



REVIEW

## Nurse-Led Strategies to Enhance Medication Adherence in Older Patients after Hospital Discharge

### Estrategias dirigidas por el personal de enfermería para mejorar la adherencia a la medicación en pacientes mayores tras el alta hospitalaria

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#### ABSTRACT

Discharged older adult inpatients are often administered a variety of drugs. However, many only take roughly half of their medications and many discontinue treatment. Nursing strategies might enhance medication adherence in this group. The goal of this research is to assess the efficacy of nurse-led transitional care strategies after hospital discharge of older patients versus usual care in enhancing cognitive processes, physical performance, signs of depression and stress, perceptions of social support, patient satisfaction, and the costs associated with medical service use among older patients with multiple chronic conditions and signs of depression. Three sites in Ontario, Canada were used for a pragmatic multi-site randomized controlled research. Individuals were randomly assigned to either an intervention group or a control (normal care) group. 127 people over the age of 65 were discharged from the hospital with several chronic conditions and signs of depression. Over six months, a Registered Nurse provided individualized care through cell phone follow-up, house visits, and device navigation help as part of an evidence-based, patient-centered intervention. The main result was a shift in cognitive performance between the first and sixth months. Alterations in physical performance, depressed symptoms, stress, and social support perceived, patient satisfaction, and the cost of health care usage were secondary results measured from baseline to six months. ANCOVA modeling was used for the intention-to-treat analysis.

**Keywords:** Medication Adherence; Nurse-Led Strategies; Older Patients; Hospital Discharge.

#### RESUMEN

A los adultos mayores hospitalizados que reciben el alta se les suelen administrar diversos fármacos. Sin embargo, muchos sólo toman aproximadamente la mitad de sus medicamentos y muchos interrumpen el tratamiento. Las estrategias de enfermería podrían mejorar la adherencia a la medicación en este grupo. El objetivo de esta investigación es evaluar la eficacia de las estrategias de cuidados de transición dirigidas por enfermeras tras el alta hospitalaria de pacientes de edad avanzada frente a los cuidados habituales para mejorar los procesos cognitivos, el rendimiento físico, los signos de depresión y estrés, las percepciones de apoyo social, la satisfacción del paciente y los costes asociados al uso de servicios médicos entre pacientes de edad avanzada con múltiples enfermedades crónicas y signos de depresión. Se utilizaron tres centros de Ontario (Canadá) para una investigación controlada aleatoria pragmática en varios centros. Las personas fueron asignadas aleatoriamente a un grupo de intervención o a un grupo de control (atención normal). 127 personas mayores de 65 años fueron dadas de alta del hospital con varias enfermedades crónicas y signos de depresión.

A lo largo de seis meses, una enfermera diplomada proporcionó atención individualizada mediante seguimiento por teléfono móvil, visitas a domicilio y ayuda para la navegación por dispositivos como parte de una intervención basada en pruebas y centrada en el paciente. El principal resultado fue un cambio en el rendimiento cognitivo entre el primer y el sexto mes. Las alteraciones en el rendimiento físico, los síntomas de depresión, el estrés y el apoyo social percibido, la satisfacción del paciente y el coste del uso de la atención sanitaria fueron resultados secundarios medidos desde el inicio hasta los seis meses. Se utilizó el modelo ANCOVA para el análisis por intención de tratar.

**Palabras clave:** Adherencia a la Medicación; Estrategias Dirigidas por Enfermeras; Pacientes de Edad Avanzada; Alta Hospitalaria.

## INTRODUCTION

Medication adherence is a crucial part of therapy effectiveness, healthcare expenditures, and patient safety.<sup>(1)</sup> Medication adherence is closely associated with the concept of concordance, which refers to a process of shared decision-making between patients and healthcare practitioners.<sup>(2)</sup> According to WHO research, insufficient medication adherence among chronic illness patients averaged 50 %, posing a substantial concern that resulted in increased morbidity and death, as well as higher healthcare expenditures.<sup>(3)</sup> Numerous older persons have various chronic illnesses for which they are being treated with a variety of medications. As a result, they have a significant risk of poor adherence, such as skipping doses, stopping, changing schedules and dosages, or overusing. Lack of compliance may lead to worsened clinical outcomes, such as readmission to the hospital, escalation of chronic medical diseases, and increased healthcare expenses. Amounting to 10 % of hospital readmissions, non-adherence is the cause. Patients' medication schedules often varied during their hospital stays and in the first week after release.<sup>(4)</sup> Such adjustments and complicated treatment plans have been demonstrated to lower drug compliance and may contribute to non-adherence in some individuals.<sup>(5)</sup>

There's also the possibility that the older individual restarted taking their medicine after stopping it while in the hospital, forgot to continue taking a new prescription they started there, or overdosed.<sup>(6)</sup> Furthermore, the patient is not provided with sufficient information on medicine changes before discharge. Non-adherence is more common in the first few days or weeks after hospital discharge, especially among older people.<sup>(7)</sup> To maintain older persons' adherence to treatment it is essential for healthcare providers, particularly community healthcare nurses, to do timely and consistent follow-up with their patients. Nurses are in a prime position to administer and manage consistency care since they work in the majority of hospital facilities, are in closeness to patients, and act as a bridge among patients and doctors.

Training for patients, medication administration systems, and online reminders have all shown promise in improving medication adherence and treatment continuity among the elderly in previous studies.<sup>(8)</sup> In this research, we looked at older persons (65 years old), who are undoubtedly the most susceptible patient population due to multimorbidity and depressive signs. Older persons with multimorbidity and signs of depression have much greater rates of the hospital, urgency department, and physician usage and expenses than the general older adult population, and they often move between hospitals and their homes.

Yang et al.<sup>(9)</sup> examined the impact of a nurse-led medication self-management strategy on medication adherence and clinical results in older patients with multiple chronic conditions. Yang et al.<sup>(10)</sup> defined the creation of a multimorbidity Self-administration of medications program for older individuals. They developed the program using the first four intervention mapping steps: Needs evaluation, including cross-sectional research; systematic review, and literature review, the establishment of program goals and purpose; selection of theoretical based intervention approaches and practical implementations; and program construction. Lambert et al.<sup>(11)</sup> assessed the satisfactoriness and feasibility of a six month, nurse-led, community wellness worker-partnered short-course therapy (3HP) LTBI adherence paradigm for a high-risk, LTBI-positive homeless population. Hwang et al.<sup>(12)</sup> examined nurses' ART adherence research and delivery. Nurse-led and nurse-facilitated interventions may help HIV-positive people adhere to ART. More nurse-led and nurse-facilitated ART adherence initiatives are needed given nurses' involvement in HIV treatment and their efficacy. Kim et al.<sup>(13)</sup> aimed to produce evidence for the creation of efficient nursing interventions using technology by identifying the features of nurse-led DHIs for patients with hypertension and comparing the impact size of those interventions with that of standard treatment. Hu et al.<sup>(14)</sup> overarching goal was to assess the efficacy of nurse-led interventions in improving metabolic syndrome patients' adherence to and comprehension of their prescribed medications, as well as their clinical outcomes. Cui et al.<sup>(15)</sup> examined the effects of nurse-led health education on older COPD patients' knowledge, beliefs, and practice model-based self-management skills, satisfaction, and compliance. Kolcu et al.<sup>(16)</sup> showed that rural CHF patients benefited greatly from a systematic education program in terms of their medication use, dietary changes, social support, and symptom management. There

was also a significant correlation between that method and a decrease in hospital readmissions. Verloo et al.<sup>(17)</sup> investigated the impact of a nurse-led hypertension treatment program on older individuals' quality of life, adherence to medication, and control of hypertension. Lyu et al.<sup>(18)</sup> was to examine the treatment adherence and self-efficacy have moderating roles in the link between the effectiveness of a network-based intermediary care program and improvements in life expectancy, and glycemic management in people with Chinese patients with type 2 diabetes.

## **METHODS**

In Ontario, Canada, researchers undertook a large-scale pragmatic randomized controlled study. The Explanatory Continuum Indicator from a Pragmatic Perspective was used to guide the study's design and determine how pragmatic it should be. Patient-relevant outcomes, as well as intention-to-treat analysis, and employment of participants proportional to those who seek care in a hospital environment, were all examples of pragmatic features. The published research protocol includes information on the study's methodology and the indicators of success. Herein, we provide our methodology, findings, and participant flow by the CONSORT guideline for pragmatic randomized controlled trials. A quick rundown of the main highlights of the layout follows.

### *Participants and recruitment*

The research subjects came from three different regions of Ontario, Canada, each having a prominent university hospital. These three areas were chosen because of the variety in their geographic, socioeconomic, and linguistic (i.e., English, French) qualities. Participants were enrolled in the study during 2017 and 2018, with a range of 5-11 months depending on the location. Patients 65 and above were eligible for participation provided they matched the following criteria and were screened by a qualified recruiter before hospital release (n = 825). older than 65 years old; have reported having at least two chronic diseases; had positive screening results for depression using the Patient Health Questionnaire (PHQ-2); individuals who were not expected to leave the society throughout the study's 6-month duration and who had passed the cognitive screening test. The PHQ-2 is not meant to diagnose major depression, but rather to serve as a "first step" screening tool to identify the existence of depression symptoms. Therefore, the Center for Epidemiologic Studies Depression Scale 10-item instrument (CESD-10) was used to further assess whether or not eligible, consenting individuals satisfied the criterion for a depression condition (CES-D 10). After patients were released from the hospital, a research assistant (RA) contacted them to schedule an in-home interview. Before starting the first in-home interview, the RA made sure to get written informed permission from the patient.

### *Randomization*

After collecting baseline data, participants in each region were randomly assigned to get the normal intervention of care through the use of a centralized online software system that kept the portion secret from the study team. Each participant was assigned to one of two groups in a random order selected by Redcap, with a 1:1 ratio.

### *Intervention*

This study employed the Medical Study Council's Framework for Developing Complex Interventions in its creation because of the emphasis it places on both theory and empirical data. Bandura's Social Cognitive Theory, in which participants were taught to increase their self-assurance in their capacity to manage their health and reduce its risk factors, served as the theoretical foundation for the intervention. Importantly, the intervention took into account feedback from several groups, including patients, healthcare professionals, and policymakers at the state and regional levels. Stakeholders collaborated to identify areas for enhancement after the discharge from the hospital, which shaped the intervention's foundational elements and how they were implemented in the research sites. To ensure that all perspectives were taken into account, it was essential to have several provider agencies participate in the design of the intervention. The intervention is described by the standards laid forth in the Template for Intervention Description and Replication. In each of the research areas, four RNs served as Care Transition Coordinators (CTCs), providing standard care as well as a patient-centered intervention for six months. Normal medical care was not the responsibility of the CTCs. The CTCs had 2-20 years of experience as RNs in hospitals and clinics, and one even had a master's degree in the field. Before beginning the intervention, the CTCs received training from the lead researchers and the study manager on how to effectively communicate the intervention's key actions, study methods, and underlying theories to participants. A uniform training handbook including pivotal information for the whole intervention was produced. The CTCs received training that was tailored to their specific requirements, and it included instruction and role-playing exercises designed to improve their ability to provide problem-solving therapy within the setting of several chronic conditions. To ensure that the interventions were being

carried out as planned, the lead investigators and the study coordinator had monthly outreach meetings with the CTCs. The intervention included as many as six in-person visits (with a bare minimum of two) as well as follow-up phone calls and help navigating the system. Transitions from the hospital to home may be improved in terms of both quality and patient experience using the CAST intervention. It was developed using a patient-centered approach and summarizes techniques found in successful care transition treatments and advocating for excellent practice recommendations for the Navigational System, depression management, and the control of multiple health problems.

As part of the CAST intervention, each participant was given access to monthly, one-hour-on average, in-home visits from the CTCs as well as six months' worth of phone conversations. The CTC's main responsibilities during home and cell phone visits included: employing standardized instruments to undertake a thorough evaluation of the social and health assistance requirements of older patients; improving the detection and treatment of depression and other mental health conditions; conducting medication evaluation and conciliation and assisting with antidepressants medication management in compliance with better practices; and offering problem-solving sessions with participants.

The CTC offered system navigation support both during and between home visits, which included: risk factors for negative outcomes like hospital readmissions identified and addressed; community services like care at home and follow-up medical appointments scheduled; patient family caretaker, communication among the patient, and the health care group is facilitated; links and referrals are established to related social and health service providers; and a personalized care plan is developed. By a practical trial plan, the strategies were modified to the individual patient's requirements and preferences as well as the local background. Even if patients were denied several house visits, for example, they would still have access to the activities and services that are routinely given in their community.

#### *Patient and public participation*

The meaningful participation of various patients who represented the population of interest in this patient-centered research initiative at all phases of the research process was a crucial component. Patients and caregivers who had experience with hospital-to-home discharge or signs of depression and multimorbidity were dynamically engaged as members of the following committees: 1) a study steering group to offer input on the trial's design and administration oversight, and to inform the research's cross-site completion; 2) There will be three Community Advisory Boards, one for each of the research sites, to help with the local application of the findings; and 3) the role of Co-Investigators in the study team. Through these frameworks, patient, and caretaker study partners helped with the formulation of study goals and questions, the choice of patient-related results, the evaluation of study resources, the interpretation of study results, and the dissemination of information. Inclusion, support, respect for one another, and co-construction were the guiding concepts for patient participation.

#### *Outcomes and measures*

Specifics on the criteria for success are laid forth in the study's protocol. Baseline, six-month, and twelve-month follow-ups were all measured using questionnaires administered by an interviewer in the comfort of each participant's own home. The major goal of this study was mental functioning, and it was measured using the Veterans Rand 12-item health survey's (VR-12) Mental Component Score (MCS), a valid and accurate patient-reported outcome measure. This finding jibed with the overarching goal of our intervention, which was to boost memory and attention in the elderly afflicted with depression and other chronic diseases.

Patient experience was measured with a single question from the Clinical Global Impression-Improvement Scale (CGI-I), physical performance was measured with the VR-12's Physical Component Score (PCS), depression was evaluated with the Center for Epidemiologic Studies Depression Scale (CESD10), anxiety was measured with the Generalized Anxiety Disorder Scale (GAD-7), and social reinforcement was measured with the Self-Assessment of Available Resources (PRQ2000). The reliability and validity of these instruments have been established in previous investigations with older people in the community with multiple chronic illnesses. Healthcare use data were collected using the HSSUI, a reliable and robust self-report questionnaire for measuring health and social service consumption. The HSSUI keeps track of when and where its users visit their primary care physicians, hospitals, emergency rooms, specialists, other health and social workers, pharmacies, and laboratories. Analyses of costs were done using the amounts of service suggested by the Healthcare use was measured using the Health and Social Services Utilization Inventory (HSSUI), taking a societal perception to direct the broad allocation of sources in the community interest. While other outcome measures may not have established standards, the VR-12 does. When attempting to make sense of variations in group mean summary scores the Veterans Rand 12 (VR-12) team suggests adopting a minimally important difference (MID) of 3. A recent systematic analysis of randomized controlled trials showing non-significant results underlined the need to evaluate self-confidence intervals about the MID to distinguish "negative" findings from "inconclusive" ones. We included this idea in our evaluation of the MID-equipped PCS and MCS on the VR-12.



### Blinding

Participants, data collectors, and the statistician analyzing the data were all blinded to their group assignment to reduce the possibility of bias. After 12 months, participants established a debriefing letter detailing the study's two groups and their allocations. The participants' regular doctors and nurses were likewise in the dark about their group assignments.

### Sample size

The major outcome, the VR-12 MCS score, required a sample size of 216 (72 from each of the three locations). The computation used the data from the feasibility study, which showed a difference in MCS scores of 6,5 standard deviations (SD) on average (80 % power) and 20 % attrition (5 % 2-tailed alpha). Under these conditions, the sample size for the treatment and control arms was set at 108 people.

### Statistical analysis

This trial's report conforms to the CONSORT statement for pragmatic RCTs. Baseline, 6-month, and 12-month summary values of outcomes were summed using descriptive statistics. Results with a continuous distribution were described using means and standard deviations, whereas those with a discrete distribution were described using frequencies and percentages. To examine the intervention's efficacy across the 6-month study period, we utilized analysis of covariance (ANCOVA) to compare groups based on their alteration in main and minor results from baseline to six months. Six-month result value was the needy variable, the group pointer was the independent factor, and the baseline result value was the covariate in the analysis of covariance. Mean group differences and 95 % confidence intervals were reported from the model. Alteration in results from baseline to six months was analyzed by quintile using regression analysis. This approach allows us to look at differences across groups across the dependent variable's distribution, rather than just the mean, by relaxing the conventional regression slope assumption. If statistically important group variations were found in the results between baseline and six months (T1), ANCOVA was utilized to evaluate group variations in continuous results between 6 months (T2) and 12 months (T3) to determine whether or not the strategies effects were sustainable.

## RESULTS

The features of the regional health authority in each study site are listed in table 1. Suburban and rural areas were supplied by sites 1 and 2. Location 3 represented a cityscape. The percentage of seniors living at each location exceeded that of the province as a whole. Intervention nurses at site 1 left at a higher rate than at any of the other two locations

Table 1. Features of the Research Locations

Variables	Site 1: Sudbury, Ontario	Site 2: Burlington, Ontario	Site 3: Hamilton, Ontario	Ontario
Income inequality among the Older patients	3,4 %	4,4 %	7,3 %	5,2 %
Cultural Variation	3,7 % Ethnic Minority. 12,4 % FNIM	9,8 % Ethnic Minority. 0,6 % FNIM	18,1 % Ethnic Minority. 3,2 % FNIM	23,4 % visible minority. 6,2 % FNIM
Language	38 % bilingual 26 % Native Speakers of the French language;	82 % Native Speakers of English	74,6 % Native Speakers of English 24,2 % native speakers of a non-recognized language;	67,8 % Native Speakers of English 2,5 % Native Speakers of the French language; 25,8 % native speaker of a non-recognized language;
The percentage of senior citizens	21,5 %	18,2 %	24,6 %	16,3 %
Spatial Concentration	Suburban/Rural	Suburban/Rural	Urban	
Population	~166 000	~206 000	~590 000	
Reducing Staff Turnover in Nursing	The intervention began 5 months after 3 RNs were replaced.	After 7 months of the intervention, 2 more RNs were added.	At the 13-month mark of the intervention, two more nurses were introduced.	
Participants registration	19	35	74	

*Dropouts versus finishers: a comparison*

Baseline characteristics were compared between individuals who stayed in the trial for the full six months ( $n = 99$ ) and those who dropped out before then ( $n = 28$ ). The dropouts were more possible to be living in a departure home or other assisted to have a depression history (50 % vs. 29,3 %), living setting (39,3 % vs. 12 %), and have the lowest score on the VR: MCS-12. dropout and individuals who finished the six-month follow-up showed no differences in any other baseline variables.

*Participants' initial characteristics*

Participants who were followed up for a full six months are described in Table 2 for their initial conditions. Both groups averaged 77 years of age, with 63 % being female, 41 % living with a family member, 63 % being 76 or older, 39 % being married, and 59 % being divorced. Sixty percent of the participants earned less than \$40,000 Canadian Dollars per year; thirty percent had not completed high school; and thirty-eight percent were completely on their own. At baseline, patients reported VR: PCS-12 and MCS scores that were considerably lower than established standards for Canada's general populace. People with six or more chronic diseases made up the vast majority (84,9 %), whereas people with eight or more chronic circumstances were taking a standard of eight drugs every day.

Participants reported hypertension at a rate of 79 %, with 72 % also suffering from arthritis. 72 % of people in both groups showed signs of depression (10 on the CES-D-10). Roughly 30 % of individuals in each group identified as having a depressive history, and 31 % as currently using an antidepressant. 44 % of people showed significant anxiety (score 5 on GAD-7) during the study. Intervention group members were more likely to have used antidepressants (25,5 % vs 21,2 %) and to have a depression history (36,2 % vs. 23,1 %). The VR: PCS-12 scores of intervention group members were lesser than those of the usual care group members (22,2 vs. 26,2).

**Table 2.** Basic Variables of older patients ( $n = 99$ ) with multimorbidity and signs of depression

Variables (%)	Normal Care Group ( $n = 52$ )	Intervention Group ( $n = 47$ )	Total
<b>Age in years</b>			
65-69	7 (11,7)	8 (13,9)	12 (14,2)
70-74	12 (21,5)	11 (21,2)	22 (22,3)
75	33 (65,8)	31 (62,8)	65 (64,3)
<b>Gender</b>			
Male	18 (36,4)	17 (37,2)	38 (36,3)
Female	32 (62,4)	28 (61,6)	61 (61,5)
<b>Depression Medication</b>			
No	42 (78,8)	27 (74,4)	67 (67,6)
Yes	12 (22,2)	20 (25,6)	32 (33,3)
<b>Depression history, n (%)</b>			
No	41 (76,8)	31 (63,8)	71 (70,8)
Yes	11 (23,2)	17 (36,2)	28 (29,4)
<b>Signs of depression</b>			
<10 (CESD-10)	13 (25,1)	14 (31,8)	28 (27,9)
10 (CESD-10)	39 (75,1)	33 (67,2)	71 (73,2)
<b>Stress signs</b>			
<5 (GAD-7)	25 (52,8)	27 (59,7)	56 (56,3)
5 (GAD-7)	26 (47,3)	18 (41,5)	54 (54,3)
<b>Varieties of Chronic Conditions</b>			
Hypertension	43 (83,5)	35 (72,2)	77 (76,7)
Arthritis	34 (66,4)	34 (75,4)	71 (72,1)
<b>Chronic Conditions</b>			
11	8 (12,4)	7 (16,1)	14 (14,3)
6 to 10	34 (66,2)	35 (72,4)	68 (67,6)
0-5	11 (19,3)	6 (10,7)	16 (15,3)

<b>Medication Prescription</b>			
Social support, mean (SD)	84,85 (10,8)	81,28 (15,3)	82,55 (12,8)
8 medications	36 (68,7)	32 (71,7)	67 (70,2)
4-7 medications	12 (25,6)	8 (18,7)	23 (22,8)
0-3 medications	4 (5,7)	5 (8,6)	6 (7,3)
<b>Characteristic</b>			
cognitive performance, mean (SD)	43,97 (14,22)	42,51 (11,92)	43,66 (12,75)
Number of hospital registration, last six months, mean (SD)	1,45 (0,85); Range: 0-2	1,65 (1,02); Range: 0-5	1,56 (0,95); Range: 0-5
Physical Functioning , mean (SD)	26,17 (11,62)	22,24 (10,25)	23,92 (10,96)
Anxiety Symptoms , mean (SD)	6,15 (6,36)	5,27 (5,15)	5,68 (5,72)
Depressive Symptoms , mean (SD)	11,96 (6,72)	11,7 (6,75)	11,1 (6,61)

### *Intervention dose*

At least one house visit was made by the CTC to 45 (71 %) of the 63 intervention enrollees at baseline. Figure 1 depicts the many reasons why the intervention was not implemented (in full or in part). The overwhelming majority of people (78 %) who declined house visits stated a lack of interest in the research as their reason.

### *Interventional effects*

The finished case ANCOVA data from baseline to six months are shown in table 3. Mean differences between groups at 6 months on the main results (VR: MCS-12) were not statistically significant after controlling for baseline values. Secondary outcomes showed no important group differences among the intervention and control groups on the PRQ-2000, GAD-7, or CES-D-10.

Outcome	Intervention (n = 47)		Control (n = 52)		ANCOVA Mean Diff [t, p-value]
	Baseline Mean	T2 Mean	Baseline Mean	T2 Mean	
VR: PCS-12	21,22 (10,25)	25,24 (10,77)	26,17 (10,62)	28,08 (10,22)	-1,46 (-4,97; 2,08) [-0,83; 0,44]
CESD-10	10,5 (6,76)	9,83 (7,08)	11,98 (6,72)	9,64 (5,24)	0,81 (-1,44; 3,02) [0,72; 0,47]
GAD-7	5,27 (5,13)	4,86 (5,27)	6,13 (6,34)	3,81 (3;3,38)	1,35 (-0,26; 2,93) [1,67; 0,11]
VR: MCS-12	44,51 (11,91)	48,63 (11,62)	42,97 (14,22)	46,73 (11,58)	1,08 (-3,25; 5,42) [0,51; 0,62]
PRQ 2000	83,28 (14,22)	84,57 (14,68)	82,85 (11,72)	83,58 (12,41)	2,96 (-1,94; 7,84) [1,3; 0,24]

The findings from multiple imputations agreed with those from the full case. Since statistical significance was not reached, we did not do any subgroup analysis. We compared the baseline and T2 mean standard deviations for the CESD-10, PRQ 2000, and GAD-7 between the intervention group and control group. We compared the baseline and T2 mean standard deviations for the CESD-10 between the intervention group and control group, as shown in figure 2. The intervention group's T2 mean is almost higher than the control groups, while the control group's Baseline mean is higher than the intervention groups.

We compared the baseline and T2 mean standard deviations for the PRQ 2000 between the intervention group and control group, as shown in figure 3. The intervention group's baseline and T2 mean values were a bit more than the control group's values.

We compared the baseline and T2 mean standard deviations for the GAD-7 between the intervention group and the control group which is shown in figure 4. The intervention group's T2 mean is almost higher than the control groups, while the control group's baseline mean is higher than the intervention groups.

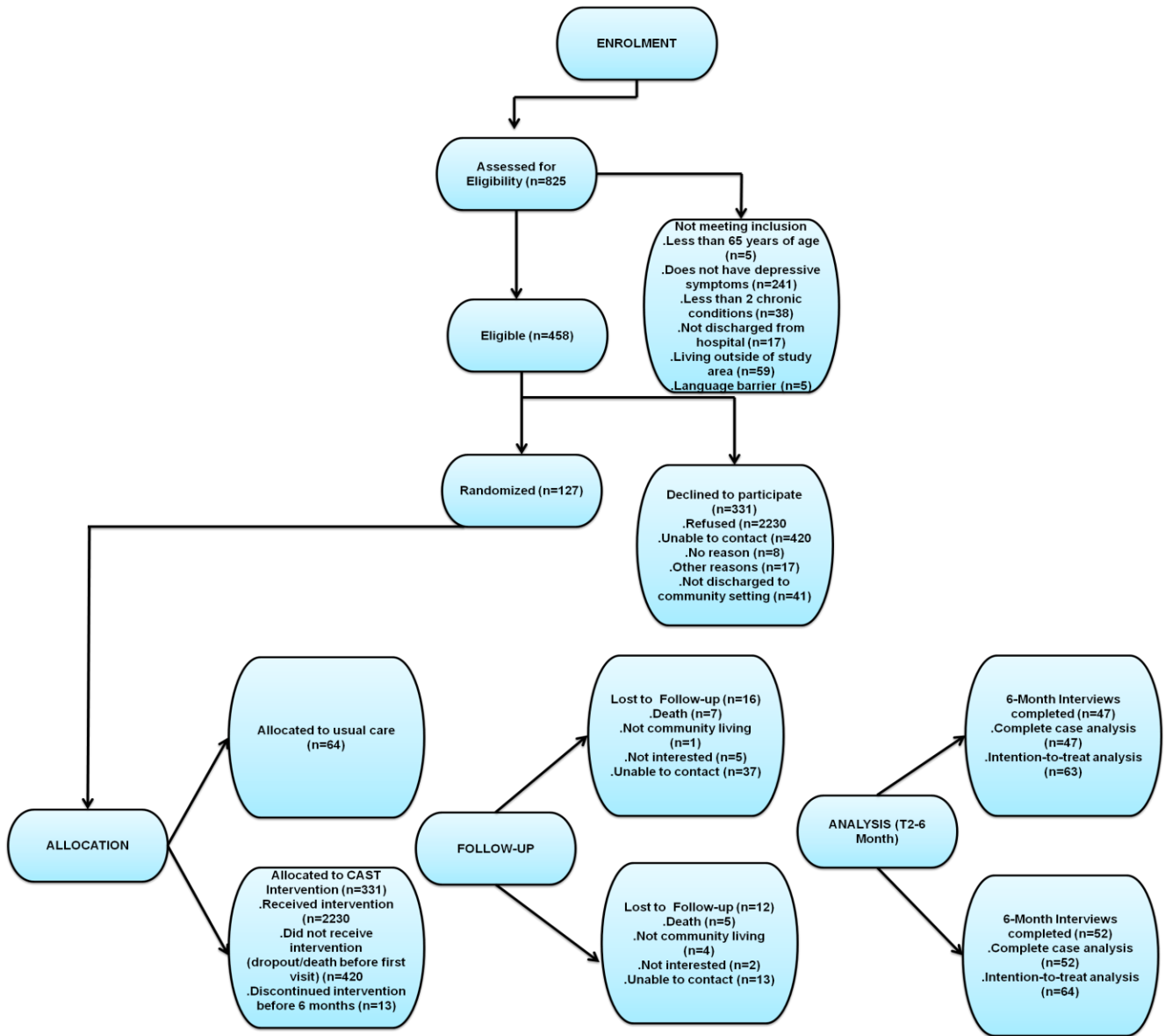


Figure 1. Research flow Diagram

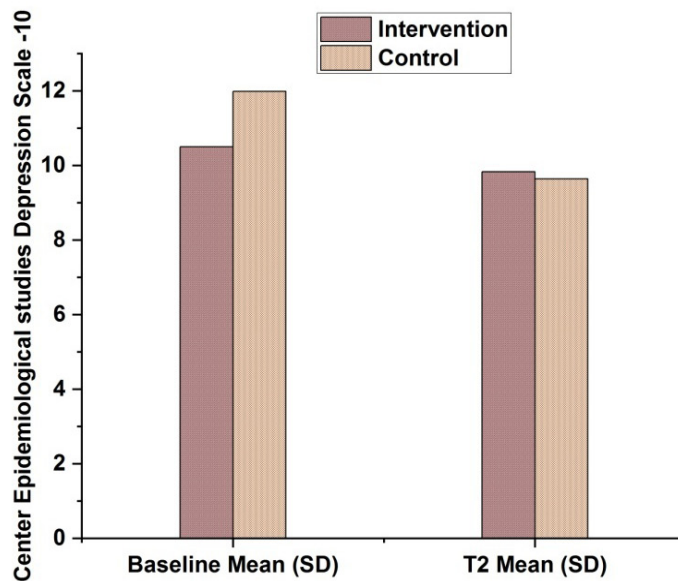


Figure 2. Comparison of Baseline and T2 mean of CESD-10



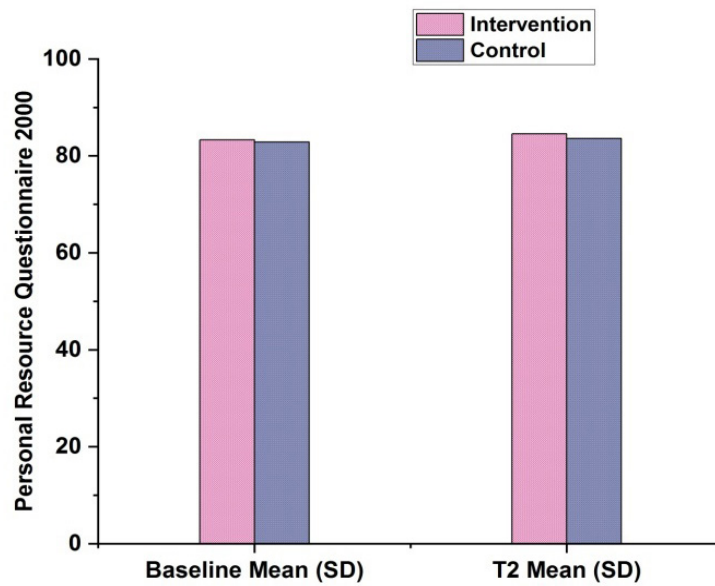


Figure 3. Comparison of Baseline and T2 mean of PRQ 2000

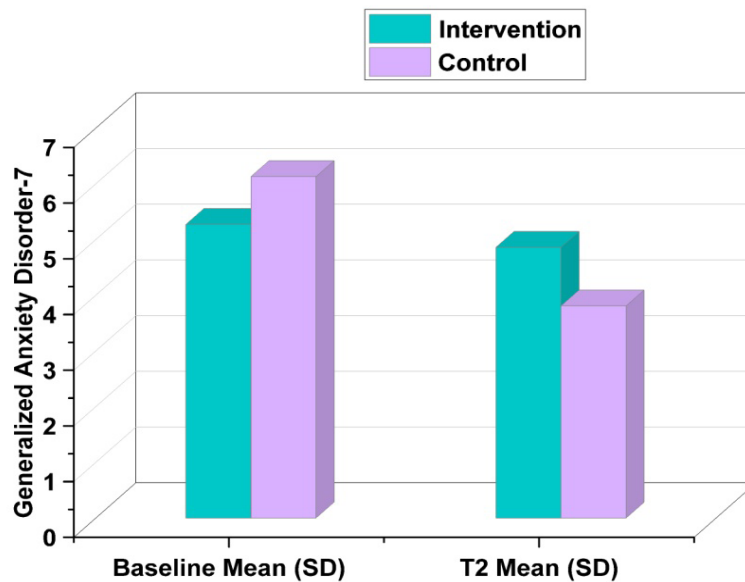


Figure 4. Comparison of Baseline and T2 mean of GAD-7

**CONCLUSIONS**

This practical trial of a nurse-led transitional care intervention showed mixed results for mental and physical performance, enhancements in one area of patient satisfaction, and a possibility for substantial enhancements in social reinforcement in older patients with multimorbidity and signs of depression moving from hospital to home. More study is needed to determine the effect of the strategies and the factors that supply the outcomes seen because of the high incidence of depression and stress among older patients with multimorbidity discharging from the hospital to the house and the failure to recognize and address symptoms of depression in this high-risk population. Future study is also required to pinpoint methods to raise retention and employment rates to guarantee a sufficient number of cases, expand the intervention's reach, and comprehend the impact of these contextual variables on research results to make decisions about the expansion of the strategies use and the requirement for more study.

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