Rosenstock et al. (1990) emphasized that health threats are understood through perceived susceptibility to mental illness and the severity of symptoms, requiring patience and perseverance since many individuals with schizophrenia may lack insight into their condition. Expectations are rooted in perceived benefits of therapy, barriers to committing to treatment, and perceived self-efficacy, which build confidence in the possibility of mental health improvement through therapeutic participation. Cues to action can be stimulated through mass media campaigns and family involvement, promoting active community participation in Assertive Community Treatment (ACT) activities. This adapted framework will provide the foundation for guiding this project. The conceptual framework for the study is as displayed in Figure 2:





## **Figure 2: Conceptual Framework**

Health belief Model (HBM): Conceptual framework for Relapse Reduction in Bermuda for patients withSchizophrenia (Adapted from: Rosenstock et al.; 1990).



### 3.0 Research Method

## **3.1 Project Implementation Plan and Activities**

The Quality Improvement (Q.I.) project "Reducing patients' Relapse in Psychiatric illness through community empowerment" was developed adopting the concept of Assertive Community Treatment (ACT) model, stakeholders were selected based on their relevance to the project. The stakeholders include Psychiatrist, Community Psychiatric Nurses, Social workers, Clinical Psychologists, Occupational Therapists, Law enforcement agents. Similarly, theory of change (TOC) was used in this context to show how to achieve reductionin psychiatric illness relapse after hospital management. Likewise, Health Belief Model (HBM) conceptual framework was used to explore mental healthcare services utilization behavior amongst these group.

## **3.2 Project Timeline**

The project timeline for the study is as shown in Table 1:

#### Table 1: Project Timeline

Task	Start Date	End Date
First project proposal brainstorming meeting with theBermuda Hospitals Board Representative		10/11/2023
Meeting with HealthInformation manager	13/11/2023	13/11/2023
Meeting with otherstakeholders in hospital	08/01/2024	08/01/2024
Visit to identifiedGroup Homes Cluster	12/01/2024	12/01/2024
Preparation of relevant education materials on Schizophrenia for distribution to Clients and families		30/01/2024
Distribution of Education materials to selected clients and families	5/02/2024	7/02/2024
Health Education Session with clients on the Nature of their condition		13/02/2024



Orientation visits to WindReach Multi-Purpose Activity center, Bermuda	15/02/2024	15/02/2024
Engagement with Men's treatment center forthose with substance use issues	19/02/2024	19/02/2024
Engagement with Works and Engineering Department outdoor Programs	21/02/2024	2/03/2024
Program continues with client's participation in identified programs	9/03/2024	20/04/2024
Assessment of the impact of the program & review of challenges	22/04/2024	25/04/2024
Compilation of report & meeting with stakeholders	29/04/2024	5/04/2024
Submission of final report to UGHE, Rwanda	17/06/2024	20/06/2024

#### **3.3 Intervention**

Implementation of Schizophrenic's tailored Assertive Community Treatment (ACT) model of care to reduce schizophrenic patients' relapse. The following activities are involved:

- i. Regular home visits to assess patient condition and compliance with the management regime in the community.
- ii. Assessing and encouraging patients to engage in community vocational group activities based on theirphysical and emotional capabilities.
- iii. Train community members and families on how to support schizophrenic patients and reduce relapse.
- iv. Empowering patients to prepare and eat healthy meals at home.
- v. Remote and on-site monitoring of drug administration and side effects for quick intervention tomaintain confidence and compliance with the treatment regime.
- vi. Prompt intervention in the treatment of physical illnesses through collaboration with the medical team.
- vii. Encourage healthy socialization through engagement with Addiction centers or AlcoholicsAnonymous (AA) groups in the community for those with drug abuse related issues.
- viii. Monitor outpatient follow-up appointments with Psychiatrists to ensure compliance



with treatmentorders.

## 3.4 Project Constraints (scope, cost, time quality, stakeholder satisfaction, resources)

There is no project without any constraint (s); for this project some of the constraints encountered includes limited time to attain the maximum benefits and goals of the activities outlined for the relapse reduction program.Likewise, the scope of the project in terms of coverage is not sufficient, out of fourteen (14) group homes only six (6) were covered for the project implementation due to timeline constraint and limited financial resources.

## 3.4.1 Stakeholders and their responsibilities (Stakeholder Analysis)

Stakeholders are important allies for the success of any project, for this project stakeholders were thoroughly analyzed, selected, and engaged using the concept of power/interest grid tool. For this purpose, the following stakeholders were engaged:

*Psychiatrist*- the psychiatrist doctor assists in assessing the mental and physical status of the clients and recommends appropriate medications and other therapeutic regimes.

*Community Psychiatric Nurse*- as the name implies, they work outside the hospitals by engaging clients in their immediate environment. They provide social and emotional support to clients, administermedications, and observe the effects for prompt intervention. Similarly, they act as advocates for the clients by developing client's care needs assessment and liaising with other members of the treatment team.

*Social worker*- mental health social worker plays a crucial role in the management of schizophrenic patients outside the hospital. Their roles include accessing financial support, housing, and job placementin the community. They offer support and information through counselling services to clients in distress.Furthermore, they liaise with other organizations in the community to achieve a holistic care for the clientsunder their supervision.

*Clinical Psychologist*- they offer support to individuals experiencing emotional and psychological challenges. They help clients to develop insight into their condition and to develop coping strategies.

*Occupational therapist*- Occupational therapist helps in reengaging clients with work activities by strengthening their motivation based on their physical and mental capacity. They also help clients to do everyday activities of daily living such as bathing, grooming, laundry, and keeping the environment cleanand tidy.

*Law enforcement Agents (legal aid team and Police)-* these help to protect the rights of the patients from abuse in the community settings.

#### 3.4.2 Risk and Risk Management

There is no project without a risk factor that could jeopardize the outcome of the process; however, the risk depends on the type of project and the stakeholders involved. The American Society for Quality described astakeholder as an individual or group that has an interest in any decision or activity of an organization (https://asq.org/quality-resources/stakeholders). For this project the stakeholders are considered as the risk items and for this reason, the concept of stakeholder's analysis was adapted to ensure seamless project outcome and tomanage any risk/problem that could arise during the implementation process. Therefore, the concept of stakeholder in power/influence and interest grid was applied to scrutinize the capabilities of the stakeholders in

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making the project a reality. This enabled me to assess the risk/problem involved in the stakeholder's selection criteria and to mitigate any problem that could hinder the success of the project.

## **3.4.3 Project Monitoring**

Project monitoring is one of the important aspects for ensuring strict implementation of the project as planned with an indicator. Furthermore, project monitoring helps in risk management by earlier detection and mitigation of a risk factor. Similarly, monitoring ensures the right choice of stakeholders for the project implementation. It also aids in assessing key performance indicators (KPIs) of the project. In this context, theory of change model was used for the project monitoring and for quality assurance purposes. Furthermore, as a lead for the project, I visited the clients in the community settings in collaboration with the members of the AssertiveCommunity Treatment (ACT) team. At various stages of the project implementation the ACT members performedseries of activities with the clients based on their professional affiliation. Likewise, I actively participated in theseactivities to ensure that everything is going according to the plan. Equally, approval for the project was granted by the management of Mid Atlantic Wellness Institute (MWI) Bermuda which is the only psychiatric facility onthe island (see Appendix).

## 4.0 Project Findings

For this project, out of the 68 discharged patients we identified 59 high risk patients to enroll in the program. The findings indicate the success of the project. For instance, 92% (n=55) showed compliance with themedication regime, especially the injectable long-acting antipsychotics at the end of the project. Similarly, 85% (n=50) of the cohort were successfully engaged in the ACT support system with their families and peers throughparticipation in home maintenance activities and dual-diagnosis group programs such as Alcoholics Anonymous(AA). In addition, 98% (n=58) of the group were engaged in various activities in the community ranging from grocery packing, animal petting, and tagging of souvenirs for sale to tourists. Furthermore, with help from the ACT team members, 92% (n=54) of those with comorbid conditions such as hypertension, diabetes mellitus, andmorbid obesity kept their regular appointments with their various specialists during the period under review. Moreover,85% (n=50) of the cohort preferred living in their own apartment rather than residing in a structured group home.

Activities	Clients Identified	Percentage	Client Engaged	Percentage
Medication	59	100	55	92
Compliance				
ACT Support	59	100	50	85
Network with				
families and peers				
Participation in	59	100	58	98
Community jobplacement				
Keeping Appointment with	59	100	54	92
Psychiatrists and				
General Practitioners				
Preferred own	59	100	50	85
Accommodation				

Table 3 further shows the number of trained community members that were on relapse prevention.

Table 3. Number of Trained	Community members on	<b>Relapse prevention (n-30)</b>

Months	Number of Trained Community Members	Percentage
November 2023	15	50
December 2023	18	60
January 2024	22	73
February 2024	24	80
March 2024	25	83
April 2024	26	87
May 2024	30	100

Additionally, table 4 presents the results of the reduction in patients' relapse in psychiatric illness.

Months	Patients with Relapse	Percentage
November 2023	59	100
December 2023	53	90
January 2024	50	85
February 2024	45	76
March 2024	40	68
April 2024	35	59
May 2024	30	51

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#### Table 4: Results about Reduction of Patients' Relapse in Psychiatric illness

#### 4.1 Discussion

The findings of this project align with existing literature on the factors contributing to relapse prevention in schizophrenia. As seen in Table 2, activities such as medication compliance, support from families and peers through the ACT network, participation in community job placements, adherence to follow-up appointments with psychiatrists and general practitioners, and preference for independent accommodation were all effectively implemented, with high engagement rates (over 85% in most categories). Notably, medication compliance was achieved by 92% of the cohort, and participation in community job placements reached 98%, reflecting the efficacy of ACT model interventions. The progressive training of community members, as shown in Table 3, further underscores the growing capacity for relapse prevention over time, culminating in 100% of the targeted community members being trained by May 2024. This community involvement is crucial, as it reinforces social support networks for patients. Additionally, Table 4 demonstrates a marked reduction in relapse rates, decreasing from 100% in November 2023 to 51% by May 2024, suggesting that sustained interventions have a significant impact on reducing psychiatric relapse.

Comparing these results to other studies reinforces the importance of support systems and medication adherence. For instance, a study by Jorgensen et al. (2021) in Sweden using the Positive and Negative Syndrome Scale (PANSS) found that strong family, peer support, and effective medication management (including long-acting injectables) play vital roles in relapse prevention for patients with schizophrenia. Similarly, Stuart (2022, as cited in Bhandari, 2022), highlighted that adherence to medication, regular rest and exercise, avoiding substance abuse, managing stress, and engaging in healthy socialization are pivotal in preventing relapse within the community setting. The current findings are consistent with these insights, demonstrating that ACT model activities, such as regular home visits, vocational engagement, medication monitoring, and socialization through addiction support groups, significantly contribute to reduced relapse rates.

Overall, the literature strongly supports the components and activities of the ACT model as effective interventions for supporting schizophrenia patients in the community and preventing relapse. The successful implementation of these activities in the project aligns with the outcomes observed in the cohort, indicating the practical value of ACT in promoting sustained recovery and reducing hospital readmission rates among individuals with schizophrenia.



## 5.0 Conclusion

Relapse in psychiatric illness is one of the major setbacks in the management of mental illness. The Assertive Community Treatment (ACT) model of care adopted and implemented in the project proved successfulin reducing the incidence of relapse in over 50% of the identified cohort (n-68). As has been noted, adequate community resources, affordable and accessible healthcare services, appropriate stakeholders' engagement, patients' and family empowerment, and government mental healthcare policies are the key performance indicatorsfor relapse prevention in psychiatric illness in community settings.

## **5.0 Recommendations**

The study recommends that patients with schizophrenia continue taking their prescribed medications, particularly long-acting injectable antipsychotics, to prevent relapse and manage both positive and negative symptoms effectively. Patients should engage in activities suited to their mental and physical abilities to reduce social isolation, and families should play supportive roles in medication adherence and daily living activities. Additionally, patients with substance abuse issues should participate in dual-diagnosis group programs to enhance resilience. Prompt treatment of physical illnesses and adherence to follow-up appointments with psychiatrists and general practitioners are also emphasized for early detection and management of conditions.

For Nursing and Midwifery leadership, the study recommends ensuring comprehensive mental health education and clinical exposure in training programs, along with regular competency updates for practicing mental health nurses. At the clinical practice level, it is recommended to maintain a sufficient number of trained mental health nurses to deliver uninterrupted care. Patients in hospital settings should be empowered to consider long-acting injectable antipsychotics for better compliance and relapse prevention. At the population health level, sustainable resources and support systems, such as the ACT model and access to Universal Health Coverage (UHC), are essential for supporting patients post-discharge. To sustain the project, it is crucial to inform patients about mental health resources in the community and encourage participation in appropriate activities. Finally, the introduction of tele psychiatry and tele-nursing is recommended to enhance service accessibility and coverage.

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