Differences in Personal Recovery Among Individuals with Severe Mental Disorders in Private and Supported Accommodations: An Exploratory Study

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Article

Differences in Personal Recovery Among Individuals with Severe Mental Disorders in Private and Supported Accommodations: An Exploratory Study

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Abstract: People with severe mental disorders (SMD) face long-term functional impairments requiring integrated, community-based, recovery-oriented care. Italy provides two main housing models for people with SMD: private accommodation (PA) and supported accommodation (SA). This exploratory study investigated differences in recovery outcomes across these settings using the Mental Health Recovery Star (MHRS). A six-month longitudinal study was conducted within the South Verona Community Mental Health Service. Nineteen trained mental health professionals assessed 25 service users (14 in PA, 11 in SA) at baseline (BL) and follow-up (FU) using standardized tools for recovery (MHRS), functioning, psychopathology, functional autonomy, and needs. Group comparisons and within-group changes were analyzed using paired and independent t-tests. At BL, users in PA showed better functioning ($p=0.040$) and fewer needs than those in SA ($P=0.008$). Recovery goals differed, with PA users focusing on health and networks, while SA users emphasized functioning. At FU, PA users improved across all MHRS domains ($p<0.001$), with significant reductions in symptom severity and unmet needs. SA users showed targeted improvements in functioning, autonomy, and MHRS social networks ($p<0.001$), with increases in met needs but non-significant changes in unmet needs. Recovery is achievable in both housing settings, though trajectories differ. PA users experienced broader improvements, while SA users progressed in their prioritized areas, likely reflecting more complex initial needs. Findings highlight the importance of tailoring recovery support to individual stages and settings. Further research is needed to confirm and expand these results.

Keywords: personal recovery; supported accommodation; private accommodation; severe mental disorder; mental health recovery star

1. Introduction

Severe mental disorders (SMD) are long-term conditions characterized by significant impairments in daily functioning, including challenges in work, education, social relationships, and self-care, ultimately limiting full participation in society [1,2]. These disorders encompass a range of mental health conditions such as schizophrenia, bipolar disorder, major depressive disorder, and other disorders [3,4]. Although they represent a relatively small portion of the population—approximately 4% of individuals with mental health conditions—people with SMD often experience a high level of need despite low service coverage, a phenomenon described by Killaspy as 'low

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volume, high needs' [5]. Because of their complex and persistent nature, SMDs require integrated and comprehensive approaches to care that combine medical treatment with psychosocial and community support [1,6–8].

Since deinstitutionalization, European recommendations [9–12] suggest to approach SMD using the personal recovery model, recognized as a key component of effective rehabilitation for people with complex needs [9]. Personal recovery is a strengths-based approach that supports individuals with severe and long-term mental disorders in leading meaningful lives, even with ongoing symptoms and functional challenges [3,13–18]. It emphasizes hope, self-determination, and empowerment through collaborative, person-centered [15], and evidence-based care [18,19], including shared decision-making [14–17]. Recovery involves recognizing individual strengths and goals, fostering equal partnerships between service users and professionals [14–17,20], and often includes both progress and setbacks along the way [21,22]. This approach upholds human rights and is linked to better symptoms, functioning, quality of life, satisfaction with care, and reduced service needs [14,23–26].

In detail, personal recovery care is recommended to be developed not in hospital settings but in community-based care that should have to be prioritized to avoid people with SMD marginalization and discrimination [9–12] . The implementation of the recovery model in Community Mental Health Services (CMHSs), particularly through evidence-based recovery-oriented practices [14,17,27], has resulted in improved user self-management, self-efficacy, autonomy [15,28], as well as enhanced health and social outcomes [25,29,30]. These practices are considered essential for adapting CMHS to the needs of the current century and correlate positively with treatment outcomes improvement and reduced health costs [14,31–33].

In the European context, Italy stands out for its progressive mental health policies, which emphasize a balanced integration of community-based and hospital services [34]. This approach contrasts sharply with many other countries that continue to face challenges in effectively implementing deinstitutionalization strategies [35–37]. Notably, Italy and Iceland are the only European countries to have fully eliminated psychiatric hospitals [38].

In countries where psychiatric hospitals still exist, many individuals with psychosocial disabilities remain institutionalized rather than being integrated into their communities [35–37]. Italy, however, offers a different model. People with SMD in Italy live either in private housing or accommodation (PA) or in supported accommodation (SA) specifically designed for mental health needs. This system of supported housing is fully established only in Italy and England, both of which have developed comprehensive services aimed at promoting independent living. These services follow a progressive care model that allows individuals to gradually move from more intensive to less intensive forms of support as they acquire the skills necessary for autonomy and social inclusion. Support is tailored to the individual's evolving needs, with the ultimate goal of helping them move toward less supported—or fully independent—living arrangements. While this model provides personalized assistance and clear recovery goals for both service users and professionals, it also involves moving between different housing settings as individuals progress in their recovery journey [39,40].

This small, exploratory study aimed to investigate, for the first time in Italy, differences in the recovery process of people with SMD living in PA and of people with SMD living in SA in the CMHS of South Verona. The recovery process has been evaluated with the use of the standardized tool Mental Health Recovery Star (MHRS) [41–46].

2. Materials & Methods

2.1. Study Design

All study procedures adhered to the ethical standards of the relevant national and institutional committees on human research, as well as the principles outlined in the Declaration of Helsinki (1975, revised 2008). The procedures involving patients were approved by the Research Ethics Committee

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of the University Hospital Trust of Verona (reference 34950, dated 30/05/2018). Written informed consent was obtained from all participating patients and mental health professionals.

This small exploratory study was conducted from May 2017 to October 2018 at the South Verona CMHS, part of a system grounded in evidence-based care and the bio-psycho-social model [47]. CMHSs, which became central to Italy's mental health care following deinstitutionalization, provide diagnosis, treatment, and support. Each district-based CMHS serves approximately 100,000 residents, enhancing accessibility [48].

Data were collected at recruitment (baseline -BL) and at a six-month follow-up (FU), aligned with the typical evaluation timeframe used in Italian rehabilitation settings, such as day centers and SA. Given the limited sampling pool, a modest number of participants was anticipated, and the study was therefore designed to be exploratory.

2.2. Participants

Eligible participants included mental health professionals from the South Verona CMHS who had been trained in the MHRS, were willing to complete assessments at two time points, and could recruit at least one service user under their care. Of the 45 professionals trained between May and October 2017, 19 met these criteria. The remaining 26 were excluded because they did not work at the South Verona CMHS (n=15), declined participation (n=8), or were unable to recruit a person with SMD (n=3). Most participants were female (78.9%), over one-third were medical doctors (psychiatry residents) (36.8%), and the majority (73.6%) worked in multidisciplinary community teams. Their average tenure was 137 months (SD = 122.2).

To support consistent MHRS use, professionals attended monthly supervision and educational sessions led by certified trainers. A total of 12 meetings, with a mean of 12 attendees each, covered topics including data collection, recovery-oriented practices, MHRS implementation, motivational interviewing, and shared decision-making. Trainers also offered individual support when needed.

People with SMD were considered eligible based on clinical and functional criteria consistent with international definitions of SMD [3,5] . Specifically, individuals were eligible if they were under the care of a trained key professional at the South Verona CMHS, had a confirmed diagnosis of a severe and persistent mental disorder (such as schizophrenia, bipolar disorder, or other disorder with significant functional impairment), lived within the service catchment area, were aged 18–65, and provided informed consent for participation in assessments at two time points. Functional severity and chronicity were assessed by the key professionals, who also verified eligibility. Individuals were excluded if they had moderate to severe intellectual disability [49] or were experiencing acute psychiatric hospitalization or severe psychopathological symptoms at the time of recruitment, with severity assessed using tools such as the Health of the Nation Outcome Scales (HoNOS). A total of 25 individuals meeting these criteria were identified and recruited by their key professionals.

2.3. Clinical Tools and Their Characteristics

Socio-demographic, service use, and clinical data for service users were retrieved from the Verona Department of Mental Health (DMH) database and the South Verona Psychiatric Case Register [50]. Assessment tools were chosen collaboratively by the research team, certified MHRS trainers, and experienced rehabilitation staff to ensure consistency with standard evaluation practices in South Verona CMHS rehabilitation settings. After receiving specialized training and under the supervision of the research team, key professionals conducted standardized assessments at BL and FU, including the assessments described in Table 1.

The MHRS, created by Triangle Consulting in 2007 for the Mental Health Providers Forum, supports collaborative, "expert-to-expert" partnerships between users and professionals. [55,56]. Widely adopted in the UK and abroad [50], it was translated into Italian in 2013, with over 8,000 professionals trained [41,51].

Using a 10-point star representing key life areas enclosed in 4 main domains: Physical and mental health (Managing mental health, Self-care, Addictive behavior), Activities and functioning

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(Living skills, Work., Responsibilities), Self-image (Identity and self-esteem, Trust and hope), and Networks (Social networks, Relationships), users and professionals assess progress with the 'Scale of Change', based on the Transtheoretical Model's five recovery stages [57] —from feeling stuck, passing by accepting help, believing, and learning to achieving self-reliance.

After assessment, a joint care plan is developed with up to three goals. Despite some concerns about inter-rater reliability, the MHRS is valued for its strong internal consistency and its focus on recovery, shared decision-making, and user empowerment [41,50,58–62].

Table 1. Assessments used in the sample.

Assessments	Items	Scoring	Use
MHRS – Mental Health Recovery Star [57,58]	10 domains	Each domain rated from 1 to 10, reflecting recovery stages (e.g., Stuck to Self-reliance); visualized in a star-shaped diagram	Supports collaborative care planning and monitors recovery-oriented outcomes
GAF – Global Assessment of Functioning [59]	Single global rating	Scale from 0–100; higher scores indicate better functioning; divided into 10-point ranges with descriptive anchors	Summarizes overall psychological, social, and occupational functioning
HoNOS – Health of the Nation Outcome Scales [60,61]	12 items	Each scored from 0 (no problem) to 4 (severe problem); total score 0–48	Assesses symptom severity and social functioning
MPR – Monitoring of the Pathway of Rehabilitation [62]	10 items each with 4 subitems	Domain-specific scoring using Likert-type or categorical scales (e.g., autonomy, social skills, work ability); may vary by local adaptation	Tracks progress in psychiatric rehabilitation and functional recovery
CAN – Camberwell Assessment of Need [63,64]	22 need areas	Each area rated as no need, met need, or unmet need, from both professional and patient perspectives; summary includes total, met, and unmet needs	Identifies clinical and social needs to inform individualized care planning

2.4. Statistical Analysis

Descriptive data were reported as frequencies, means, and standard deviations. The normality of continuous variables was confirmed using the Kolmogorov–Smirnov test, thus permitting the use of parametric tests. Comparisons between people with SMD living in PA and in SA at BL were made using t-tests for independent samples (continuous characteristics) and Fisher's exact tests (dichotomous characteristics). Changes between scores on the standardised assessment tools between BL and FU were investigated using the t-test for repeated measurements. All tests were bilateral with a significance level set at 0.05. Statistical analyses were performed using the SPSS 22.0 program.

3. Results

3.1. Mental Health Professionals' Assessments

A total of 19 mental health professionals conducted the BL assessments. As shown in Supplementary Table 1, evaluations in private accommodations were more frequently carried out by medical doctors (42.9%), whereas in SA, support workers were the most frequent evaluators (36.4%).

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The average length of professional experience was higher among those working in SA compared to those in private accommodations, though this difference was not statistically significant (p=0.262).

3.2. Service User Characteristics at Baseline

As presented in Table 2, 25 people with SMD were included in the study: 14 in PA and 11 in SA. No significant differences were observed between groups in terms of age, marital status, education, employment status, age at first psychiatric contact, or clinical diagnosis.

Table 2. Service users' sociodemographic and clinical characteristics, recovery, functioning, psychopathology and functional autonomy at recruitment according to accommodation.

	Private accommodation (N=14)	**Supported accommodation (N=11)**	**Total (N=25)**	**p-value t test or Fisher's exact test**
Sociodemographic and clinical characteristics				
Age in years, Mean (SD)	40.2 (10.6)	42.3 (9.4)	41.1 (9.9)	0.617
Marital status				
Single	10 (71.4%)	9 (81.8%)	19 (76.0%)	0.452
Partnered	4 (28.6%)	2 (18.2%)	6 (24.0%)	
Educational achievement				
Lower education (primary/middle school only)	8 (57.1%)	5 (45.5%)	13 (52.0%)	0.430
Higher education (high school/further education)	6 (42.9%)	6 (54.5%)	12 (48.0%)	
Work				
Employed	6 (42.9%)	5 (45.5%)	11 (44.0%)	0.607
Unemployed	8 (57.1%)	6 (54.5%)	14 (56.0%)	
Primary clinical diagnosis				
Schizophrenia spectrum disorders	8 (57.1%)	9 (81.8%)	17 (68.0%)	0.190
Others	6 (42.9%)	2 (18.2%)	8 (32.0%)	
Years old at first contact with psychiatric service, Mean (SD)	25.2 (10.4)	25.1 (6.6)	25.2 (8.8)	0.973
Number of acute ward admissions lifetime, Mean (SD)	1.0 (0.0)	1.0 (0.0)	1.0 (0.0)	-
Number of psychotropic drugs, Mean (SD)	2.5 (1.2)	3.9 (2.6)	3.1 (2.0)	0.084
Physical comorbidity (e.g. dyslipidemia, hypothyroidism), Mean (SD)	0.3 (0.5)	0.4 (0.5)	0.3 (0.5)	0.694
Substance misuse or gambling problem, Mean (SD)	0.6 (0.6)	1.1 (0.2)	0.8 (1.1)	0.257
Rating scale assessments				
MHRS, Mean (SD)	6.6 (1.3)	5.6 (1.7)	6.2 (1.5)	0.078
Physical and mental health	7.2 (1.1)	5.8 (2.0)	6.6 (1.7)	**0.039**
Managing mental health.	6.1 (1.7)	5.6 (1.9)	5.9 (1.8)	0.485
Self-care.	7.3 (1.9)	6.3 (2.8)	6.8 (2.3)	0.292
Addictive behavior.	8.1 (2.8)	5.5 (3.5)	6.9 (3.3)	**0.049**
Activities and functioning	7.0 (1.8)	5.8 (1.7)	6.5 (1.8)	0.107
Living skills.	6.3 (2.2)	5.6 (1.8)	5.3 (2.2)	0.367
Work.	6.1 (4.7)	4.7 (2.4)	5.5 (2.6)	0.176
Responsibilities.	8.6 (7.3)	7.3 (2.6)	8.0 (2.2)	0.129
Self-image	6.4 (1.6)	5.5 (1.8)	6.0 (1.7)	0.199
Identity and self-esteem.	6.3 (1.5)	5.5 (2.1)	5.9 (1.8)	0.261
Trust and hope.	6.5 (1.9)	5.6 (1.6)	6.1 (1.8)	0.200
Networks	5.6 (1.9)	5.0 (2.0)	5.4 (1.9)	0.416
Social networks.	5.6 (1.9)	4.9 (2.1)	5.3 (2.3)	0.430
Relationships.	5.6 (2.4)	5.1 (2.8)	5.4 (2.6)	0.604

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GAF, Mean (SD)	63.9 (11.2)	52.1 (16.0)	58.7 (14.5)	**0.040**
HoNOS, Mean (SD)	11.6 (4.6)	13.9 (6.5)	12.6 (5.5)	0.303
MPR, Mean (SD)	8.9 (1.7)	8.3 (1.4)	8.6 (1.6)	0.328
CAN patient, Total needs, Mean (SD)	8.4 (4.6)	12.1 (3.9)	10.0 (4.6)	**0.041**
Total met needs	5.8 (3.5)	9.4 (3.6)	7.4 (3.9)	**0.021**
Total unmet needs	2.6 (2.7)	2.7 (2.9)	2.6 (2.7)	0.891
Ratio met/unmet needs	2.2	3.5	2.8	-
CAN staff, Total needs, Mean (SD)	8.7 (4.1)	13.4 (3.7)	10.8 (4.5)	**0.008**
Total met needs	6.0 (3.1)	9.9 (3.3)	7.7 (3.7)	**0.006**
Total unmet needs	2.7 (2.9)	3.5 (2.5)	3.0 (2.7)	0.510
Ratio met/unmet needs	2.2	2.8	2.6	-

p-values in bold denote statistical significance at the p < 0.05 level
MHRS – Mental Health Recovery Star - process of recovery
GAF – Global Assessment of Functioning - functioning
HoNOS – Health of the Nation Outcome Scales - psychopathology
MPR – Monitoring of the Pathway of Rehabilitation - functional autonomy
CAN – Camberwell Assessment of Need - needs for care

People with SMD in PA demonstrated higher mean scores than those in SA in a specific MHRS domain, including " Physical and mental health" (p=0.039) and, particularly, in "Addictive behavior" (p=0.049). as shown in Table 3, at BL people with SMD in PA prioritized goals on “Physical and mental health” and “Networks, while those in SA prioritized goals in “Activities and functioning”.

In terms of clinical assessments, people with SMD in PA scored significantly higher on the GAF compared to those in SA (p=0.040), indicating better overall functioning.

People with SMD in SA had significantly higher levels of clinical and social needs, as indicated by both the CAN-Patient and CAN-Staff ratings. These included higher total needs (p=0.041 and p=0.008, respectively) and met needs (p=0.021 and p=0.006, respectively).

Table 3. Prioritizing area of the MHRS work plan by accommodation at recruitment and follow-up.

	BL Private accommodation (N=14)	**FU Private accommodation (N=9)**	**p-value Fisher’s exact test**	**BL Supported accommodation (N=11)**	**FU Supported accommodation (N=11)**	**p-value Fisher’s exact test**
Area/s of intervention						
Physical and mental health	5 (35.7%)	2 (22.2%)	**0.011**	3 (27.3%)	5 (54.6%)	0.176
Activities and functioning	3 (21.4%)	3 (33.3%)		6 (54.6%)	3 (27.3%)	
Self-image	1 (7.1%)	1 (11.1%)		1 (4.0%)	0 (0.0%)	
Networks	5 (35.7%)	3 (33.3%)		1 (9.1%)	2 (18.2%)	

3.3. Clinical and Functional Changes of People with SMD from Baseline to Follow-Up According to Accommodation

Table 4 summarizes changes in clinical and functional outcomes of people with SMD according to accommodation from BL to six-month FU. Although both PA and SA patients showed improvements in romantic relationships and occupational status, these changes were not statistically significant. In the PA group, significant improvements were observed in all MHRS domains, alongside a significant increase in the overall MHRS score (p<0.001). Symptom severity decreased significantly (p<0.001), and functional autonomy also improved (p=0.041) as for functioning (p<0.001). Needs assessment indicated a significant reduction in total needs and unmet needs for both users (p=0.023 and p=0.003) and staff (p=0.006 and p=0.002) in the PA group. The ratio of met to unmet needs also improved.

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Table 4. Change in service users' sociodemographic and clinical characteristics, process of recovery, functioning, psychopathology and functional autonomy by accommodation from recruitment to 6 month follow up.

	BL Private accommodation (N=14)	FU Private accommodation (N=14)	*p-value paired t-test	BL Supported accommodation (N=11)	FU Supported accommodation (N=11)	p-value paired t-test or Fisher's exact test
Sociodemographic and clinical characteristics						
Marital status						
Single	10 (71.4%)	8 (57.1%)	1.000	9 (81.8%)	8 (72.7%)	0.055
Partnered	4 (28.6%)	6 (42.9%)		2 (18.2%)	3 (27.3%)	
Work						
Employed	6 (42.9%)	8 (57.1%)	0.103	5 (45.5%)	6 (54.5%)	0.061
Unemployed	8 (57.1%)	6 (42.9%)		6 (54.5%)	5 (45.5%)	
Number of psychotropic drugs, Mean (SD)	2.4 (1.2)	2.1 (1.0)	**<0.001**	4.1 (2.5)	4.2 (2.5)	**<0.001**
Substance misuse or gambling problem, Mean (SD)	0.6 (0.6)	0.6 (0.7)	**<0.001**	1.1 (0.2)	0.8 (1.3)	**<0.001**
Rating scale assessments						
MHRS, Mean (SD)	6.6 (1.3)	7.4 (1.2)	**<0.001**	5.6 (1.7)	5.9 (1.3)	**<0.001**
Physical and mental health	7.2 (1.1)	7.5 (1.2)	**0.011**	5.8 (2.0)	6.3 (1.5)	0.174
Activities and functioning	7.0 (1.8)	7.7 (1.6)	**<0.001**	5.8 (1.7)	6.0 (1.3)	**<0.001**
Self-image	6.4 (1.6)	7.3 (1.6)	**0.028**	5.5 (1.8)	5.6 (1.7)	0.091
Networks	5.6 (1.9)	6.6 (2.0)	**<0.001**	5.0 (2.0)	5.3 (1.9)	**0.001**
GAF, Mean (SD)	66.9 (11.2)	66.5 (13.1)	**<0.001**	52.1 (16.0)	66.8 (10.5)	**0.054**
HoNOS, Mean (SD)	11.6 (4.6)	8.9 (5.6)	**<0.001**	13.9 (6.5)	10.6 (2.7)	0.629
MPR, Mean (SD)	8.9 (1.7)	10.0 (1.3)	**0.041**	8.3 (1.4)	8.6 (1.5)	**0.005**
CAN patient, Total needs, Mean (SD)	8.4 (4.6)	6 (3.6)	**0.023**	12.1 (3.9)	11.8 (3.6)	**0.003**
Total met needs	5.8 (3.5)	5 (2.9)	0.064	9.4 (3.6)	9.9 (3.9)	**0.008**
Total unmet needs	2.6 (2.7)	1 (1.8)	**0.003**	2.7 (2.9)	1.9 (1.6)	0.306
Ratio met/unmet needs	2.2	5		3.5	5.2	
CAN staff, Total needs, Mean (SD)	8.7 (4.1)	6.9 (4.0)	**0.006**	13.4 (3.7)	12.9 (4.0)	**0.012**
Total met needs	6.0 (3.1)	5.8 (2.9)	**0.051**	9.9 (3.3)	3.7 (1.1)	**0.015**
Total unmet needs	2.7 (2.9)	1.1 (2.0)	**0.002**	3.5 (2.5)	3.1 (1.8)	0.663
Ratio met/unmet needs	2.2	5.3		2.8	1.2	

p-values in bold denote statistical significance at the p < 0.05 level
MHRS – Mental Health Recovery Star - process of recovery
GAF – Global Assessment of Functioning - functioning
HoNOS – Health of the Nation Outcome Scales - psychopathology
MPR – Monitoring of the Pathway of Rehabilitation - functional autonomy
CAN – Camberwell Assessment of Need - needs for care

Among those in SA, significant improvements were found in the overall MHRS score (p<0.001) and in domains such as "Activities and Functioning" (p<0.001) and "Networks" (p=0.001). Functional autonomy also showed a modest but significant increase (p=0.005). Significant increases were found in met needs from both user (p=0.008) and staff (p=0.015) perspectives, though reductions in unmet needs were not statistically significant.

Changes in recovery goal prioritization across accommodation types are shown in Table 3. Among users in PA, the proportion prioritizing "Physical and mental health" in their MHRS work plans significantly decreased from 35.7% at baseline to 22.2% at follow-up (p=0.011). In contrast, this

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domain became more prominent in SA, increasing from 27.3% to 54.6%, although this change was not statistically significant (p=0.176).

4. Discussion

The findings of this study offer an insightful perspective on recovery trajectories among individuals with SMD living in different types of accommodation in Italy. At baseline, both groups were broadly similar in terms of socio-demographic and diagnostic characteristics, supporting comparability. However, individuals in PA demonstrated better overall functioning and fewer clinical and social needs compared to those in SA. These differences suggest that, although all participants met criteria for SMD, those in SA were likely experiencing a more severe or complex form of the disorder at study entry.

Interestingly, despite these BL disparities, individuals in PA showed more consistent and widespread improvements across nearly all measured domains from BL to FU. This included significant gains in recovery outcomes, reduction in symptom severity, and improvements in autonomy and overall functioning, as well as notable decreases in both total and unmet needs with improved ratio of met to unmet needs suggesting a positive shift in perceived care adequacy. Functional improvements, such as social functioning and autonomy, are critical aspects of recovery. Individuals in PA might experience these improvements more rapidly due to fewer constraints and greater initial capacity for independence [51,52].

In contrast, individuals in SA also improved but their gains were more modest and concentrated in specific domains—particularly in areas they had prioritized at BL such as "Activities and Functioning". Reductions in unmet needs were not statistically significant in this group, though met needs did increase. This pattern suggests that while both groups benefited from recovery-oriented CMHS, individuals in PA may have had more capacity to translate these supports into broader functional improvements.

The greater severity at BL among SA residents likely influenced both their starting point and their rate of recovery over six months. SA residents often start with greater severity of symptoms, which can influence their initial recovery trajectory and rate of improvement. Higher initial severity can slow the rate of recovery, but individuals with severe symptoms can still show substantial improvements over time [53,54]. Furthermore, SA provides essential stability and support, which is crucial for those with higher initial severity, but their progress might be more gradual [54,55].

The shift in goal prioritization—from "Physical and Mental Health" in PA (which became less dominant at FU) to increasing emphasis on this domain in SA—highlights a positive alignment between perceived need and intervention focus, particularly among those starting from a more impaired BL. This alignment is facilitated by multidisciplinary approaches, recovery-oriented practices, and consumer-centered goal setting, ultimately leading to improved health outcomes [56].

4.1. Strengths and Limitations

While this study provides initial insights into potential differences in recovery trajectories between people with SMD living in private accommodation (PA) and those in supported accommodation (SA), further research is needed to fully understand the observed differences. As a small and exploratory study, these findings should be interpreted with caution. Improvements measured through the MHRS and other outcome tools may reflect natural changes over time, including possible regression to the mean, rather than the specific impact of the collaborative care planning approach. Additionally, the study was conducted within a single mental health service, limiting the generalizability of the results to other contexts.

Another important limitation is the absence of service user involvement in the study design, which may have affected the relevance and applicability of the research. Lastly, the use of multiple statistical tests may reduce the overall power of the study, meaning that the findings should be viewed as preliminary indications rather than definitive conclusions.

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5. Conclusions

Our findings reinforce that personal recovery is possible across diverse levels of need, but also underscore the importance of tailoring intensity and duration of support. While those in PA showed more generalized recovery, people in SA improved in the specific areas they prioritized—suggesting the recovery model was effectively adapted to meet different stages and severities of need. However, continued and possibly longer-term support may be required in SA settings to close the gap in overall recovery progress.

List of Abbreviations

CAN Camberwell Assessment of Need
CMHS community mental health service
FPS Personal and Social Functioning Scale
HoNOS Health of the Nation Outcome Scale
MHRS Mental Health Recovery Star
MPR Monitoring of the Path of Rehabilitation

Authors' contributions AM developed the idea for this study. AM and MR (in retirement) designed the study. AM, TP (in retirement), CD and EP obtained the data. DC contributed to the data management. CB conducted the statistical analysis. AM wrote the first draft of the manuscript and all authors reviewed and revised it and agreed the final version.

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Ethics approval and consent to participate: The study was conducted in accordance with American Psychiatric Association (1992) ethical standards for the treatment of human volunteers. All the study procedures complied with the ethical standards of the relevant national and institutional committees on human experimentation and with the Helsinki Declaration of 1975 (version 2008), and those involving patients were approved by the University Hospital Trust of Verona Research Ethics Committee (reference 34950, 30/05/2018). Written informed consent was obtained from all participants.

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References

1. Reed GM. What's in a name? Mental disorders, mental health conditions and psychosocial disability. Vol. 23, World Psychiatry. John Wiley and Sons Inc; 2024. p. 209–10.
2. WHO Europe. The WHO European Framework for action to achieve the highest attainable standard of health for persons with disabilities 2022–2030. 2022.
3. WHO. Helping people with severe mental disorders live longer and healthier lives. 2017.
4. Parabiaghi A, Bonetto C, Ruggeri M, Lasalvia A, Leese M. Severe and persistent mental illness: A useful definition for prioritizing community-based mental health service interventions. Soc Psychiatry Psychiatr Epidemiol. 2006;41(6):457–63.
5. Killaspy H. The ongoing need for local services for people with complex mental health problems. The Psychiatric Bulletin. 2014 Dec;38(6):257–9.
6. European Council of the European Union. Disability in the EU: facts and figures. 2024.

 doi:10.20944/preprints202506.0337.v1

7. United Nations. UN Convention on the Rights of Persons with Disabilities [Internet]. United Nations General Assembly A/61/611. 2006. Available from: http://www.un.org/disabilities/default. asp?id=61
8. Caldas de Almeida, JM Killaspy H. Long-term mental health care for people with severe mental disorders. Report for the European Commission. Luxembourg; 2011.
9. NICE. Rehabilitation for adults with complex psychosis. 2020;(August).
10. WHO - European Ministerial Conference on Mental Health. Mental Health Declaration for Europe "facing the challenges, building solution." In 2005. p. 81–4.
11. European Commission. Green Paper: Improving the mental health of the population: Towards a strategy on mental health for the European Union. Brussels, Belgium; 2005.
12. WHO - Regional Office for Europe. The European Mental Health Action Plan 2013-2020. World Health Organization [Internet]. 2015;19. Available from: http://www.euro.who.int/__data/assets/pdf_file/0020/280604/WHO-Europe-Mental-Health-Acion-Plan-2013-2020.pdf
13. Killaspy H. The ongoing need for local services for people with complex mental health problems. The Psychiatric Bulletin. 2014;38(6):257–9.
14. Slade M, Amering M, Farkas M et al. Uses and abuses of recovery: implementing recovery-oriented practices in mental health systems. World Psychiatry. 2014;13:12–20.
15. SLAM/SWLSTG. Recovery is for All: Hope, Agency and Opportunity in Psychiatry. A Position Statement by Consultant Psychiatrists. London: South London and Maudsley NHS Foundation Trust and South West London and St George's Mental Health NHS Trust; 2010.
16. Rapp CA, Goscha RJ. The Strengths Model A Recovery-Oriented Approach to Mental Health Services. 3rd ed. Oxford University Press; 2012.
17. Maone A, D'Avanzo B. Recovery. Nuovi paradigmi per la salute mentale. Psichiatri. Milano: Raffaello Cortina Editore; 2015.
18. Beale V, Lambric T. The recovery concept: Implementation in the mental health system. Ohio Department of Menatl Health, editor. Columbus, Ohio: Community Support Program Advisory Committee; 1995.
19. Farkas M, Gagne C, Anthony W et al. Implementing recovery oriented evidence based programs: identifying the critical dimensions. Community Ment Health J. 2005;41:141–58.
20. Shepherd G, Boardman J, Slade M. Making Recovery a Reality. 2008.
21. Deegan PE. Recovery as a journey of the heart. Psychiatr Rehabil J. 1996;19(3):91–7.
22. Leamy M, Bird V, Le Boutillier C, Williams J, Slade M. A conceptual framework for personal recovery in mental health: systematic review and narrative synthesis. British Journal of Psychiatry. 2011;199:445–52.
23. Killaspy H, Harvey C, Brasier C, Brophy L, Ennals P, Fletcher J, et al. Community-based social interventions for people with severe mental illness: a systematic review and narrative synthesis of recent evidence [Internet]. 2022. Available from: https://www.covidence.org
24. Martinelli A, Ruggeri M. The impact on psychiatric rehabilitation of recovery oriented-practices. Journal of Psychopathology. 2020;26:189–95.
25. Liberman RP. Recovery from Disability: Manual of Psychiatric Rehabilitation [Internet]. Vol. 197, The Journal of Nervous and Mental Disease. American Psychiatric Association Publishing; 2007. 467 p. Available from: http://content.wkhealth.com/linkback/openurl?sid=WKPTLP:landingpage&an=00005053-200906000-00015
26. WHO - Regional Office for Europe. The European Mental Health Action Plan 2013-2020. World Health Organization. 2015;19.
27. McCabe R, Whittington R, Cramond L, Perkins E. Contested understandings of recovery in mental health. Journal of Mental Health. 2018;27(5):475–81.
28. Frank H, Kalidindi S, Killaspy H, Glenn R. Enabling Recovery: The Principles and Practice of Rehabilitation Psychiatry. 2nd ed. D. M, editor. BJPsych Bulletin. 2016.
29. Carozza P. Principi di riabilitazione psichiatrica : per un sistema di servizi orientato alla guarigione [Internet]. 9th ed. Strumenti per il lavoro psico-sociale ed educativo. Franco Angeli; 2006. 498 p. Available from: https://www.francoangeli.it/Ricerca/Scheda_libro.aspx?ID=13722
30. Barnes TRE, Pant A. Long-term course and outcome of schizophrenia. Psychiatry. 2005;4(10):29–32.

 doi:10.20944/preprints202506.0337.v1

31. Bee P, Owen P, Baker J, Lovell K: Systematic synthesis of barriers and facilitators to service user-led care planning. British Journal of Psychiatry. 2015;207:104–14.
32. Needham C, Mary Q, Carr S. emerging evidence base for adult social care transformation. 2009;(March).
33. Department of Health. Towards a shared vision for mental health. Consultation. London: New Horizons; 2009.
34. Thornicroft G, Tansella M. The balanced care model for global mentalhealth. Psychol Med. 2013;43:849–63.
35. WHO. World Mental Health Report: Transforming mental health for all. Geneva; 2022.
36. WHO. Mental Health ATLAS 2020. 2021.
37. WHO. Mental Health Atlas, 2017. World Health Organization; 2018.
38. Taylor Salisbury T, Killaspy H, King M. An international comparison of the deinstitutionalisation of mental health care: Development and findings of the Mental Health Services Deinstitutionalisation Measure (MENDit). BMC Psychiatry. 2016;16(1):1–10.
39. Martinelli A, Iozzino L, Ruggeri M, Marston L, Killaspy H. Mental health supported accommodation services in England and in Italy: a comparison. Soc Psychiatry Psychiatr Epidemiol [Internet]. 2019;54(11):1419–27. Available from: https://doi.org/10.1007/s00127-019-01723-9
40. Martinelli A. The key pillars of psychosocial disability: a European perspective on challenges and solutions. Front Psychiatry [Internet]. 2025 Apr 7;16. Available from: https://www.frontiersin.org/articles/10.3389/fpsyt.2025.1574301/full
41. Placentino A, Lucchi F, Scarsato G, Fazzari G, Gruppo rex.it. La Mental Health Recovery Star: caratteristiche e studio di validazione della versione italiana. Il Pensiero Scientifico Editore. 2018;11(35):46.
42. Killaspy H, Boardman J, King M, Taylor TL, Shepherd G, White S. The Mental Heath Recovery Star: great for care planning but not as a routine measure. Psychiatrist. 2012;36:194–9.
43. Lloyd C, Williams PL, Machingura T, Tse S. A focus on recovery: using the Mental Health Recovery Star as an outcome measure. Advances in Mental Health. 2015;16:27–3.
44. Dickens G, Weleminsky J, Onifade Y, Surgarman P. Recovery Star: validating user recovery. Psychiatrist. 2012;36:45–50.
45. Keen EL. The Outcome Star: A tool for recovery orientated services. Exploring the use of the Outcome Star in a Recovery Orientated Mental Health Service. Edith Cowan University; 2011.
46. Onifade Y. The mental health recovery star. Mental Health and Social Inclusion. 2011;15:78–87.
47. Tansella M, Amaddeo F, Burti L, Lasalvia A, Ruggeri M. Evaluating a community-based mental health service focusing on severe mental illness. The Verona experience. Acta Psychiatr Scand. 2006;113(SUPPL. 429):90–4.
48. Senato della Repubblica Legislatura XVII. Disegno di legge. Disposizioni in materia di tutela della salute mentale volte all'attuazione e allo sviluppo dei princìpi di cui alla legge 13 maggio 1978, n. 180. 2850 Italia; 2017.
49. American Psychiatric Association D 5 TF. Diagnostic and statistical manual of mental disorders: DSM-5™ (5th ed.). American Psychiatric Publishing, Inc.; 2013.
50. Amaddeo F. Using large current databases to analyze mental health services. Epidemiol Prev. 2018;42(1):98–9.
51. Stefanopoulou E, Donohoe C, Scott K, Larkin J. A literature review of service models and evidence relating to community-based supported accommodation services for adults with severe mental health problems in the UK. Psychosis . 2024;1–12.
52. Barnes S, Carson J, Gournay K. Enhanced supported living for people with severe and persistent mental health problems: A qualitative investigation. Health Soc Care Community. 2022 Nov 1;30(6):e4293–302.
53. Killaspy H, Priebe S, McPherson P, Zenasni Z, Greenberg L, McCrone P, et al. Predictors of moving on from mental health supported accommodation in England: national cohort study. The British Journal of Psychiatry. 2019;1–7.
54. Killaspy H, Priebe S, McPherson P, Zenasni Z, McCrone P, Dowling S, et al. Feasibility randomised trial comparing two forms of mental health supported accommodation (Supported Housing and Floating Outreach); a component of the QUEST (Quality and Effectiveness of Supported Tenancies) study. Front Psychiatry. 2019;10(APR):1–10.

 doi:10.20944/preprints202506.0337.v1

55. Van Eck RM, Jelsma A, Blondeel J, Burger TJ, Vellinga A, de Koning MB, et al. The Association Between Change in Symptom Severity and Personal Recovery in Patients With Severe Mental Illness. Journal of Nervous and Mental Disease. 2024 Jan 1;
56. Munch Nielsen C, Hjorthøj C, Helbo A, Madsen BP, Nordentoft M, Baandrup L. Effectiveness of a multidisciplinary outreach intervention for individuals with severe mental illness in supported accommodation. Nord J Psychiatry. 2025;
57. MacKeith J, Burns S. Mental health recovery star: user guide. London, UK: Mental Health Providers Forum and Triangle Consulting; 2011.
58. Lucchi F, Scarsato G, Placentino A. Mental health recovery star: user guide (Italian version). MacKeith J, Burns S, editors. Brescia: Il Chiaro del Bosco; 2013.
59. American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition: DSM-IV-TR. Washington, DC, United States of America: American Psychiatric Association; 2000.
60. Lora A, Bai G, Bianchi S, Bolongaro G, Civenti G, Erlicher A, et al. The italian version of HoNOS (Health of the Nation Outcome Scales), a scale for evaluating the outcome and the severity in mental health services. Epidemiol Psichiatr Soc. 2001;10(3):198–204.
61. Erlicher A, Tansella M. Health of the nation outcome scales HoNOS: una scala per la valutazione della gravità e dell'esito nei servizi di salute mentale. Il pensiero scientifico editore, editor. 2012.
62. Martinelli A, Dal Corso E, Pozzan T. Monitoring of the pathway of rehabilitation (MPR). Journal of Psychopathology. 2024 Sep 1;30(3):174–7.
63. Ruggeri M, Lasalvia A, Nicolaou S, Tansella M. Camberwell Assessment of Need (CAN) (Italian version). Slade M, Loftus L et al., editors. Verona: Dipartimento di Medicina e Sanità Pubblica, Sezione di Psichiatria, Università di Verona, Ospedale Policlinico; 1998.
64. Slade M, Loftus L, Thornicroft G. The Camberwell Assessment of Need (CAN). RC of Psychiatrists. 1999;