

Mental Health Services Act

Early Intervention Evaluation

Final Report: Cluster 3
Programs Serving Older Adults Experiencing Early Onset of
Depression or Depressive Symptoms
(Deliverable 2E)

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Introduction

Mental Health Services Act (MHSA) requirements for Prevention and Early Intervention (PEI) programs describe early intervention services as those intended for individuals and families for whom a mental health condition is in its early manifestation.¹ To provide greater understanding of the impact of PEI funding across the state of California on early manifestation of mental illness, the Mental Health Services Oversight and Accountability Commission (MHSOAC) contracted with UCLA's Center for Healthier Children, Families, and Communities (UCLA – CHCFC) to investigate the impact of clusters of similar types of early intervention services implemented across the state. This report describes results of evaluating a cluster of early intervention programs serving older adults experiencing early onset of depression or depressive symptoms (herein referred to as Cluster 3), supported by the PEI component of the MHSA.

Identifying Early Intervention Programs for Study

To guide the identification of programs appropriate for study, the evaluation team developed four criteria for establishing the appropriateness of an early intervention program for inclusion in each study cluster. These criteria were developed in accordance with the study purposes specified by the MHSOAC and through consultation with stakeholders.

Evaluation Inclusion Criteria

1. *Early intervention programs*: Programs selected for the evaluation were focused on early intervention, defined as serving individuals with early onset of a mental illness or emotional disturbance. Programs that include a mix of both prevention and early intervention elements were eligible for inclusion; however, the focus of the study is on the early intervention elements of programs.
2. *PEI funding*: Programs selected provide early intervention services at least partially supported by MHSA PEI funds; programs that use PEI funds only for training and outreach, for example, did not meet this criterion.
3. *Consumer population identified by clinical assessment*: Programs selected serve the early onset population of interest, as determined by a systematic assessment (i.e., validated measure) that uses clinical cut-offs. Further, the clinical cut-offs are consistent with the definition of the consumer population of interest (e.g., showing clinical signs of early onset of a mental disorder or emotional disturbance).
4. *Program components and implementation*: Programs selected employ promising or evidence-based treatment components found to be effective for the consumer populations under study, as identified in a thorough review of the literature conducted by the evaluation team (i.e., peer reviewed literature published in the last 5 years). In addition, program staff documented (e.g., reports, training materials, service records, and communication with the evaluation team) delivery of the selected practices with fidelity.

For Cluster 3, the evaluation team conducted a careful process of identifying county programs that meet the inclusion criteria and serve older adults experiencing early onset of depression or depressive symptoms. Programs selected for inclusion are detailed in the following section of this report.

A Stakeholder-Informed Evaluation

To ensure the most relevant, useful, and methodologically sound evaluation approaches were employed, the evaluation team worked with counties, their early intervention programs, and a diverse group of stakeholders (herein referred to as the Evaluation Advisory Group), made up of practice/research experts, county/provider agency staff, and individuals with lived experience of mental illness and treatment in the public sector. The evaluation team collaborated with counties, Cluster 3 programs, and the Evaluation Advisory Group throughout the study development and implementation to: 1) identify early intervention programs meeting cluster inclusion criteria, 2) identify data elements available to examine PEI program participant outcomes, 3) focus analysis approaches, and 4) provide input regarding the conclusion and implications of results.

Cluster 3 – Early Intervention Programs Serving Older Adults Experiencing Early Onset of Depression or Depressive Symptoms

Early Intervention Population

Older adults (age 60 or over) experiencing early onset of depression and depressive symptoms are the focus of the Cluster 3 evaluation. Causes and risk factors that contribute to depression in older adults include: health problems, loneliness and isolation, a reduced sense of purpose, fear, and/or recent bereavement.² Depression in older adults is often characterized by memory problems, confusion, social withdrawal, loss of appetite, inability to sleep, irritability, and, in some cases, delusions and hallucinations that individuals with these symptoms may often describe as physical.³ Depression is also associated with suicide. Older adults have the highest rates of suicide of any age group, and this is particularly pronounced among men.⁴ Several versions of psychotherapy, including interpersonal, brief psychodynamic, problem-solving, and cognitive-behavioral, are reported by the American Psychological Association (APA) to significantly reduce depressive symptoms. The APA has also observed that older adults tend to state their preference for psychologically based treatments over medication.⁵

Early Intervention Program Models

A survey of counties currently implementing early intervention programs targeting older adults with early onset depression revealed three evidence-supported program types, including PEARLS, IMPACT and Healthy IDEAS. Core components of these early treatment and intervention models include:

- A dedicated case manager
- Home visits
- Assessment, targeting, goal-setting, and planning a course of action
- A continuum of self-management training and support
- Active and sustained follow up
- Social and physical activation
- Education (patients/clients and their family/support system)
- Integrated services with primary care physician.

Counties participating in the Cluster 3 evaluation are delivering one or more of the following three programs that incorporate the core components described above.

Program to Encourage Active Living for Seniors (PEARLS)

The PEARLS Program for Older Adults was developed by researchers at the University of Washington and was designed to treat depression in older adults (age 60 or over).^{6,7} Distinct features of the PEARLS Program include the provision of “house calls” by PEARLS counselors—a practice based on evidence that home-based treatment can reduce depression among socially isolated, older, or chronically ill adults. The program is also designed to be part of existing community-based programs that deliver care and provide resources to clients, with the objective of increasing individual access to safety net resources and comprehensive care services. The PEARLS Program incorporates current approaches to chronic illness care. One approach is the *chronic care model*, which advocates for the use of educational materials, patient registries, tracking tools, and system integration. Another approach is the *collaborative care model*, which focuses on the development of a collaborative or shared definition of an individual’s problems; targeting, goal-setting, and planning a course of action; creating a continuum of self-management training and support; and ensuring active and sustained follow-up.

The PEARLS Program focuses on three key treatment components:

- Problem solving – where participants learn to recognize symptoms of depression, understand the link between unsolved problems and depression, and apply a seven-step approach to solving their problems
- Social and physical activation – where participants develop a plan to engage in activities that interest them, aimed at improving their quality of life and mood
- Pleasant activity scheduling – where participants work with the PEARLS counselor to identify and participate in activities they find pleasurable as a way of managing their depression

PEARLS participant cases are reviewed regularly by a team that includes a psychiatrist, so as to address medical problems that arise during treatment. The supervising psychiatrist can also address other causes of depression and, when necessary, work with the client’s primary care provider or other health care provider to begin medication treatment for depression.

The PEARLS Program uses the Patient Health Questionnaire-9 (PHQ-9) to assess depression.⁸ The PHQ-9 is a nine-question scale that asks respondents to answer how often they experience the cluster of symptoms that defines depression. The PHQ-9 is recognized by PEARLS as a tool used for diagnosing depression (as it is during recruitment and screening) as well as for tracking a client’s overall depression severity and the specific symptoms that are or are not improving with treatment. Additionally, the PEARLS Toolkit provides several other data collection instruments:

- A screen for dysthymia
- A screen for exclusionary conditions
- A screen for memory cognition
- A client baseline questionnaire
- A counselor self-assessment
- A client tracking chart
- A final questionnaire
- A client satisfaction survey

IMPACT Program

The IMPACT model was developed by the University of Washington and focuses on two processes in the provision of evidenced-based depression care.^{9,10} The first is a *collaborative care* approach (distinct from the PEARLS collaborative care model described above), wherein a patient's primary care physician works with a care manager to develop and implement a treatment plan. Through systematic diagnosis and outcome tracking (e.g., PHQ-9 to facilitate diagnosis and track depression outcomes), the care manager provides patient education and self-management support, as well as close follow-up with clients. The consulting psychiatrist provides caseload consultation for the care manager and the primary care provider, as well as diagnostic consultation on difficult cases.

The second process involves the use of *stepped care*, which is treatment adjusted based on clinical outcomes. Here, the goal is to reduce depressive symptoms by 50% within 10-12 weeks. If the patient is not significantly improved at 10-12 weeks after the start of a treatment plan, the plan and approaches are altered. Relapse prevention is provided once the patient is improved. Throughout the stepped care process, the care manager supports anti-depressant medication prescribed by the primary care provider, provides brief counseling (using approaches such as behavioral activation, Problem Solving Treatment – Primary Care, Cognitive Behavioral Therapy, and Interpersonal Psychotherapy), facilitates treatment change, provides referrals to mental health services, and, when appropriate, supports relapse prevention. The consulting psychiatrist provides consultation for patients not improving as expected, as well as recommendations for additional treatment and referrals to mental health services according to evidence-based guidelines.

IMPACT care managers measure depressive symptoms at the start of a patient's treatment and regularly thereafter. The IMPACT program recommends the PHQ-9 as an effective measurement tool, although this is not required. In addition to administration of the PHQ-9, the program offers in its manual resources for client initial assessments, follow-up contacts, treatment plans, relapse prevention plans, maintenance plans, and a psychiatric evaluation template.

Healthy IDEAS (Identifying Depression, Empowering Activities for Seniors)

Healthy IDEAS is a program developed by the Baylor College of Medicine's Huffington Center designed to detect and reduce the severity of depressive symptoms in older adults with chronic health conditions and functional limitations through existing community-based case management services.¹¹ Healthy IDEAS integrates depression awareness and management into existing case management services provided to older adults (such as those that offer assistance with home-based care). The program also seeks to improve the linkage between community aging service providers (e.g., Area Agencies on Aging) and health care professionals through appropriate referrals, better communication, and effective partnerships. While based on PEARLS and IMPACT, Healthy IDEAS does not introduce a separate case manager focused exclusively on a client's depression. Rather, it embeds the four components of the program into regular case-management duties. Instead of scheduling weekly, in-person, individual sessions with clients, case managers complete the tasks as part of regular phone calls or home visits.

Components of Healthy IDEAS include:

- Screening and assessment of depressive symptoms
- Education for older adults and family caregivers about depression and self-care
- Referral and linkage to healthcare and mental health professionals
- Behavioral activation

Potential participants are identified via routine screening of case management clients for symptoms of depression using a standardized depression scale (e.g., PHQ-9). Participants and their caregivers, if appropriate, receive education about depression treatment and self-care, and participants receive active assistance in obtaining further treatment from primary care and mental health providers. They receive coaching and support as they engage in behavioral activation to manage their depression and pursue personal, meaningful activities. Typically, the program involves at least three face-to-face visits and three to six telephone contacts over a three-to-six month period. Participants with more severe symptoms of depression may require more contacts over a longer time period.

Cluster 3 Evaluation Methods

Design

A pre-post design approach was primarily employed to assess the impact of Cluster 3 programs. The evaluation focused on assessing outcomes measured by these programs and in line with MHSA PEI goals and outcomes¹² (see Table 2 for MHSA PEI goals and outcomes to be assessed). The evaluation team attempted to facilitate additional guidance (i.e., identification of appropriate instruments, protocols, and training materials) for programs to collect data on MHSA PEI outcomes for which no data was available. While many programs expressed interest in additional data collection, and the evaluation team consulted with counties regarding measurement options for PEI outcomes, lack of resources and time prevented any programs from collecting additional information within the scope of this project. Cluster 3 programs are collecting outcome data at pre, mid, and post-intervention points for many measures. As such, the evaluation team employed a pre-post no control group design, within and across county programs, fiscal years, and demographic groups. To help address the lack of an appropriate control or comparison group for this cluster of programs, the pattern and size of effects across programs and service years, with reference to clinical guidelines of relevant measures (e.g., measures of mental health symptoms or functioning), was examined to identify the practical significance of effects. This design was employed utilizing secondary analysis of existing program data, so as to limit burden on individual counties and their programs.

Sample

A purposive sample was identified for Cluster 3 that included older adults experiencing early onset of depression or depressive symptoms, who were served by early intervention programs that participated in the study (see Table 1). Four counties implemented PEARLS, four implemented IMPACT, and two implemented Healthy IDEAS programs. Program service years ranged from fiscal year (FY) 2010-11 to 2013-14, and complete annual program population sizes ranged from 1 to 738.

Table 1. Participating Cluster 3 Counties & Programs

County	Program / Practice
Alameda	IMPACT
Marin	Healthy IDEAS
Merced	PEARLS
Riverside	PEARLS
San Diego	PEARLS
Santa Barbara	IMPACT
Santa Clara	IMPACT
Sonoma	Healthy IDEAS

County	Program / Practice
Stanislaus	PEARLS
Ventura	IMPACT

Data Collection Procedures

Data for the Cluster 3 evaluation was collected from multiple sources, including county representatives, early intervention program staff, local program evaluators and other technical assistance and support agencies (e.g., local evaluators) that collect and maintain relevant information regarding program participant outcomes. The evaluation team worked with counties to systematically identify data currently collected, and outcomes for which additional collection may be appropriate, through a measurement matrix tailored for each county program and completed in collaboration with program staff. For participating programs that submitted a measurement matrix (final submission deadline was June 30th, 2013), the evaluation team reviewed the provided information and submitted specific data requests (i.e., measures, instruments, items, and service years). Participating counties then provided feedback regarding the data they concurred was available and appropriate for capturing the impact of their early intervention programs on specified MHSA PEI goals.

The evaluation team shared memoranda specifying the request and timeline for participation, and data sharing protocol (e.g., confidentiality and formatting), with counties, their programs, and other evaluation support staff (e.g., local evaluators). As each county, program, and support organization has a somewhat unique protocol for data sharing and collaboration, agreements were arranged via memoranda or more formal contractual agreements.

The evaluation team created an aggregated Cluster 3 database in which information from disparate sources, and in varying formats, was prepared for analysis (e.g., reviewed for missing or out-of-range information, recoded for consistency across counties and programs, and aggregate variable created). To ensure data quality and reliability, the evaluation team addressed any concerns that arose as part of ongoing discussions with programs and evaluation support organizations. However, the evaluation team also conducted an independent review of data quality and reliability, described in the Analytic Approach section below.

Measures

Participating Cluster 3 programs provided information regarding which of their available measures would address goals emphasized by the MHSOAC and other stakeholders as important for establishing the effectiveness of interventions intended to prevent or limit negative outcomes resulting from early onset mental illness (see Table 2 for measurement areas). Based upon MHSA PEI goals and outcomes identified in statute¹³ and the data provided by Cluster 3 programs, the outcomes currently feasible to analyze were determined by factors such as service years available, participant population size, and data collection instruments administered. Table 2, below, details MHSA PEI goals and outcomes that are currently feasible to evaluate based upon the data collected via the instruments administered by Cluster 3 programs.

Table 2. Measures of Cluster 3 PEI Consumer Outcomes

MHSA Goals	Outcomes	Measures	Instruments
Prevent mental illness from becoming severe and disabling ¹⁴	Change in the severity of mental illness	Assessment of anxiety	Generalized Anxiety Disorder Scale (GAD 7)
		Assessment of depression	Patient Health Questionnaire (PHQ-9)

MHSA Goals	Outcomes	Measures	Instruments
		Assessment of depression and functioning	Global Assessment of Functioning (GAF)
		Assessment of Depression and functioning, Interpersonal Relationship, Psychosis, Substance Abuse, Emotional Liability, and Self-Harm	Behavior and Symptom Identification Scale (BASIS 24)
Improve timely access to services for underserved populations	Data not directly available to assess “access”. As a proxy rates of service use among underserved populations were assessed	Rate of service use among underserved groups (i.e., based upon gender and race/ethnicity) compared to estimation of need for mental health services ¹⁵	Program intake assessment Collaborative Psychiatric Epidemiology Survey ¹⁶
Reduce suicide	Suicidal thoughts and behaviors	Assessment of suicidal thoughts and behaviors	Patient Health Questionnaire (PHQ-9)

Analytic Approach

Review of data completeness and quality was conducted upon receipt of data from each early intervention program that is the focus of Cluster 3. Data was reviewed for completeness, including number of consumers and assessment points, service years included, and the level of missing information¹⁷. In cases where more than ten percent of values within a key data field (i.e., necessary for assessment of a MHSA PEI goal or outcome) were missing, the evaluation team immediately followed-up with the relevant parties to gather additional information or justification for missing or out of range information. Where missing data could be filled after follow-up with counties or programs, this was done; otherwise analysis was conducted of complete data relevant to the outcomes assessed in this report. When information collected via one instrument was inconsistent with that assessed via another instrument across more than ten percent of cases, the evaluation team again followed-up with the relevant parties to rectify inconsistencies or understand them more fully. Participating programs were very cooperative in this process.

To what extent are MHSA PEI goals impacted as a result of program implementation or program participation? To answer this question analyses focused on change in MHSA PEI goals and outcomes across time, or in comparison to appropriate reference groups (e.g., the target service population, or unserved/underserved groups). Outcomes assessed at multiple points across the treatment process (e.g., severity of mental illness) allowed for analysis of individual level changes across two assessment points. Outcomes measured in a cross-sectional manner (e.g., demographics) allowed for comparison among relevant service populations (e.g., county demographic makeup). Research questions and hypotheses specific to each MHSA PEI goal and outcome investigated are detailed in Table 3, below.

Table 3. Research Questions and Hypotheses

MHSA Goals	Outcomes	Research Questions	Hypotheses
Prevent mental illness from becoming severe and disabling	Change in the severity of mental illness	Has the severity of mental illness changed (i.e., initial assessment to final assessment) as a result of Cluster 3 program participation?	The severity of mental illness will decrease, from initial to final assessment, on average among program participants

MHSA Goals	Outcomes	Research Questions	Hypotheses
Improve timely access to services for underserved populations	Data not directly available to assess “access”. As a proxy rates of service use among underserved populations were assessed	Are underserved groups (i.e., racial/ethnic minority groups, gender) utilizing Cluster 3 services at rates that are in proportion to their estimated need for service in the county in which they are served?	Underserved groups will be found to utilize Cluster 3 services at rates that are in proportion to their estimation of need for service in the county in which they are served
Reduce suicide	Suicidal thoughts and behaviors	Have suicidal thoughts and behaviors been reduced as a result of participation in a Cluster 3 program?	Suicidal thoughts and behaviors will decrease, from initial to final assessment, on average among program participants

Assessment of change in severity of mental illness required analysis of data generated via distinct instruments administered across programs, administered across years and at different intervals, to produce assessments of common outcomes across the study cluster. To overcome these challenges, the possibility of aggregating instruments (i.e., scales or subscales) measuring common constructs was explored. However, analysis of aggregated instruments revealed the psychometric properties of the data were altered to the extent that unreliable or practically uninterpretable results were produced. Alternatively, effect sizes (e.g., mean change scores and correlations) were calculated so as to provide understanding of the relative size of effects.¹⁸ Change in outcomes were analyzed within and across years, and with and without reference to measurement intervals, to identify any patterns of change in outcomes that may be due to factors such as program maturation or measurement effects. Analyses revealed that participant outcomes were not significantly influenced by program maturation or potential measurement effects, and so are not presented in this report. Participants without outcome assessments at multiple points could thus not be assessed for change, so cross-sectional outcome analyses are presented in this report as available and appropriate.

Are underserved populations accessing PEI programs at proportional rates? To the extent possible based on available data, and given sufficient program service population and demographic subgroups sizes (e.g., greater than 5 as a general rule), analyses of change in mental health severity and service utilization were conducted within and between gender and race/ethnic groups. Programs included in this cluster indicated a particular emphasis on service outreach to underserved groups (e.g., males, Black or Hispanic/Latino participants). Thus, it was expected that these groups would show service utilization rates proportional to their estimated need, despite their traditionally underserved status. While differential impact among gender and minority groups was investigated, unfortunately Cluster 3 programs did not collect systematic information regarding the economic situation of participants and their families.

Characteristics of PEI Programs and Participants Available for Cluster 3 Analysis

Table 4. PEI Program Participants Available for Cluster 3 Analysis, by County

County	Participants (%)
Alameda	44 (1.4%)
Marin	15 (0.5%)
Merced	9 (0.3%)
Riverside	88 (2.7%)
San Diego	1,316 (40.8%)
Santa Barbara	508 (15.8%)
Santa Clara	792 (24.6%)
Sonoma	302 (9.4%)
Stanislaus	111 (3.4%)
Ventura	38 (1.2%)
Total	3,223 (100.0%)

Table 6. PEI Program Participants Available for Cluster 3 Analysis, by Fiscal Year

Fiscal Year	Participants (%)
FY 09-10	43 (1.3%)
FY 10-11	583 (18.1%)
FY 11-12	898 (27.9%)
FY 12-13	1,057 (32.8%)
FY 13-14	118 (3.7%)
Not Determinable	235 (1.6%)
Total	3,223 (100.0%)

Table 5. Gender of PEI Program Participants Available for Cluster 3 Analysis

Gender	Participants (%)
Female	1,530 (47.5%)
Male	830 (25.8%)
Missing	863 (26.8%)
Total	3,223 (100.0%)

Table 7. Race/Ethnicity of PEI Program Participants Available for Cluster 3 Analysis

Race/Ethnicity	Participants (%)
American Indian/Alaska Native	14 (0.4%)
Asian	373 (11.6%)
Black/African American	66 (2%)
Hispanic/Latino	534 (16.6%)
Native Hawaiian/Pacific Islander	8 (0.2%)
White	929 (28.8%)
Two races or more	60 (1.9%)
Other/Unknown	1,239 (38.5%)
Total	3,223 (100.0%)

Analyses and results of Cluster 3 PEI program goals and outcomes are presented below. Analysis of programs' efforts to prevent mental illness from becoming severe and disabling are presented first, followed by rates of service use compared to estimated need, and then analysis of program impact on suicidal thoughts and behaviors. Interpretation of findings is presented alongside relevant tables/figures. Lastly, discussion of findings and implications is provided.

Analysis & Results of Cluster 3 PEI Program Goals & Outcomes

MHSA PEI Goal	Prevent mental illness from becoming severe and disabling
Outcome Assessed	Change in the severity of mental illness
Primary Research Question	Are underserved groups (i.e., racial/ethnic minority groups, gender) utilizing Cluster 3 services at rates that are in proportion to their estimated need for service in the county in which they are served?

Analysis of programs’ efforts to prevent mental illness from becoming severe and disabling are presented separately for each instrument that Cluster 3 programs utilized to measure severity of mental illness. Instruments used to assess severity of mental illness (see Table 9, below) were analyzed separately so as to maintain the psychometric properties and clinical significance of scores and results. For each assessment instrument, clinical guidelines for scoring are presented and described first in order to convey the practical meaning of average changes in severity of mental illness between the first and last assessment points. Throughout the results, the term “clinically significant” is used to describe average changes that cross clinical score guidelines (i.e., movement from one clinical category to another across time points). Average changes in severity of mental illness and their clinical significance are presented overall and among instrument subscales and demographic subgroups (as available data supported). Only consumers with data from two assessment points are included in this analysis. Cells sizes less than 5 have been redacted for confidentiality purposes. Interpretation of results is discussed in terms of clinical significance, overall and separately for each instrument. Discussion and implications are then provided at the end of this report in the “Discussion & Implications” section.

Measurement: *Change in Severity of Mental Illness*

All counties with programs in Cluster 3 provided data for the PEI goal *prevent mental illness from becoming severe and disabling*.

Table 8. Cluster 3 Counties & Programs that Provided Data for Analysis of *Change in Severity of Mental Illness*

County	Program / Practice	Provided Data
Alameda	IMPACT	PHQ-9, GAD 7
Marin	Healthy IDEAS	PHQ-9, GAD 7
Merced	PEARLS	PHQ-9
Riverside	PEARLS	PHQ-9
San Diego	PEARLS	PHQ-9
Santa Barbara	IMPACT	PHQ-9
Santa Clara	IMPACT	PHQ-9, GAD 7
Sonoma	Healthy IDEAS	PHQ-9
Stanislaus	PEARLS	PHQ-9
Ventura	IMPACT	GAF, Basis 24

Table 9. Instruments & Measures Available for Cluster 3 Analysis of *Change in Severity of Mental Illness*

Instruments	Measures
Patient Health Questionnaire (PHQ-9)	Assessment of depression
Generalized Anxiety Disorder Scale (GAD 7)	Assessment of anxiety
Global Assessment of Functioning (GAF)	Assessment of depression and functioning
Behavior & Symptom Identification Scale (BASIS-24)	Assessment of depression and functioning, interpersonal relationships, psychosis, substance abuse, emotional liability, and self-harm

Results: Change in Severity of Mental Illness

Patient Health Questionnaire (PHQ-9)

To assess the effect of the IMPACT, Healthy IDEAS, and PEARLS programs implemented in several Cluster 3 counties (i.e., Alameda, Marin, Merced, Riverside, San Diego, Santa Barbara, Santa Clara, Sonoma, and Stanislaus), change in total PHQ-9 scores from initial to follow-up assessment, relative to clinical ranges (see Table 10), was examined overall, by gender, by race/ethnicity, and by age group.

The Patient Health Questionnaire (PHQ-9) is a 9-item measure designed to diagnose depression and measure depression severity. Its values range from zero to 27, and specific value ranges indicate different levels of depression severity (see Table 10). The validity of this instrument was established by Martin, et al. (2006)¹⁹. They examined a representative sample of 2,066 subjects between 14 and 93 years old. The results from the analysis support the construct validity of the PHQ depression scale, which seems to be a useful tool to recognize not only major depression but also sub-threshold depressive disorder in the general population.

Lowe et al. (2004)²⁰ investigated the sensitivity to change of the PHQ-9 in three groups of patients whose depression status either improved, remained unchanged, or deteriorated over time. Of three cohorts of medical outpatients, with an equal distribution of major depressive disorder, other depressive disorders, or no depressive disorder, 167 (82.7%) responded to the PHQ-9 and the Structured Clinical Interview for DSM-IV (SCID). They were completed at both baseline and follow-up. Depression diagnoses from the SCID were used as the criterion standard to divide patients into subgroups with (a) improved depression status, (b) unchanged depression status, and (c) deteriorated depression status. This study demonstrated the ability of the PHQ-9 to detect depression outcome and changes over time.

Table 10. Interpretation of PHQ-9 Scores

Depression Severity	Score Range
Minimal depression	1-4
Mild depression	5-9
Moderate depression	10-14
Moderately severe depression	15-19
Severe depression	20-27

To examine the overall impact, and any differential impact, of IMPACT, Healthy IDEAS, and PEARLS service among Cluster 3 participants, changes in average PHQ-9 scores were examined overall, and among gender, racial/ethnic, and age groups (see Table 11). Changes in average scale scores are interpreted relative to PHQ-9 clinical ranges (presented in Table 9), so as to reveal clinically significant impact of program participation.

Table 11. Patient Health Questionnaire (PHQ-9) Results, Overall and by Sub-Groups

Scale by subgroups	N	Time 1 Mean (S.D.)	Time 2 Mean (S.D.)	Mean Difference (S.E.)
Overall Score	415	11.10 (5.15)	6.44 (5.35)	-4.66 (0.20)
Gender				
Female	281	11.40 (5.13)	6.82 (5.55)	-4.57 (0.37)
Male	111	10.11 (5.14)	5.42 (4.71)	-4.68 (0.52)

Scale by subgroups	N	Time 1 Mean (S.D.)	Time 2 Mean (S.D.)	Mean Difference (S.E.)
Race/Ethnicity				
American Indian/Alaska Native				
Asian	41	8.71 (5.35)	5.34 (5.19)	-3.37 (0.76)
Black/African American	17	10.24 (5.18)	5.24 (5.54)	-5.00 (1.47)
Hispanic/Latino	65	11.23 (4.90)	6.45 (4.62)	-4.78 (0.70)
Native Hawaiian/Pacific Islander				
White	186	11.30 (5.14)	6.78 (5.55)	-4.52 (0.47)
Two races or more	40	10.88 (5.57)	6.48 (5.85)	-4.40 (0.84)
Age Group				
60-69	196	11.51 (5.29)	6.86 (5.49)	-4.64 (1.32)
70-79	114	10.99 (5.02)	6.31 (5.46)	-4.68 (0.57)
80-89	62	10.18 (5.13)	5.60 (4.71)	-4.58 (0.67)
90+	20	8.95 (4.73)	5.25 (5.25)	-3.70 (1.00)

Notes: Bold values indicate clinically significant change. Cell sizes less than 5 have been redacted for confidentiality purposes.

Overall, PHQ-9 scores indicated that on average IMPACT, Healthy IDEAS, and PEARLS participants moved from the moderate depression range to the mild depression range. On average, both males and females showed clinically significant movement from moderate to mild levels of depression (see Table 11). All race/ethnic groups reported clinically significant improvement in depression severity, with the exception of Asian participants. Asian participants did report improvement on average, but this change did not move them across clinical boundaries into a category indicating less severe depression. All age groups reported clinically significant improvement in depression severity, with the exception of participants 90 or more years of age who did report average improvement but did not move across clinical boundaries to a less severe level of depression. These results indicate that Cluster 3 participants overall, and among most demographic sub-groups, experienced clinically significant reductions in depression severity through program participation.

To map out clinically significant changes in participants' PHQ-9 scores, Table 12 displays the number of participants within each depression category at initial assessment and follow-up.

Table 12. Participants' Depression Severity Level at Initial Assessment and Follow-up

Time 1	Time 2					Total
	Minimal	Mild	Moderate	Moderately Severe	Severe	
Minimal depression	28				0	38
Mild depression	65	36	18			123
Moderate depression	60	61	19	9		151
Moderately severe depression	27	22	19	10		79
Severe depression		10		6		24
Total	181	133	63	30	8	415

Notes: Cell sizes less than 5 have been redacted for confidentiality purposes.

Most consumers reported a decreased level of depression severity from time 1 to time 2. While 96 (23.1%) of the 415 participants remained in the same level of depression, 275 (66.3%) participants decreased at least one level of depression severity on the PHQ-9 scale. Only 44 (10.6%) participants increased a level of depression severity from initial to follow-up assessment. In line with analyses of average change in depression severity, analyses of participants' movement across clinical levels of depression severity suggest that participation in IMPACT, Healthy IDEAS, and PEARLS programs has a positive impact on depression.

Generalized Anxiety Disorder Scale (GAD-7)

To assess the effect of the IMPACT and Healthy IDEAS programs implemented in three Cluster 3 counties (i.e., Alameda, Marin, and Santa Clara), change in average GAD-7 scores from initial to follow-up assessment, relative to clinical ranges (see Table 13), was examined overall, and by gender, race/ethnicity, and age group.

The Generalized Anxiety Disorder (GAD-7) scale was developed by Spitzer, Kroenke, Williams and Lowe (2006), to briefly assess generalized anxiety disorder, one of the most common mental disorders.²¹ Its reliability and validity was analyzed using data from 15 primary care clinics in the United States, where 2,740 adult patients completed a questionnaire, and 965 of those patients were interviewed by telephone a week after. GAD-7 diagnoses were compared with independent diagnoses made by mental health professionals, functional status measures, disability days and health care use. The researchers found the GAD-7 scale to be a valid and efficient tool for screening for generalized anxiety disorder and assessing its severity in clinical practice and research.

GAD-7 values from zero to three are assigned to each one of the seven items. Zero indicates that the patient has not experienced problems and three indicates that she/he has experienced the problems nearly every day. The GAD-7 overall score is the sum of the 7 items. Thus, overall scores range from zero to 21, and score ranges represent different levels of anxiety (see Table 13).

Table 13. Interpretation of GAD 7 Overall Scores

Depression Severity	Score Range
Minimal Anxiety	0-4
Mild anxiety	5-9
Moderate anxiety	10-14
Sever anxiety	15-21

To examine the overall impact, and any differential impact, of IMPACT and Healthy IDEAS service among Cluster 3 participants, changes in average GAD-7 scores were examined overall, and among gender, racial/ethnic, and age groups (see Table 14). Changes in average scale scores are interpreted relative to GAD-7 clinical ranges (presented in Table 13), so as to reveal clinically significant impact of program participation.

Table 14. Generalized Anxiety Disorder (GAD-7) Results, Overall and by Sub-Groups

Scale by subgroups	N	Time 1 Mean (SD)	Time 2 Mean (SD) ¹	Mean Difference (SE)
Overall Score	25	10.43 (5.39)	6.31 (5.43)	-4.22 (1.05)
Gender				
Female	13	11.08 (5.81)	7.15 (6.62)	-3.92 (1.75)
Male				

Scale by subgroups	N	Time 1 Mean (SD)	Time 2 Mean (SD) ¹	Mean Difference (SE)
Race/Ethnicity				
American Indian/Alaska Native				
Asian				
Black/African American				
Hispanic/Latino	5	9.40 (6.19)	2.00 (2.55)	-7.40 (2.52)
Native Hawaiian/Pacific Islander				
White				
Two races or more	9	9.44 (6.65)	6.00 (5.96)	-3.44 (2.09)
Age Group				
60-69	16	10.31 (6.17)	6.50 (6.20)	-3.81 (1.51)
70-79				
80-89				
90+				

Notes: Bold values indicate clinically significant change. Cell sizes less than 5 have been redacted for confidentiality purposes.

Overall, participants displayed clinically significant movement from the moderate anxiety range to the mild anxiety range. When examined by subgroups, Females, Hispanics/Latinos, and those in the age group 60-69 also reported clinically significant decreases in average anxiety ratings. These results indicate that participation in the IMPACT and Healthy IDEAS programs has a positive impact on anxiety. However, relatively few consumers were assessed with the GAD-7, which suggests that these findings should be interpreted tentatively as trends may change as these programs grow.

Global Assessment of Functioning Scale (GAF)

To assess the effect of the IMPACT program implemented in Ventura, change in total GAF scores from initial to follow-up assessment, relative to clinical ranges (see Table 15), was examined overall, and by gender, race/ethnicity, and age group.

The Global Assessment of Functioning (GAF) scale is a clinician-derived measure of an individual’s psychological, social, and occupational (including school) functioning. Clinicians assign each individual a score ranging from 1 to 100, designed to indicate the nature and current severity of the individual’s present difficulties, with lower scores indicating greater degrees of functional impairment. Scores are assigned using a set of 10 descriptive anchors that range from “persistent danger of severely hurting self or others” to “superior functioning in a wide range of activities” (see Table 15). Evidence suggests that the GAF possesses good concurrent validity and inter-rater reliability.²² Furthermore, GAF ratings tend to be higher upon psychiatric discharge than at admission to treatment, implying consistency between the scale and other criteria used in treatment decisions.²³

Table 15. Interpretation of GAF Scores

Assessment of Functioning	Score Range
Superior Functioning. No symptoms.	91-100

Assessment of Functioning	Score Range
Absent or minimal symptoms, good functioning in all areas, interested and involved in a wide range of activities	81-90
Symptoms are transient and expectable reactions to psychosocial stressors	71-80
Some mild symptoms, or some difficulty in social, occupational, or school functioning	61-70
Moderate symptoms, or moderate difficulty in social, occupational, or school functioning	51-60
Serious symptoms, or any serious impairment in social, occupational, or school functioning	41-50
Some impairment in reality testing or communication, or major impairment in several areas	31-40
Behavior is considerably influenced by delusions or hallucinations, or serious impairment in communication or judgment	21-30
Some danger of hurting self or others, or occasionally fails to maintain minimal personal hygiene, or gross impairment in communication	11-20
Persistent danger of severely hurting self or others, or persistent inability to maintain minimal personal hygiene, or serious suicidal act with clear expectation of death	1-10

To examine the overall effect, and any differential effect, of the IMPACT services on the functioning of Ventura participants, changes in average GAF scores were examined overall, and among gender, racial/ethnic, and age groups (see Table 16). Changes in average scale scores are interpreted relative to GAF clinical ranges (presented in Table 15), so as to reveal clinically significant impact of program participation.

Table 16. Global Assessment of Functioning (GAF) Results, Overall and by Subgroups

Scale by Subgroups	N	Time 1 Mean (SD)	Time 2 Mean (SD)	Mean Difference (SE)
Overall Score	16	57.16 (6.06)	68.36 (8.47)	11.20 (2.73)
Gender				
Female	15	56.45 (5.42)	69.14 (7.89)	12.69 (2.46)
Male				
Race/Ethnicity				
American Indian/Alaska Native				
Asian				
Black/African American				
Hispanic/Latino	6	57.67 (6.50)	75.83 (7.36)	18.17 (5.06)
Native Hawaiian/Pacific Islander				
White	9	56.56 (6.57)	65.11 (6.35)	8.56 (3.41)
Other/Unknown				
Age Group				
60-69	15	57.47 (6.34)	67.87 (8.86)	10.40 (3.07)
70-79				
80-89				

Scale by Subgroups	N	Time 1 Mean (SD)	Time 2 Mean (SD)	Mean Difference (SE)
90+				

Notes: Bold values indicate clinically significant change. Cell sizes less than 5 have been redacted for confidentiality purposes.

Few participants were assessed at more than one point with the GAF scale. However, analysis of available GAF data indicated that overall, participants displayed clinically significant improvement in functioning. When examined by subgroups, Female, Hispanic/Latino and White participants, and participants between 60 and 69 years of age reported average improvement from the moderate to mild symptom ranges. While average change in functioning indicates clinically significant improvement among those assessed via the GAF, the small participant group assessed in only one county program suggests these findings should be interpreted tentatively as trends in functioning as a result of program participation may be different among a larger participant pool or other similar programs.

Behavior and Symptom Identification Scale (BASIS 24)

To assess the effect of the IMPACT program implemented in Ventura, changes in average BASIS 24 scores from initial to follow-up assessment, relative to clinical ranges, were examined overall, and by sub-scales (described below). Sufficient data was not available to examine BASIS 24 data by gender, race/ethnicity, and age group.

The Behavior and Symptom Identification Scale (BASIS 24) is a 24-item patient self-report questionnaire designed to measure symptoms and functional difficulties.²⁴ The 24 questions provide an overall score as well as six sub-scales regarding: how often symptoms of depression are experienced and extent of difficulty functioning, how often one has positive interpersonal experiences (reverse coded), how often symptoms of psychosis are experienced, how often symptoms of trouble with substance abuse are experienced, how often symptoms of emotional lability are experienced, and frequency of self-harm behaviors.

The overall BASIS-24 score is a weighted sum that is computed by multiplying the rating for each question by its weight and totaling the weighted ratings for each question. The weights are provided in the BASIS 24 Instructional Guide by McLean Hospital (2006).²⁵

Eisen et. al (1994)²⁶ presented the BASIS-32 (an early version of BASIS 24) factor structure, and reliability and validity of the data. They conducted 387 interviews with patients at intake and a follow-up questionnaire six months after. The analyses determined that BASIS-32 successfully discriminated patients hospitalized six months after admission from those not hospitalized at follow-up, and it also successfully captured changes in symptomatology and functioning. Factor analyses performed by the BASIS 24 developers confirmed the six subscales were also reliable.²⁷

Table 17. Interpretation of BASIS 24 Overall Scores and Sub-Scale Scores

Depression Severity	Score Range
No symptoms	0.0
Mild symptoms	0.1-1.0
Moderate symptoms	1.1-2.0
Moderately severe symptoms	2.1-3.0
Sever symptoms	3.1-4.0

To examine the effects of IMPACT services on the functioning of Ventura participants, changes in average BASIS 24 scores were examined overall and by subscale (see Table 18). Changes in average scale scores are interpreted relative to BASIS 24 clinical ranges (presented in Table 17), so as to reveal clinically significant impact of program participation.

Table 18. Behavior and Symptom Identification Scale (BASIS 24) Results, Overall and by Sub-scales

Sub-Scale	N	Time 1 Mean (SD)	Time 2 Mean (SD)	Mean Difference (SE)
Overall Score	12	1.68 (0.49)	0.85 (0.38)	0.83 (0.14)
Emotional Liability	12	1.55 (0.78)	1.02 (0.75)	0.53 (0.20)
Interpersonal Relationships	12	1.46 (0.94)	0.83 (0.81)	0.63 (0.36)
Depression and Functioning	12	2.29 (0.56)	1.08 (0.51)	1.21 (0.16)
Psychosis	12	0.26 (0.53)	0.33 (0.59)	-0.07 (0.16)
Self-Harm	12	0.14 (0.33)	0.03 (0.12)	0.10 (0.07)
Substance Abuse	12	0.06 (0.20)	0.03 (0.10)	0.03 (0.07)

Bold values indicate clinically significant change.

The overall mean difference between initial assessment and follow-up assessment was for the BASIS 24 was 0.83, representing clinically significant movement from the moderate to mild symptom range. Clinically significant improvement in severity was also evident within the interpersonal relationships and the depression and functioning sub-scales, indicating that these specific types of functioning improved as a result of program participation. Thus, clinically significant improvement in symptoms and functioning was found among those assessed via the BASIS 24. However, similar to analysis of GAF scale results, the small participant group assessed in only one county program suggests these findings should be interpreted tentatively as trends in symptoms and functioning as a result of program participation may be different among a larger participant pool or other similar programs.

Assessing the Relationship Between Program Dosage & Change in Severity of Mental Illness

To explore potential relationships between amount of program participation or “dosage” and change in mental illness severity, correlation analyses were conducted (see Table 19). Days of program participation was used as a measure of program dosage among participants assessed via the PHQ-9 or GAF. No statistically significant relationships were found between program dosage and change in severity of mental illness. While this result suggests that the amount of participation in a particular program may not be related to change in severity of mental illness, these programs are relatively standard, resulting in a limited range of days of participation among respondents. Other multidimensional measures of program dosage would allow for a more complete analysis of the potential relationship between amount of participation and change in severity of mental illness.

Table 19. Correlation Between Days in Treatment & Severity Change Scores

Scale	N	r
PHQ-9	408	.059(n.s)
GAF	24	-.292(n.s.)

n.s. = not statistically significant

Across Cluster 3, multiple measures indicated clinically significant decreases in depression and improvement in functioning among program participants. Similar improvements were also found

within specific demographic sub-groups. Thus, overall Cluster 3 results indicate participating programs have had a positive impact, in terms of the levels of anxiety, depression and functioning of their participants.

MHSA PEI Goal	Improve timely access to services for underserved populations
Outcome Assessed	Rates of service utilization among underserved populations
Primary Research Question	Are underserved groups (i.e., gender, racial/ethnic minority groups) utilizing Cluster 3 services at rates that are in proportion to their estimated need for service in the county in which they are served?

Participating Cluster 3 programs did not systematically collect information (e.g., demographics or socio-economic status) regarding all individuals who attempted to access their services (e.g., sought or inquired about available services). Thus, as a proxy outcome, rates of service use among underserved populations were examined in relation to their estimated need for service in each participating Cluster 3 county. Rates of service use in each county, by gender and race/ethnicity subgroups, are presented alongside estimates of need for service²⁸ for each subgroup in each Cluster 3 county, so as to provide a relative perspective of Cluster 3 service use rates. Estimates of need for mental services were derived through an indirect estimation approach.²⁹ Indirect needs-assessment methods are based upon evidence of linkages between measures of need for services (in this case Collaborative Psychiatric Epidemiology Survey data³⁰) and individual demographic or area social-indicator data (e.g., decennial census).³¹ Interpretation of results is discussed separately for each demographic category and overall. Discussion and implications are then provided at the end of this report in the “Discussion & Implications” section.

Measurement: *Service Utilization among Underserved Populations*

Table 20. Cluster 3 Counties & Programs that Provided Data for Analysis of Rates of Service Utilization among Underserved Populations

County	Program / Practice	Provided Data
Alameda	IMPACT	Demographics
Marin	Healthy IDEAS	No
Merced	PEARLS	Demographics
Riverside	PEARLS	Demographics
San Diego	PEARLS	Demographics
Santa Barbara	IMPACT	Demographics
Santa Clara	IMPACT	No
Sonoma	Healthy IDEAS	Demographics
Stanislaus	PEARLS	Demographics
Ventura	IMPACT	Demographics

Table 21. Instruments & Measures Available for Cluster 3 Analysis of Rates of Service Utilization among Underserved Populations

Instruments	Measures
Program intake assessment	Demographic information

Results: Service Utilization among Underserved Populations

Gender

Previous research has revealed that the mental health needs of older adults and men have been underserved.³⁴ As such, the gender makeup for each program participating in Cluster 3 was compared to the gender makeup of those estimated to be in need of mental health services in their respective counties. In order to provide an accurate comparison for all Cluster 3 programs, estimates of need for mental health services were calculated for those above the age of 60.

Table 22. Gender of PEI Program Participants and Respective County Population Estimated to be in Need of Mental Health Service

County	Female				Male			
	Need for Service		Cluster 3		Need for Service		Cluster 3	
	N	%	N	%	N	%	N	%
Alameda	199462	54.5	30	68.2	166634	45.5	14	31.8
Marin	46689	54.65	-	-	38743	45.4	-	-
Merced	26367	52.9	5	55.6	23442	47.1		
Riverside	271745	53.2	70	79.5	238909	46.8	18	20.5
San Diego	394168	54.0	756	59.6	335174	46.0	513	40.4
Santa Barbara	56232	54.0	332	65.4	47981	46.0	176	34.6
Santa Clara	221066	53.6	-	-	191477	46.4	-	-
Sonoma	78771	54.4	219	82.4	66115	45.6	83	27.5
Stanislaus	61502	54.2	84	82.4	51942	45.8	18	17.6
Ventura	109329	53.6	34	89.5	94545	46.4		

Notes: sizes less than 5 have been redacted for confidentiality purposes.

All counties with available gender data served more female participants than male participants (see Figure 1). Figure 1 also displays the relative proportions of females and males estimated to be in need of service in each Cluster 3 county. Most counties served each gender in relative proportion (less than 10% difference) to their estimated need for mental health service. However, in Riverside, Stanislaus and Ventura a relatively large proportion of females were served at rates out of range with their estimated need for service in each of these counties. These apparent discrepancies in males' and females' mental health service utilization (compared to their estimated levels of need) have several possible causes, for example, outreach and recruitment efforts or help seeking attitudes and behaviors that might differ by gender. It may be the case that Riverside, Stanislaus and Ventura programs have, intentionally or simply by chance, had more success reaching older women in need of services. Unfortunately, sufficient information was not available regarding recruitment processes to investigate this possibility further. Alternatively, previous research has demonstrated different help seeking attitudes and behaviors among men compared to women,

which may also have contributed to these findings.³⁵ Further investigation of gender differences in early intervention service utilization amongst older adults should be conducted to identify the most effective outreach and recruitment strategies for reaching those in need.

Race/Ethnicity

Table 22 displays the racial/ethnic makeup of the population of adults 60 years and older, among Cluster 3 counties. Similar to the analysis approach employed regarding gender, the racial/ethnic makeup of each Cluster 3 program was compared to the racial/ethnic makeup of those estimated to be in need of mental health services in their respective counties (see Table 22).

Table 23. Proportional Race/Ethnicity of PEI Program Participants and Respective County Populations

County	American Indian				Asian				Black				Hispanic				White			
	Need for Service		Cluster 3		Need for Service		Cluster 3		Need for Service		Cluster 3		Need for Service		Cluster 3		Need for Service		Cluster 3	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Alameda	20	1.0%	0	0.0%	313	15.8%	5	22.7%	461	23.3%			742	37.5%	10	45.5%	445	22.5%	6	27.3%
Marin			-	-	7	2.3%	-	-	12	3.9%	-	-	156	50.5%	-	-	133	43.0%	-	-
Merced			0	0.0%	24	4.9%	0	0.0%	13	2.7%	0	0.0%	343	70.1%			107	21.9%	8	88.9%
Riverside	30	0.8%	0	0.0%	79	2.2%	0	0.0%	260	7.1%	9	12.7%	2135	58.3%	24	33.8%	1156	31.6%	38	53.5%
San Diego	68	1.5%			245	5.4%	338	36.7%	257	5.6%	37	4.0%	2373	52.0%	136	14.8%	1622	35.5%	407	44.2%
Santa Barbara	5	0.8%	8	1.6%	12	2.0%	27	5.3%	14	2.3%	10	2.0%	371	60.8%	333	65.8%	208	34.1%	128	25.3%
Santa Clara	21	1.1%	-	-	323	17.0%	-	-	60	3.2%	-	-	1007	53.0%	-	-	488	25.7%	-	-
Sonoma	13	1.5%			26	3.0%			21	2.5%	8	2.7%	366	42.8%	14	4.8%	430	50.2%	264	90.7%
Stanislaus	11	1.0%			37	3.4%	0	0.0%	34	3.2%			616	57.1%	0	0.0%	380	35.3%	58	96.7%
Ventura	6	0.5%	0	0.0%	23	2.0%	0	0.0%	15	1.3%	0	0.0%	737	65.7%	16	44.4%	341	30.4%	20	55.6%

Notes: Cells sizes less than 5 have been redacted for confidentiality purposes.

Alameda and Santa Barbara Cluster 3 programs served Hispanic participants at rates that exceeded, but were within approximate range (within 10%) of, the proportion estimated to be in need of service. But San Diego, Sonoma, Ventura, and Stanislaus Cluster 3 programs served Hispanic participants at lower rates (more than 10% lower) than their estimated need for service in each respective county. Riverside, Santa Barbara, and Sonoma programs served Black consumers at rates in range (within 10%) of their estimated need for service. But Alameda, San Diego, and Stanislaus served Black participants at lower rates (more than 10% lower) than their estimated need for service in their respective counties. These somewhat mixed results suggest that Cluster 3 programs have experienced varying success at recruiting and/or serving specific race/ethnic groups. However, many Cluster 3 programs serve relatively few consumers overall, and some consumers did not have valid race/ethnicity data, so the patterns displayed here should be considered tentative indications of service rates among underserved groups. Future research should explore the possible drivers (e.g., recruitment strategies or service type/quality) of these differences between county programs.

MHSA PEI Goal	Reduce suicide
Outcome Assessed	Suicidal thoughts and behavior
Primary Research Question	Have suicidal thoughts and behaviors been reduced as a result of participation in a Cluster 3 program?

Analysis of Cluster 3 program efforts to reduce suicidal thoughts and behaviors was conducted among the San Diego and Stanislaus PEARLS program participants with relevant available data. One item from the Patient Health Questionnaire (PHQ-9) was available to evaluate suicidal thoughts. The item “Over the last 2 weeks, how often have you been bothered by thoughts that you would be better off dead, or of hurting yourself?” is a 4-point Likert-type item, where a value of zero corresponds to the answer “not at all”, a value of 1 corresponds to the answer “several days”, a value of 2 corresponds to the answer “more than half the days”, and a value of 3 corresponds to the answer “nearly every day”.

To assess the impact of these programs on participants’ suicidal thoughts and behaviors, changes in PHQ-9 scores were examined. Changes in suicidal thoughts and behaviors are presented overall and by demographic subgroups (as available data supported). Interpretation of results is discussed in terms of statistical significance, as clinically significant guidelines for this single PHQ-9 item are not available. Discussion and implications are then provided at the end of this report in the “Discussion & Implications” section.

Measurement: *Suicidal Thoughts and Behaviors*

Table 24. Cluster 3 Counties and Programs that Provided Data for Analysis of Suicidal Thoughts and Behaviors

County	Program / Practice	Provided Data
Alameda	IMPACT	No
Marin	Healthy IDEAS	No
Merced	PEARLS	No
Riverside	PEARLS	No
San Diego	PEARLS	PHQ-9 Item scores
Santa Barbara	IMPACT	No
Santa Clara	IMPACT	No
Sonoma	Healthy IDEAS	No
Stanislaus	PEARLS	PHQ-9 Item scores
Ventura	IMPACT	No

Table 25. Instruments & Measures Available for Cluster 3 Analysis of Suicidal Thoughts and Behaviors

Instruments	Measures
Patient Health Questionnaire (PHQ-9)	Single item assessment of suicidal thoughts and behaviors

Results: *Suicidal Thoughts and Behaviors*

Table 25 displays the results of analysis of this PHQ-9 item overall, and by gender, race/ethnicity, and age group.

Table 26. Suicidal Thoughts and Behaviors Results, Overall and by Gender, Race/Ethnicity, and Age

Scale by subgroups	N	Time 1 Mean (SD)	Time 2 Mean (SD)	Mean Difference (SE)
Overall Score	233	0.25 (0.62)	0.15 (0.52)	-0.09** (0.04)
Gender				
Female	161	0.27 (0.63)	0.15 (0.51)	-0.12 (0.06)*
Male	60	0.18 (0.60)	0.17 (0.59)	-0.02 (0.04)
Race/Ethnicity				
American Indian/Alaska Native				
Asian	28	0.21 (0.57)	0.14 (0.45)	-0.07 (0.14)
Black/African American				
Hispanic/Latino	33	0.12 (0.42)	0.03 (0.17)	-0.09 (0.08)
Native Hawaiian/Pacific Islander				
White	113	0.27 (0.64)	0.19 (0.58)	-0.09 (0.07)
Two races or more	14	0.071 (0.27)	0.071 (0.27)	--
Age Group				
60-69	99	0.19 (0.51)	0.10 (0.39)	-0.09 (0.05)
70-79	73	0.27 (0.67)	0.22 (0.67)	-0.05 (0.11)
80-89	42	0.29 (0.74)	0.19 (0.59)	-0.10 (0.10)
90+	12	0.42 (0.79)	0.08 (0.29)	-0.33 (0.19)

* $p < 0.10$, ** $p < 0.05$

Notes: Only consumers with data from two assessment points are included in this analysis. Cells sizes less than 5 have been redacted for confidentiality purposes.

Overall, average ratings decreased significantly (Mean change = -0.09; $p < 0.05$). While average ratings within each gender, racial/ethnic and age group showed similar decreases, only the decrease among female participants was significant ($p < 0.10$). Despite the lack of significant within group effects, these results indicate an overall positive impact of PEARLS program participation on suicidal thoughts and behaviors. However, these findings should be interpreted tentatively as single item indicators are notoriously inconsistent. The positive indications of program impact found here should be further investigated with multidimensional measures of suicidal thoughts and behaviors, so a more complete understanding of program impact on this outcome can be reached.

Evaluation Advisory Group Feedback

Evaluation Advisory Group questions or feedback received regarding the findings included in this report focused on some central themes, including 1) the need for programs to more systematically and completely track program service and participant outcome information (e.g., service engagement and quality, longitudinal data, and complete demographic information), 2) investigation of other services (e.g., culturally competent services) and outcomes (e.g., social connection) for which data is not yet available, 3) emphasis on understanding changes (e.g., severity of mental illness) from a clinical perspective, and 4) differential service provision and/or impact among older men. Evaluation Advisory Group comments were carefully considered by the evaluation team and influenced how results were presented and interpreted in this report.

Limitations

Several factors limited the ability to examine or draw conclusions regarding the MHSA PEI goals examined in this report. In some cases analyses were conducted on instruments (i.e., GAD-7, GAF, and BASIS 24) that were used to assess relatively small service populations, which did not allow specific analyses of impact by demographic subgroups and prevented clear interpretations and strong conclusions from being drawn regarding programs' impact on the severity of mental illness. In these cases, results were provided as indications of program progress given available information, and suggested that additional data collection and analysis regarding depression, anxiety, and functioning is warranted.

No data was available from Cluster 3 programs that directly indicated timely access to services among underserved groups (e.g., number and demographics of citizens attempting to access services in relation to mental health status). Thus, rates of service use relative to estimated need for service were analyzed as a proxy. Results of the analysis of service use do not directly support conclusions regarding rates of "service access". Additionally, some Cluster 3 programs served relatively few consumers, and some consumers did not have valid race/ethnicity data, so the service rates of specific demographic groups among small counties can only be tentatively compared to estimates of need for service.

Reduction of suicidal thoughts and behaviors was only available for examination through data generated by a single item on the PHQ-9. Thus, results of this outcome should be interpreted tentatively as single item indicators often produce inconsistent results. Suicidal thoughts and behaviors among PEI participants should be further investigated with multidimensional measures, so that a more complete understanding of program impact on this outcome can be reached.

A diversity of MHSA PEI programs are implemented across the state, but programs included in Cluster 3 met stringent inclusion criteria noted above (i.e., provide early intervention services, at least partially funded through MSHA PEI, participants identified via clinical assessment, and provide promising or evidence-based treatment components found to be effective for the consumer populations under study). As such, the scope of this study was limited to IMPACT, Healthy IDEAS, and PEARLS programs. Thus, conclusions regarding the impact of Cluster 3 programs cannot be generalized to the broader population of MHSA PEI programs.

Additionally, many Cluster 3 programs did not previously collect sufficient data or were not able to collect data during the course of this project, regarding several MHSA PEI stated goals, relevant to this older adults service population. Cluster 3 programs are working towards all of these MHSA PEI goals, and are beginning to track relevant outcomes in various ways. To some extent, the lack of sufficient data in many of these areas is due to the fact that many programs were initiated relatively recently (e.g., in operation for less than two years). However, in all cases program and county staff indicated interest in collecting additional information relevant to all stated MHSA PEI outcomes, noting the need for sufficient resources (e.g., monetary, time, training and technical assistance) before such tracking can be routinely and reliably conducted.

Discussion & Implications

The results presented in this report regarding the MHSA PEI goals to prevent mental illness from becoming severe and disabling, assess service utilization relative to estimated need for service, and reduce suicidal thoughts and behaviors indicate encouraging trends among program participant outcomes and Cluster 3 programs themselves. Below, implications for policy, practice, and future research are discussed regarding each MHSA PEI goal analyzed.

Change in Severity of Mental Illness

Overall, analysis of change in the severity of mental illness, from initial to follow-up assessment, among Cluster 3 participants revealed a largely consistent pattern of clinically significant reductions from more to less severe levels. These findings are in line with previous investigations of IMPACT, Healthy IDEAS, and PEARLS programs.³⁶

Analysis of the PHQ-9 revealed that overall, and among most demographic subgroups, on average participants in the IMPACT, Healthy IDEAS, and PEARLS programs reported clinically significant improvement in levels of depression. These results are the most robust assessment of this outcome, due to the relatively large number of Cluster 3 participants assessed via the PHQ-9. Thus, results indicate Cluster 3 programs have contributed to significantly reduced depression among participants, and suggest the IMPACT, Healthy IDEAS, and PEARLS programs have been effective in this regard.

The GAD-7, GAF, and BASIS 24, were used to measure anxiety, functioning, and other symptoms of mental illness among relatively few Cluster 3 consumers. Thus, while data collected via each instrument demonstrated average reductions in symptoms of mental illness among Cluster 3 participants, the small study populations suggest these findings should be interpreted tentatively as trends in anxiety and functioning as a result of program participation may be different among a larger participant pool or other similar programs.

Unfortunately, the magnitude of impact on severity of mental illness was not compared among other promising programs being implemented across the state, due to the scope of this project. Future research should be conducted to examine the relative effectiveness of other PEI approaches, including consideration of relative resource requirements and efficiencies, across the state.

Rates of Service Utilization Among Underserved Populations

In line with previous research indicating older men tend to be underserved³⁷, some programs served disproportionately more female consumers. As stated above, there may be several reasons Riverside, Stanislaus and Ventura programs have, intentionally or simply by chance, served more older women than men (relative to the estimated service needs of each). Unfortunately, sufficient information was not available regarding recruitment processes—a potential factor that might explain this finding. In any case, the trends found support further investigation of gender differences in early intervention service utilization among older adults, so that the most effective outreach and recruitment strategies for reaching those in need can be identified.

Similarly, Cluster 3 programs served traditionally underserved race/ethnic groups (i.e., Hispanics and Black individuals) in approximate proportion to (within 10% of) their estimated need for service among their respective county populations. However, some programs served these groups at lower rates than their estimated need for service. This inconsistent pattern may suggest some differential effects of the recruitment or service processes across different programs. However, it is also likely that the relatively small programs may not have had sufficiently large service populations to permit meaningful comparison of service utilization to estimated need for service.

Additional data collection regarding MHSA PEI program access (e.g., number and demographics of citizens attempting to access mental health services, relative to their needs for mental health services) among underserved populations, and rates of program participation, should be supported so that further investigation of the most effective outreach strategies can be identified and disseminated.

Suicidal Thoughts and Behavior

Participants in the San Diego and Stanislaus PEARLS programs reported ratings of suicidal thoughts and behaviors via one item of the PHQ-9. While significant average improvement in ratings was found, this result should be viewed tentatively, as single item indicators can provide only limited information. This outcome is important for understanding the efficacy of these types of PEI programs among the older adult populations that they serve. As such, multidimensional measurement of this outcome should be supported so that future research can provide more definitive answers regarding the effectiveness of MHSA PEI programs targeting older adults for reducing suicidal thoughts and behaviors, and rates of suicide.

Appendix A: Early Intervention Evaluation Advisory Group Members

From among a stakeholder group consulted during the development of this evaluation, the evaluation team recruited a group of advisors who agreed to consult routinely throughout the project as needed (see Table A-2). The evaluation advisory group is comprised of three practice/research stakeholders, two county/provider agency stakeholders, and three stakeholders with lived experience of mental illness and treatment in the public sector, as well as family members. In order to use their time most efficiently, we engaged advisory group members, as appropriate given their experience and expertise, during each phase of the project, including the results review phase.

Table A-1. Early Intervention Advisory Group Members

Name	Organization	Stakeholder Type
Cricket Mitchell	California Institute for Mental Health (CiMH)	Practice/Research
Liz Miles	QI Performance Improvement Team, County of San Diego Behavioral Health Services	County/Provider
Juan Ibarra	Office of Quality Management for Community Programs, San Francisco Department of Public Health	County/Provider
Kamila Baker	California Youth Empowerment Network (CAYEN)	Person with Lived Experience
Luz Parra	Parent Partner Program Manager	Family Member
Raja Mitry	California Elder Mental Health and Aging Coalition and Racial and Ethnic Mental Health Disparities Coalition (REMHDCO)	Person with Lived Experience
Stephanie Welch	California Mental Health Services Authority (CalMHSA)	Practice/Research
Steve Wilson	School of Social Work, California State University Long Beach	Practice/Research

Endnotes

- ¹ See Welfare Institutions Code (WIC) section 5840-5840.2
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- ⁴ American Psychological Association (2012). *Depression and Suicide in Older Adults Resource Guide*. Retrieved from <http://www.apa.org/pi/aging/resources/guides/depression.aspx>
- ⁵ See Welfare Institutions Code (WIC) section 5840-5840.2
- ⁶ PEARLS. *Diagnosis and Types of Depression* (n.d.) Retrieved from <http://www.pearlsprogram.org/Our-Program/About-Depression/Diagnosis-and-Types-of-Depression.aspx>
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- ¹¹ Quijano, L.M., Stanley, M.A., Petersen, N.J., Casado, B.L., Steinberg, E.H., Cully, J.A., and Wilson, N.L. (2007). Healthy IDEAS: A depression intervention delivered by community-based case managers serving older adults. *Journal of Applied Gerontology*. 26:139-156.
- ¹² See Welfare Institutions Code (WIC) section 5840-5840.2
- ¹³ See Welfare Institutions Code (WIC) section 5840-5840.2
- ¹⁴ This MHSA PEI goal has conceptual relation but is distinct from the goal of preventing prolonged suffering. Programs do not measure these goals distinctly, and do not reliably collect data regarding the time element inherent in measuring the prevention of prolonged suffering. Thus, prevention of prolonged suffering will not be assessed within this study.
- ¹⁵ Holzer, C.E. III, and Nguyen, H.T (2009). Estimation of need for mental health services. Retrieved from http://172.10.175.217/estimation/3_Synthetic/synthetic.htm
- ¹⁶ National Institute of Mental Health Collaborative Psychiatric Epidemiology Surveys (CPES). Retrieved from <http://www.icpsr.umich.edu/icpsrweb/CPES/>
- ¹⁷ Enders, C.K. (2010). Applied missing data analysis. New York: Guilford Press.
- ¹⁸ Cohen, J. (1969) *Statistical Power Analysis for the Behavioral Sciences*. NY: Academic Press. And Cohen, J. (1994) The Earth is Round ($p < .05$). *American Psychologist*, 49, 997-1003.

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