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RESEARCH ARTICLE

Working alliance in treating staff and patients with Schizophrenia Spectrum Disorder living in Residential Facilities

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Abstract

Objectives: Working Alliance (WA) is important in the care of patients with Schizophrenia Spectrum Disorders (SSD). This study aims to determine which sociodemographic and clinical factors are associated with WA, as assessed by patients and staff members in Residential Facilities (RFs), and may predict WA dyads' discrepancies.

Methods: Three hundred and three SSD patients and 165 healthcare workers were recruited from 98 RFs and characterized for sociodemographic features. WA was rated by the Working Alliance Inventory (WAI) for patients (WAI-P) and staff members (WAI-T). SSD patients were assessed for the severity of psychopathology and psychosocial functioning.

Results: Pearson's correlation revealed a positive correlation ($\rho = .314$; $p < .001$) between WAI-P and WAI-T ratings. Linear regression showed that patients with higher education reported lower WAI-P ratings ($\beta = -.50$, $p = .044$), while not being engaged in work or study was associated with lower WAI-T scores ($\beta = -4.17$, $p = .015$). A shorter lifetime hospitalization was associated with higher WAI-P ratings ($\beta = 5.90$, $p = .008$), while higher psychopathology severity negatively predicted WAI-T ($\beta = -.10$, $p = .002$) and WAI-P ratings ($\beta = -.19$, $p < .001$). Better functioning level

Laura Fusar-Poli and Fabio Panariello are joint first authors.

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positively foresaw WAI-T ($\beta = .14$, $p < .001$) and WAI-P ratings ($\beta = .12$, $p < .001$). Regarding discrepancies, staff members' age was associated with higher dyads discrepancy in Total scale and Agreement subscale scores, which were also associated with more severe negative symptoms, while patients' age was negatively correlated to Relationship subscale discrepancy.

Conclusions: This study provides insight into the factors that influence WA in SSD patients and health workers in RFs. The findings address interventions to improve WA and ultimately patient outcomes.

KEYWORDS

psychopathology severity, Residential Facilities, Schizophrenia Spectrum Disorders, staff members, working alliance, working alliance discrepancy

INTRODUCTION

The concept of Working Alliance (WA) refers to the relationship between a therapist and a patient, and its ability to facilitate change during therapy (Horvath & Symonds, 1991). The most widely accepted operational model of WA is Bordin's three-dimensional model, which states that a positive WA is achieved through agreement on treatment goals and tasks, and the development of a strong bond between the therapist and patient (Bordin, 1979; Doran et al., 2017). Based on Bordin's WA operational definition, Horvath & Greenberg (1989) developed the Working Alliance Inventory (WAI), which is the most widely used tool for assessing WA. WAI can be used to collect ratings of therapeutic alliance from both the therapist (WAI-T) and the patient (WAI-P). The ability to establish a positive alliance is considered an important predictor of treatment outcomes in all professional helping relationships, regardless of setting, intervention, or diagnostic category (Clarke et al., 2009; Del Re et al., 2012; Horvath et al., 2011). Previous research findings support the hypothesis that the degree of congruence in therapists' and patients' assessments of the WA, as well as the individual perspectives of both members of the dyad, is related to more positive therapeutic outcomes (Bachelor, 2013; Marmarosh & Kivlighan, 2012; Zilcha-Mano et al., 2017).

Working Alliance is an important aspect of treatment for patients with Schizophrenia Spectrum Disorders (SSD). SSD are an heterogeneous group of psychopathological conditions, which may vary in duration and severity. SSD are characterized by positive symptoms (e.g., delusions, hallucinations), negative symptoms (e.g., diminished emotional expression, avolition), and by disorganized thinking and behaviour (American Psychiatric Association, 2013). Of note, pathognomonic features may be accompanied with other symptoms, such as cognitive deficits (Fusar-Poli et al., 2022). The course of SSD is often chronic and may cause severe impairments in social, vocational, and everyday life functioning (American Psychiatric Association, 2013). In SSD, WA is associated with treatment adherence, lower dropout rates, decreased symptom severity, improved social functioning, and decreased hospitalization rates (Browne et al., 2021; Howgego et al., 2003; Shattock et al., 2018). Furthermore, negative symptoms and cognitive impairments are considered prominent causes of poor social functioning in SSD, which represent significant obstacles to the development of a positive WA (Beaudette et al., 2020; Melau et al., 2015; Novick et al., 2015; Shattock et al., 2018; Wykes et al., 2013). Several studies have also shown that improvement in WA may lead to better social functioning, which in turn facilitates stronger therapeutic alliance development (Hicks et al., 2012).

Establishing a therapeutic alliance in care settings with patients with SSD can be challenging due to their difficulties in building positive interpersonal relationships. A recent systematic review highlighted

the role played by specific characteristics of patients with SSD in the therapeutic alliance assessments of both patients and therapists (Shattock et al., 2018). Specifically, negative symptoms, younger age, and poor pharmacological treatment adherence seem to impact therapeutic alliance ratings. Positive symptoms, particularly paranoia, may also limit the establishment of a collaborative approach (Lawlor et al., 2015). Interestingly, both qualitative and quantitative research papers on therapeutic alliance in psychotherapeutic settings have shown the important role of attachment styles in SSD (Berry et al., 2015; Pipkin et al., 2021).

Understanding the factors associated with better therapeutic alliance is crucial for implementing therapeutic programmes and improving clinical outcomes (Browne et al., 2021; Davis & Lysaker, 2004; Fenton et al., 1997; Frank, 1990; Solomon et al., 1995), as well as reducing drug prescriptions and hospitalization risk (Priebe et al., 2011; Shattock et al., 2018). The growing emphasis on a patient-centred approach further emphasizes the need to clarify the factors associated with positive therapeutic alliance ratings in mental health care (Dixon et al., 2016).

In several countries, including Italy, psychiatric hospitals have been replaced with community-based mental health services and the development of an extensive network of non-hospital Residential Facilities (RFs) for patients with severe functional impairment (de Girolamo et al., 2002, 2005). RFs are good candidates for the study of WA in patients with SSD, as it may take up to 6 months for the development of a strong WA in this patient group (Frank, 1990). Despite the important role played by WA in the long-term management of patients with SSD, to date, few studies have been conducted on large samples and in residential care settings that represent a privileged observational framework of patients' real life. Patients living in RFs may be considered representative of a peculiar SSD population experiencing difficulties in self-care and thus prone to develop staff dependence, which may in turn affect client-rated WA. Working towards goals can be complex for these patients because of the support needed in housing, work, and social relationships as well as the public/self-stigmatization. Taken together, these issues may generate the 'why-try' effect, thus discouraging the pursuit of meaningful goals. The multicentre project on 'Daily time use, Physical Activity, quality of care and interpersonal relationships in patients with Schizophrenia Spectrum Disorders (DiAPASon)' has been recently conducted in Italy (de Girolamo et al., 2020). As part of the project, data on WA were collected in a large sample of people with SSD and staff members (psychiatrists, psychologists, nurses, occupational therapists, trainees) involved in their daily care. The present cross-sectional study aimed to (a) analyse the correlation between patient and staff WAI ratings; (b) identify socio-demographic and clinical variables associated with WA in patients and staff; and (c) examine factors associated with profiles of high versus low WAI-rating discrepancy in the patient-therapist dyads.

MATERIALS AND METHODS

Procedure and participants

Community care in Italy is organized through 127 Departments of Mental Health (DMHs) that provide outpatient and hospital care, as well as residential care for those with the most complex needs. Previous studies have thoroughly assessed the residential care system (de Girolamo et al., 2002, 2005; Martinelli et al., 2022; Picardi et al., 2014). This study includes a post hoc analysis of data derived from the DiAPAson project, a multisite project conducted in 20 DMHs and 17 RFs located in different Italian regions. In total, 98 RFs with an average of 12.8 (±5.7) residents were involved in this study, and they recruited on average 3.3 (±2.6) patients (roughly 25% of the facility residents) each. Local Ethical Committees approved the study (see the specific section below). All participants provided informed consent for their participation.

As per inclusion criteria, we recruited patients with a DSM-5 diagnosis of SSD between 20 and 55 years old, who were able to speak and write in Italian, and receiving treatment at RFs. People older than 55 years were a priori excluded because the presence of cognitive deficits, which tend to increase with age, could

have prevented their active participation in the study. Patients were excluded if they were unable to provide informed consent, had severe cognitive deficits (i.e., a Mini-Mental State Examination [MMSE] corrected score < 24), a recent (over the last 6 months) diagnosis of substance use disorder according to DSM-5 criteria, a history of clinically significant head injury, or cerebrovascular/neurological disease.

From October 2020 to October 2021, 340 eligible patients with SSD were recruited. Six participants (1.8%) were subsequently excluded due to cognitive impairment (i.e., MMSE < 24), while 21 (6.2%) dropped out of the study due to a lack of interest or motivation in the ongoing activities. Residential patients were recruited by means of an alphabetical list of patients with SSD prepared by the facility chiefs. Based on this list, residential patients were consecutively invited to participate in the study until the local recruitment target was achieved.

In each RFs, health workers defined as 'case managers' based on a one-to-one therapeutic relationship with a patient enrolled in the study were asked to participate in the study, after signing the informed consent. Details of the patient-staff matching procedure have been provided below.

Participants were provided with detailed information about the study and had an opportunity to ask questions. Some of the assessment tools were completed by the treating clinician, while Research Assistants (RA) helped the participants complete self-reported questionnaires if needed. All measures were completed using the same methodology, to make the results comparable and reduce any potential bias. Standardized clinical measures were used to collect clinical data to minimize methodological biases (see the section below).

Socio-demographic, physical, and clinical assessments

Socio-demographic details (see Table 1) were collected for each participant. A structured ad hoc survey was used to assess the psychiatric history of patients, including their current diagnosis, illness duration, and lifetime duration of psychiatric hospitalizations (categorized in below or above 1 year) based on medical records.

The 24-item Brief Psychiatric Rating Scale (BPRS; Overall & Gorham, 2012; Roncone et al., 1999) was used to evaluate the severity of anxious, depressive, and psychotic symptoms. Each item is rated on a scale from 1 (not present) to 7 (extremely severe) to assess the presence and severity of symptoms. Negative symptoms severity was assessed using the Brief Negative Symptom Scale (BNSS; Mucci et al., 2015; Strauss et al., 2012), a 13-item instrument that evaluates blunted affect, alogia, asociality, anhedonia, and avolition (from 0 - not present- to 6 – severe deficit). A higher total score on both BPRS and BNSS indicates a higher symptom severity. The 43-item Specific Levels of Functioning Scale (SLOF; Mucci et al., 2014) was used to evaluate psychosocial functioning. Each item rates on a 5-point Likert scale and the total scale score ranges from 43 to 215, with higher ratings indicating higher functioning. The SLOF is a multidimensional behavioural assessment tool that includes six subscales: physical functioning, personal care skills, interpersonal relationships, social acceptability, activities of community living, and work skills. BPRS, BNSS and SLOF were rated by the researcher who was directly involved in the patient's care.

The BPRS, BNSS, and SLOF scales are well-established assessment tools employed to measure the severity of anxious, depressive, and psychotic symptoms, as well as negative psychotic symptoms, and psychosocial functioning., respectively. The reliability and validity of these instruments have been comprehensively documented through validation studies conducted with their Italian versions (Mucci et al., 2014, 2015; Roncone et al., 1999).

Assessment of Working Alliance

Each patient completed the Italian version of the Working Alliance Inventory short-form (WAI-SF) for patients (WAI-P; Lingiardi, 2002) and was asked to rate a specific staff member with he/she had a

TABLE 1 Sociodemographic and clinical characteristics of the sample and working alliance inventory.

	Residential patients (*N* = 303)	Staff (*N* = 164)
Sociodemographic variables		
Gender (*N*, % males)	210 (69.3%)	45 (27.4%)
Age (years; mean, *SD*)	41.0 (9.8)	41.2 (9.9)
Education (years; mean, *SD*)	11.5 (3.2)	18.0 (3.7)
Civil status (*N*, %)		
Single	263 (86.8%)	37 (22.6%)
Married or cohabiting	13 (4.3%)	112 (68.3%)
Divorced or widowed	27 (8.9%)	15 (9.1%)
Working status (*N*, %)		
Working	38 (12.5%)	NA
Studying	13 (4.3%)	NA
Not working/studying	252 (83.2%)	NA
Role (staff)		
Clinical Psychologists	NA	28 (17.1%)
Psychiatrist	NA	25 (15.2%)
Nurse	NA	18 (11.0%)
Health Assistant (OSS)	NA	24 (14.6%)
Educator	NA	38 (23.2%)
Occupational Therapist (TERP)	NA	31 (18.9%)
Clinical variables		
Illness duration (years; mean, *SD*)	18.3 (9.6)	NA
Lifetime hospital. stay (*N*, %)		
<1 year	52 (17.2%)	NA
1–5 years	117 (38.6%)	NA
>5 years	134 (44.2%)	NA
Total number of psychiatric hospitalizations in the last year (mean, *SD*)	.4 (.9)	NA
Time in the RF (months; mean, *SD*)	34.6 (43.2)	NA
AP (*N*, %)		
Monotherapy	120 (40.4%)	NA
Polytherapy	177 (59.6%)	NA
BPRS (total rating; mean, *SD*)	50.7 (16.2)	NA
BNSS (total rating; mean, *SD*)	25.9 (16.5)	NA
SLOF (total rating; mean, *SD*)	174.9 (22.4)	NA

Abbreviations: AP, antipsychotics; BNSS, Brief Negative Symptoms Scale; BPRS, Brief Psychiatric Rating Scale; RF, residential facility; SLOF, Specific Levels of Functioning scale.

'one-to-one' therapeutic relationship defined as 'case manager' by care setting. Similarly, each staff member completed the Italian version of the WAI short form for staff (WAI-T; Lingiardi, 2002) for up to 3 different patients they were caring for. The psychometric properties of the WAI-P and WAI-T have been established by Lingiardi (2002). To reduce social desirability bias, treating staff and patients were informed that their answers would not be shared with each other but would only be made available to researchers.

The WAI-SF includes 12 items that can be rated on a 7-point Likert scale, from 1 ('never') to 7 ('always'). The total score can range between 12 and 84, with higher scores indicating a greater WA. Similarly, to the original 36-item WAI (Horvath & Greenberg, 1989), besides the Total rating three

subscales measuring the three domains of WA can be computed: (a) agreement between patient and therapist about treatment goals (Goals); (b) agreement between patient and therapist on tasks to achieve these goals (Task); and (c) quality of the bond between patient and therapist (Bond). According to Bordin (1979), the assessment of the three factors can be extended to all treatment relationships in which a client/patient seeks change through the relationship with a change agent (professional helper including psychiatrists, psychologists, nurses, occupational therapists, trainees). Therefore, the WAI-T was completed by RF staff members involved in treatment relationships with SSD patients regardless of their specific role in the clinical staff. To address the "staff/patient specificity" (i.e., some staff members completing up to three WAI-T versions for 3 patients potentially making no distinctions between them), a quality check was applied by excluding from the analyses the WAI-T completed by staff members who assigned the same score.

The WAI-SF has been utilized for several years as a tool to assess the perceived strength of WA in psychotherapy and in various healthcare contexts. Its psychometric properties have been established in several studies (Busseri & Tyler, 2003; Del Re et al., 2012; Fenton et al., 2001; Flückiger et al., 2018; Horvath & Greenberg, 1989, Horvath & Symonds, 1991; Munder et al., 2010), although a recent systematic review (Paap et al., 2022), encompassing 66 studies published between 1989 and 2021, has shown inconsistent findings of reliability and validity of the WAI-SF using rigorous criteria adopted by the consensus-based Standards for the Selection of Health Measurement Instruments (COSMIN). However, these authors have recognized that COSMIN criteria may not be adequate for evaluating the measurement properties of instruments within the context of psychological research, and have advocated the development of new strategies to assess the psychometric properties of tools aimed at assessing conceptually complex domains, such as WA.

Working Alliance Inventory (WAI) Discrepancy/Agreement Scores

The discrepancy between therapist and patient assessments of the working alliance was computed by subtracting the therapist ratings from the patient ratings on the WAI. Specifically, we calculated the total scores separately for the patient (WAI-P Total) and therapist (WAI-T Total), and then subtracted the therapist's total score from the patient's total score (WAI-P Total - WAI-T Total). This resulted in a discrepancy score for each participant, reflecting the difference between the perspectives of the patient and therapist on the working alliance.

Statistical analyses

Descriptive statistics are presented as frequency tables for categorical variables and means and standard deviations (*SD*) for continuous variables. First, we performed a *t*-test for paired samples to investigate the differences between patients and staff ratings (WAI-P and WAI-T). Second, we estimated Pearson's correlation coefficients to examine the relationship between socio-demographic and clinical variables and patient and staff ratings (WAI-P and WAI-T). Then, we conducted single linear regressions using the socio-demographic and clinical variables as the independent variables and the WAI-T and WAI-P as the dependent variables. Finally, we calculated the discrepancy ratings of WAI, based on the study conducted by Hasson-Ohayon et al. (2021). The discrepancy between therapist and patient assessments was calculated by subtracting therapist ratings from patient ratings (*WAI-P Total−WAI-T Total*). According to a two-factor solution by Andrusyna et al. (2001), the analysis was then replicated using the subscales 'Agreement' (*WAI-P[Task + Goal] - WAI-T [Task + Goal*), regarding Task and Goal WAI ratings, and 'Relationship', regarding Bond WAI ratings (*WAI-P Bond−WAI-T Bond*). Based on the discrepancy levels, the dyads of patients and therapists were categorized into 'low discrepancy' (below median) and 'high discrepancy' (above median). To determine which factors may *be associated with* a high discrepancy between therapist and client WAI ratings, single logistic regression models were estimated.

Statistical analyses were performed using SAS Studio and SPSS. A p-value <.05 was regarded as statistically significant. We corrected our main analyses (differences and correlations between total and subscales of WAI-P and WAI-T, regressions with factors related to patient severity as independent variables) using Bonferroni correction, to adjust the level of significance.

Power calculation

To determine the statistical power of our study, we conducted power calculations for both groups: residential patients and healthcare providers. For each variable of interest, we assessed the power associated with the effect sizes observed between the groups, using the standardized mean difference as the measure of effect size. In the group of 303 residential patients, a factor was considered statistically significant (with a two-tailed alpha of 5%) if the effect size was approximately .35 or higher. Similarly, in the group of 164 patients, the significance threshold was set at approximately .5. These thresholds were chosen based on established guidelines to ensure adequate statistical power for detecting meaningful effects. Graphical representations of the power calculation formulas can be found in Figure S1. The power analysis was instrumental in determining the appropriate sample size and ensuring that the study was adequately powered to detect significant associations and differences between the groups. Power calculations and graphs were performed using SPSS (Statistical Package for the Social Sciences), version 29.0 (SPSS Inc.).

RESULTS

Correlations between working alliance rated by patients (WAI-P) and staff (WAI-T)

The final sample assessed with the WAI includes 303 patients and 165 health workers of the participating RFs. Only one staff member has been excluded based on the quality check control, as explained above. Socio-demographic characteristics of patients with SSD and staff members and patients' main clinical features are reported in Table 1.

WAI mean ratings (total scale and subscale ratings), collected from both patients (WAI-P) and RF staff members (WAI-T), are shown in Table 2.

Pearson's correlation showed a statistically significant positive correlation ($\varrho = .314$; $p < .001$) between WAI-P and WAI-T total ratings (Table 3). WAI-P total ratings also correlated significantly with all WAI-T subscales [Task ($\varrho = .332$; $p < .001$); Goals ($\varrho = .295$; $p < .001$); Bond ($\varrho = .209$; $p < .001$)]. Also, WAI-T ratings were significantly and positively correlated with WAI-P subscales [Task ($\varrho = .301$; $p < .001$); Goals ($\varrho = .249$; $p < .001$); Bond ($\varrho = .277$; $p < .001$; Table 3)].

TABLE 2 WAI ratings of patients and therapists.

	Patient ratings (WAI-P)				Staff ratings (WAI-T)				
	Mean (*SD*)	Min	Max	Median	Mean (*SD*)	Min	Max	Median	*p*-value
Task rating	20.8 (5.1)	4	28	21	19.9 (3.7)	8	28	20	**.008***
Goal rating	20.5 (5.0)	4	28	21	19.4 (3.7)	8	28	20	**<.001***
Bond rating	20.5 (5.5)	4	28	21	21.0 (3.3)	11	28	21	.162
Total rating	61.8 (13.8)	18	84	64	60.2 (9.6)	27	82	60	.097

The bold font and the asterisks indicate the statistic significance.

TABLE 3 Pearson's correlations between WAI-P patient and WAI-T therapist total and subscales.

	WAI-P PATIENT			
WAI-T THERAPIST	**Tasks**	**Goals**	**Bond**	**Total**
Tasks	**.311* ($p<.001$)**	**.267* ($p<.001$)**	**.296* ($p<.001$)**	**.332* ($p<.001$)**
Goals	**.271* ($p<.001$)**	**.247* ($p<.001$)**	**.262* ($p<.001$)**	**.295* ($p<.001$)**
Bond	**.222* ($p<.001$)**	.145 ($p=.014$)	**.182* ($p=.002$)**	**.209* ($p<.001$)**
Total	**.301* ($p<.001$)**	**.249* ($p<.001$)**	**.277* ($p<.001$)**	**.314* ($p<.001$)**

*Statistically significant after Bonferroni Correction.

Similarly, all WAI-P subscales were significantly and positively correlated with their corresponding WAI-T subscales even after Bonferroni correction, except for the correlation between WAI-T Bond subscale and WAI-P Goals subscale ($\varrho=.145$; $p=.014$).

Sociodemographic and clinical variables associated with working alliance in patients and staff

Linear regression showed that patients with higher educational levels reported significantly lower ratings at WAI-T ($\beta=-.50$, $p=.044$; Table 4). Indeed, as shown in Figure 1, for each education year, WAI-P rating decreased by .5 points (Figure 1).

As for patients' socio-demographic factors associated with WAI-T, linear regression analysis revealed that being in a not working or studying condition was associated with significant lower total WAI-T ratings ($\beta=-4.17$, $p=.015$; Table 4 and Figure 2).

With regard to clinical variables, patients who had a shorter lifetime duration of hospitalization (<1 year) reported 6-point higher WAI-P ratings than patients with long lifetime hospitalizations (>5 years; $\beta=5.90$, $p=.008$; Figure 3).

Moreover, the severity of psychopathology, as assessed with BPRS and BNSS, was negatively associated with both WAI-T ($\beta=-.10$, $p=.002$) and WAI-P total ratings ($\beta=-.19$, $p<.001$; Table 4). Similarly, higher BNSS ratings were significantly associated with lower WAI-P ($\beta=-.25$, $p<.001$) and WAI-T ($\beta=-.13$, $p=.001$) total ratings (Table 4; Figure 4). The level of functioning, measured using SLOF, was positively associated with both WAI-P ($\beta=.12$, $p<.001$) and WAI-T total ratings ($\beta=.14$, $p<.001$; Table 4; Figure 4).

Sociodemographic and clinical variables associated with a discrepancy in WAI ratings between patients and staff

The logistic regression analysis revealed that older staff members were more likely to be placed in a group where there was a significant difference between the ratings given by the patient and the therapist. This difference was measured using two WAI subscales: the total scale scores (WAI-P Total−WAI-T Total) and the agreement subscale scores (WAI-P [Task + Goal]−WAI-T [Task + Goal]). For each year of age, the likelihood of being in this group increased by 3% (OR = 1.03) with a p-value of .01 for the total scale scores and a p-value of .024 for the agreement subscale scores. On the contrary, younger patients were more likely to be included in a group where there was a significant difference between the ratings given by the patient and the therapist. This difference was measured using the relationship subscale scores (WAI-P Bond—WAI-T Bond). For each year of age, the likelihood of being in this group decreased by 3% (OR = .97) with a p-value of .019. Additionally, higher levels of negative symptoms, as measured by the BNSS, were associated with a lower likelihood of having a high level of agreement in the ratings (OR = .98) with a p-value of .017. No other significant factor associated with high versus low discrepancy in WAI total or subscales was found (Table 5).

TABLE 4 Working alliance: Sociodemographic and clinical factors.

	WAI-P			WAI-S		
	Est.	**CI**	***p***	**Est.**	**CI**	***p***
Sociodemographic variables						
Gender P (male)	−.72	−4.10; 2.66	.678	.44	−1.98; 2.86	.719
Age P	−.05	−.21; .11	.551	−.01	−.13; .10	.834
Civil status P (single)						
Married or cohabiting	2.38	−5.31; 10.07	.545	−2.20	−3.01; 4.64	.677
Divorced or widowed	3.16	−2.31; 8.63	.257	.81	−7.91; 3.52	.451
Education P	**−.50**	**−.99; −.01**	**.044**	−.03	−.38; .33	.884
Working status P (working)						
Studying	−3.47	−12.18; 5.24	.435	−3.50	−9.67; 2.67	.270
Not working/studying	−1.58	−6.30; 3.14	.511	**−4.17**	**−7.54; −.80**	**.015**
Gender S (male)	−1.11	−4.69; 2.46	.541	−1.10	−3.55; 1.36	.381
Age S	.04	−.13; .21	.636	−.09	−.20; .02	.114
Civil status S (single)						
Married or cohabiting	1.56	−2.28; 5.40	.426	−1.09	−3.72; 1.54	.417
Divorced or widowed	2.85	−4.34; 10.04	.436	1.34	−3.58; 6.26	.593
Education S	.15	−.27; .57	.480	−.01	−.29; .28	.983
Clinical variables						
Illness duration	−.09	−.25; .08	.292	−.09	−.20; .02	.124
Lifetime hospital. stay (>5 years)						
<1 year	**5.90**	**1.51; 10.28**	**.008**	1.31	−1.88; 4.51	.420
1–5 years	1.61	−1.78; 5.01	.352	.48	−1.95; 2.91	.701
Total number of psychiatric hospitalizations in the last year	−.51	−2.22; 1.19	.556	.21	−.99; 1.42	.730
Time in the RF	−.01	−.05; .03	.618	0	−.02; .03	.891
AP therapy (polytherapy)	.41	−2.78; 3.60	.801	1.92	−.30; 4.13	.090
BPRS	**−.19**	**−.28; −.09**	**<.001***	**−.10**	**−.17; −.04**	**.002***
BNSS	**−.25**	**−.34; −.16**	**<.001***	**−.13**	**−.19; −.06**	**<.001***
SLOF	**.12**	**.05; .19**	**<.001***	**.14**	**.09; .18**	**<.001***

Note: P = Patients; S = Staff; in bold statistically significant associations.

Abbreviations: AP, antipsychotics; BNSS, Brief Negative Symptoms Scale; BPRS, Brief Psychiatric Rating Scale; SLOF, Specific Levels of Functioning scale.

*Statistically significant after Bonferroni post-hoc correction.

DISCUSSION

Summary of main results

Several important conclusions can be drawn from the study results. First, patients with higher levels of education reported significantly lower scores on the WAI-P, suggesting a possible link between the patient's level of education and successful WA. Secondly, patients who were not involved in work or study had significantly lower scores on the staff WAI (WAI-T): this may suggest that if the patient is involved in productive activities, this may facilitate a good therapeutic alliance from the therapist's perspective. Furthermore, patients with shorter hospitalizations (<1 year) reported higher WAI-P scores than those

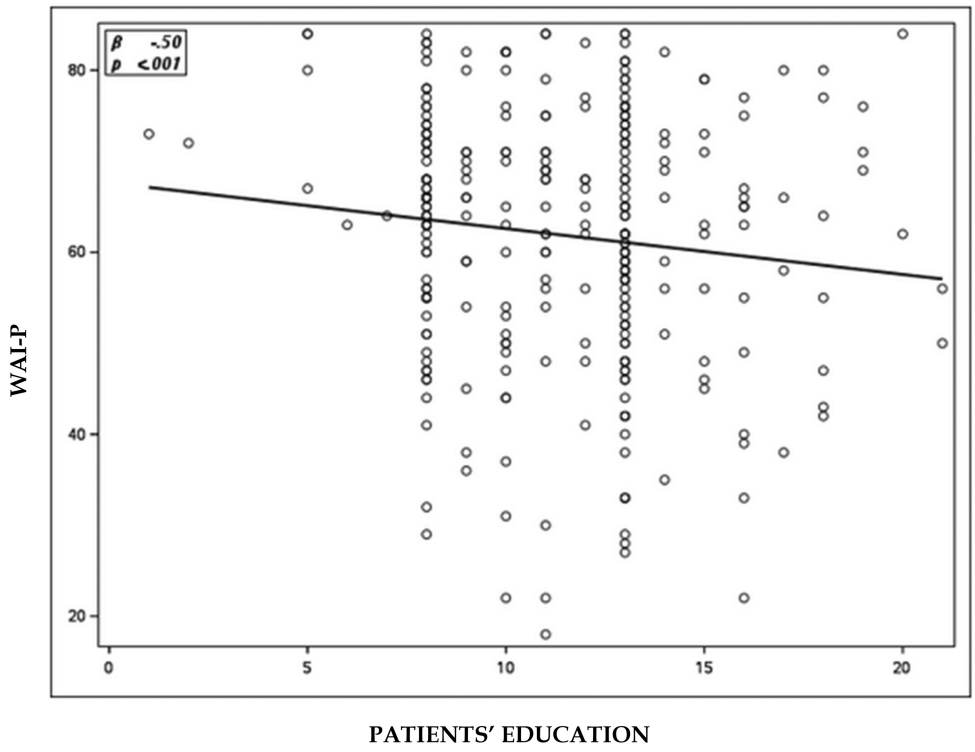

FIGURE 1 Working alliance and patients' education.

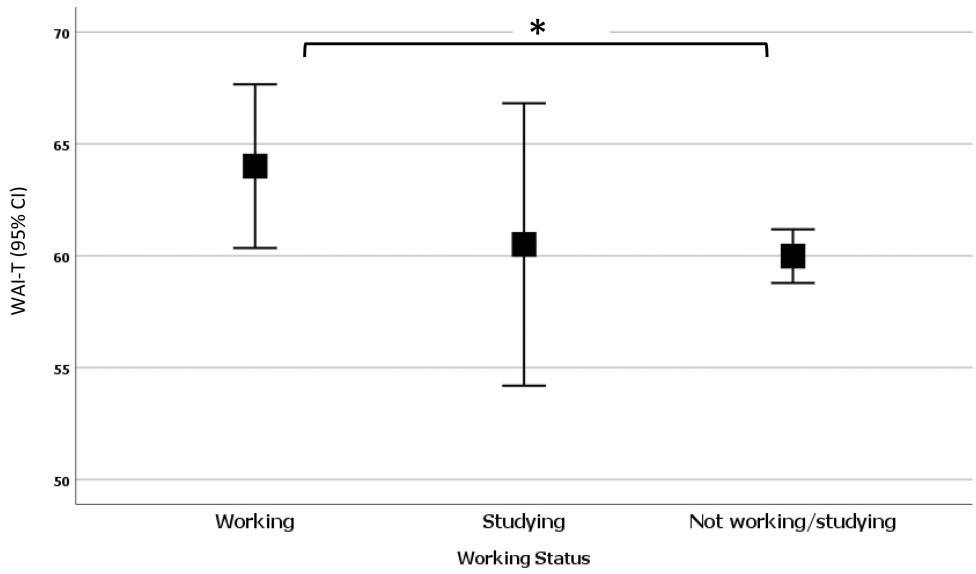

FIGURE 2 Working alliance and working status. The * indicate a statistic significance.

with longer hospitalizations (>5 years), suggesting that prolonged hospitalization may be associated with a negative effect on goal sharing through tasks and the development of a valuable therapeutic alliance. Furthermore, while the severity of psychopathology was inversely correlated with both WAI-P and WAI-T scores, the level of psychosocial functioning showed a positive correlation with both scores.

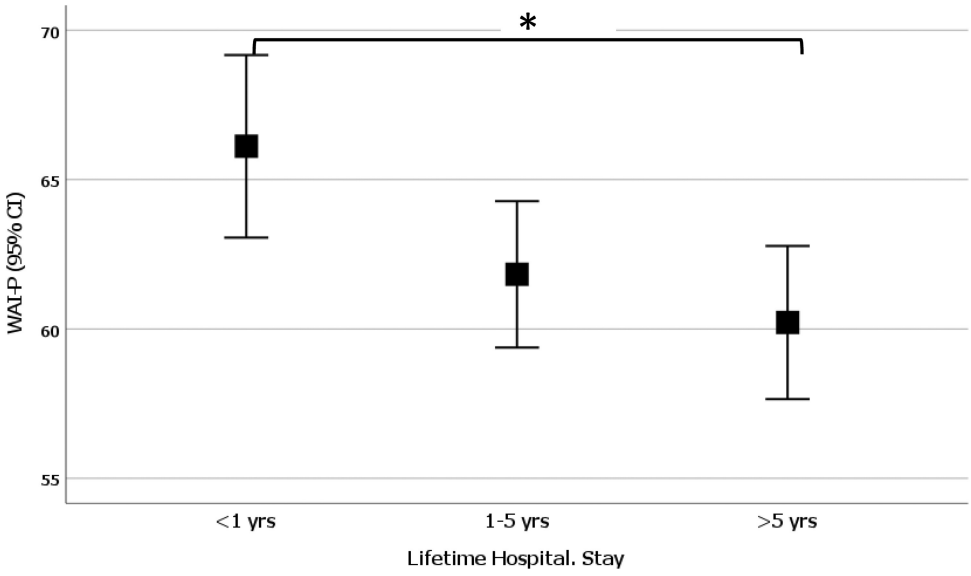

FIGURE 3 Working alliance and lifetime hospitalizations. The * indicate a statistic significance.

This highlights the contrasting roles of clinical severity and psychosocial factors in assessing the therapeutic alliance between patients and staff.

With regard to the degree of discrepancy between WAI-T and WAI-P ratings, our results indicate that staff age showed a significant positive correlation with 'discrepancy total' and 'discrepancy agreement'. Conversely, patient age showed a negative correlation with 'discrepancy relationship'. Furthermore, the severity of negative symptoms showed a positive correlation with 'discrepancy agreement'.

Working alliance rated by patients and staff

The positive and significant correlation between average WAI ratings reported by patients and staff members in our study is in line with previous studies conducted on people with SSD (Davis & Lysaker, 2004; Johansen, Iversen, et al., 2013; Johansen, Melle, et al., 2013; Shattock et al., 2018). Particularly, Johansen, Iversen, et al. (2013) reported agreement between patients and therapists on the total quality of their WA. Our data are consistent with these findings, although they are in contrast with a more recent meta-analysis which found that patients tended to estimate WA as somewhat higher than did therapists (Igra et al., 2020). This inconsistency may be related to the adoption of a different assessment tool for WA evaluation, which may have a moderating effect on WA ratings and on agreement levels between patients and staff (Igra et al., 2020). In contrast, the diagnosis was unrelated to patient-staff discrepancy. A meta-analysis by Tryon et al. found that disorder severity rather than diagnosis had a moderating effect on WA ratings (Tryon et al., 2008). In our sample, all patients were affected by SSD, and the BPRS relative variability index is .02, which suggests a low dispersion of the average level of psychopathological severity among recruited patients. These factors may represent a potential explanation for the non-significant differences between WAI-T and WAI-P.

Socio-demographic factors associated with WA in patients and staff

Our results show that some sociodemographic and clinical variables are associated with WAI ratings in both patients (educational level) and staff (employment status). We found a negative, significant

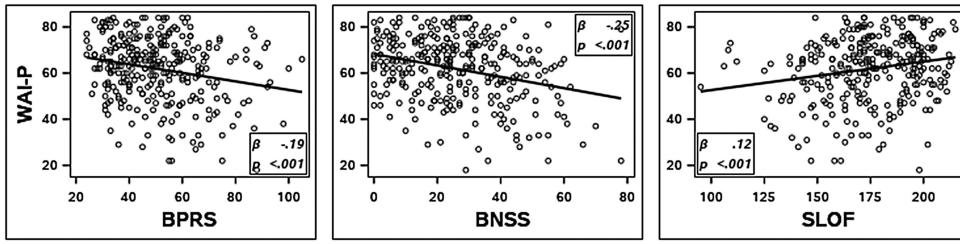

FIGURE 4 Working alliance, psychopathology, and psychosocial functioning.

TABLE 5 Sociodemographic and clinical variables associated with discrepancy in wai ratings between patients and staff.

	Discrepancy total		Discrepancy "agreement"		Discrepancy "relationship"	
	OR (95% CI)	***p***	**OR (95% CI)**	***p***	**OR (95% CI)**	***p***
Age (patient)	.99 (.98–1.02)	.879	.99 (.97–1.01)	.411	**.97 (.95–.99)**	**.019**
Sex = Male (patient)	1.08 (.65–1.80)	.764	1.22 (.73–2.04)	.446	.95 (.58–1.58)	.855
Education (years, patient)	.94 (.87–1.02)	.121	.94 (.87–1.02)	.116	.95 (.89–1.03)	.215
Illness duration	1.01 (.99–1.04)	.360	1.00 (.98–1.03)	.792	.98 (.96–1.00)	.103
Age (staff)	**1.03 (1.01–1.06)**	**.010**	**1.03 (1.01–1.05)**	**.024**	1.02 (1.00–1.05)	.063
Sex = Male (staff)	.92 (.55–1.54)	.756	1.23 (.74–2.05)	.436	.72 (.43–1.20)	.203
Education (years, staff)	1.01 (.95–1.07)	.878	.98 (.92–1.04)	.426	1.05 (.99–1.12)	.123
BPRS	.99 (.98–1.01)	.551	1.00 (.98–1.01)	.505	.99 (.97–1.00)	.135
BNSS	.99 (.97–1.00)	.085	**.98 (.97–.99)**	**.017**	.99 (.97–1.00)	.067
SLOF	1.00 (.99–1.01)	.329	.99 (.99–1.01)	.766	1.00 (.99–1.01)	.994

Abbreviations: AP, antipsychotics; BNSS, Brief Negative Symptoms Scale; BPRS, Brief Psychiatric Rating Scale; SLOF, Specific Levels of Functioning scale.

The bold values indicate the statistic significance according to the p value.

association between WAI-P ratings and years of education, indicating that patients with lower educational levels report higher ratings on the WAI-P total, thus acknowledging better WA. One possible explanation of our findings might be the low level of health literacy characterizing less educated patients (Martin et al., 2009; Say et al., 2006). Previous findings have shown that patients with lower health literacy tend to be less active in medical decision-making and more prone to build up trust with the therapist so developing a strong WA (Brom et al., 2014; Klingaman et al., 2015; Kraetschmer et al., 2004; O'Malley et al., 2004; Trachtenberg et al., 2005). As a result, it is possible to hypothesize that patients with lower educational levels and poorer health literacy may be less prepared to be involved in physicians' use of a participatory decision-making approach, on which the construct of WA is based (Aboumatar et al., 2013). On the other hand, there are several potential explanations for the association between higher education levels and lower WA. One possible factor is related to Language Style Matching (LSM), a process of verbal attunement that reflects the degree of similarity in the use of function words (e.g. prepositions, conjunctions, articles, and other relatively content-free parts of speech) in dyadic interactions (Albano et al., 2023; Gonzales et al., 2010; Niederhoffer & Pennebaker, 2002). Taking into consideration the preliminary evidence indicating a positive correlation between both early and late LSM and stronger WA, a plausible hypothesis emerges suggesting that the level of patient education could significantly influence the extent of early and late verbal attunement.

Another aspect to consider is related to assertiveness and autonomy. Higher education levels may be associated with higher levels of assertiveness and a desire for autonomy in decision-making. Patients with these characteristics may prefer a Shared decision making (SDM) approach (Hamann & Heres, 2014).

Additionally, there may exist a substantial knowledge disparity between patients with higher education levels and their healthcare professionals. It is important to note that our study has a limitation concerning the staff composition. Among the personnel involved in evaluating the Working Alliance Inventory (WAI), 67.7% comprised nurses, healthcare assistants, educators, or occupational therapists, while the remaining 33.3% consisted of clinical psychologists and psychiatrists. It is noteworthy that the diverse range of professionals participating in the WAI assessment may have exhibited varying levels of training and experience in engaging with WA.

Furthermore, higher education levels can lead to heightened expectations regarding the healthcare experience. Patients with higher education may hold specific expectations about treatment options, outcomes, or the approach of healthcare providers. If these expectations are not met, it can result in dissatisfaction and weaken the WA (Rademakers et al., 2012).

More research on the relationship between educational level and the therapeutic alliance would provide a deeper understanding of how education may impact the formation of a positive therapeutic alliance. To the best of our knowledge, the present study is the first to show a negative association between educational level and WA. In fact, previous research findings pointed out no significant association between educational level and WA in SSD, as rated by both clients and providers (Browne et al., 2019, 2021).

Higher WAI-T ratings were present in employed patients compared with those not working/not studying patients. This result might be partially explained by the interplay between employment rate, social functioning, and self-esteem (Marwaha & Johnson, 2004), factors that in turn positively influence the therapeutic alliance. Furthermore, low employment is associated with more severe negative symptoms (Hakkaart-van Roijen et al., 2015), which in turn impair the ability to form a positive WA (Beaudette et al., 2020).

Finally, some literature suggests that a strong WA leads to greater employment rates through the development of self-employment motivation and engagement in vocational rehabilitation services (Iwanaga et al., 2019). Taken together, these factors may affect WAI-T, as found in our study. In fact, the level of work commitment of patients with SSD seems associated with greater satisfaction with social and living situations, involvement in a reliable alliance, friendship, work and/or study (Bejerholm, 2010). However, this result was not replicated for WAI-P. This could be related to the specific care setting in which our study was conducted. RFs are involved in the care pathway of patients with elevated needs of support in self-care, work, and social relationships. Therefore, the assessment of WA from the staff perspective might have been positively influenced by the higher level of autonomy of employed patients. Additionally, it is worth mentioning that only 12.5% of study sample reported a working condition.

A potential implication of these findings for clinical practice may be the need for increased awareness and emphasis on actively involving patients with higher levels of education in therapeutic relationships, using a peer-oriented approach to reduce the risk of paternalistic or assertive tendencies. Furthermore, the findings concerning WAI-T ratings in patients not actively engaged in occupational or educational pursuits suggest that the implementation of occupational therapy-based approaches in clinical practice, aimed at involving and empowering patients in meaningful and productive activities, may initiate a positive feedback loop in improving the quality of WA.

Clinical factors associated with the working alliance between patients and staff

Our findings show that a shorter duration of hospitalization (<1 year) is associated with higher WAI-P ratings. As a critical observation, it is imperative to acknowledge that the data pertaining to the duration of hospitalization was captured and categorized rather than treated as a continuous variable. This categorization may present certain limitations in the analysis and interpretation of the results.

This result is in line with previous studies on the relationship between the length of hospitalization and WA (Priebe et al., 2011; Shattock et al., 2018). One possible explanation is that there might be a progressive loss of trust in the overall care system (including staff) among patients who have been hospitalized for longer periods. RFs are conceptualized as rehabilitation centres aimed at improving independent

living, promoting social inclusion, and achieving personal recovery. These objectives should be gradually accomplished, and long-term permanence in RFs should be ideally avoided. However, it has been shown that the length of stay in Italian RFs is sometimes unlimited, with low turnover rates (de Girolamo et al., 2002, 2005). The situation is similar in other countries (Lamb & Bachrach, 2001; Priebe, 2003).

Additionally, the duration of hospitalization can be considered as a proxy of clinical severity. In this context, the decision to classify the variable as either exceeding or falling below a one-year duration was made in alignment with prior research, which demonstrated that patients with SSD exhibited a progressively prolonged duration of hospitalization exceeding 1 year, corresponding to the severity of negative symptoms (Oshima et al., 2003).

This is consistent with the association between symptom severity and WA, in line with previous studies (Beaudette et al., 2020; Browne et al., 2021; Davis & Lysaker, 2007; Fenton et al., 1997; Frank, 1990; Melau et al., 2015; Novick et al., 2015; Shattock et al., 2018; Solomon et al., 1995; Wykes et al., 2013). Specifically, global (i.e., BPRS) and negative symptoms (i.e., BNSS) are negatively associated with WAI ratings in patients and staff. Conversely, the level of functioning (i.e., SLOF) is positively associated with WA in both groups. Given the cross-sectional nature of the study, it is not possible to determine a cause-effect relationship. Therefore, our result can be interpreted bidirectionally. On the one hand, it is possible that higher symptom severity may increase the difficulties of both patients and staff in being engaged in a therapeutic relationship. On the other hand, lower WA may be associated with worse outcomes in terms of overall psychotic symptoms, as underlined by previous studies (Shattock et al., 2018).

One novel point of our study is the adoption of a specific scale for negative symptoms (i.e., BNSS). To date, findings on the relationship between negative symptoms and WA have been inconsistent possibly due to the evaluation of WA with different assessment scales as well as the measurement of negative symptoms. Although most studies have shown no significant associations between negative symptoms and WAI, they might have been underpowered to detect any significant findings (Shattock et al., 2018). Two studies (Jung et al., 2014; Lysaker et al., 2011) reported a significant correlation between baseline negative symptoms and patient-rated WAI during psychotherapy for people with SSD. Other studies have reported a significant relationship between poorer therapist-rated alliance and greater negative symptoms (Johansen, Iversen, et al., 2013; Jung et al., 2014; Wittorf et al., 2009, 2010).

In summary, our findings support the importance of efforts to reduce the length of full-time hospital admissions. It is important to prioritize the development of alternatives to full-time hospitalization for inpatients (AFTH; Gandré et al., 2017). The implementation of AFTH has the potential to reduce the length of full-time hospitalization and mitigate the severity of psychopathology by providing higher-quality care. Consequently, with appropriate development, the need for full-time hospitalization may be reduced, thereby promoting positive WA.

Furthermore, the existing literature provides evidence that the duration of full-time hospitalization for patients with SSD is associated with the severity of their negative symptoms (Capdevielle et al., 2013; Oshima et al., 2003). Our findings suggest a detrimental effect of negative symptom severity on WAI-P and WAI-T scores. Several innovative approaches, such as tailored cognitive behavioural therapy, have shown promising results in improving negative symptoms, although further replication of these findings is needed (Aleman et al., 2017). Overall, our findings suggest that implementation of these interventions may directly improve WA by improving negative symptoms and contribute to a reduction in the duration of full-time hospitalization, leading to further improvements in overall WA.

Furthermore, they show that adopting psychosocial intervention in order to improve functioning and reduce negative symptoms in patients with SSD is important for a better WA; in turn, achieving a higher WA may lead to better global functioning and enhanced recovery outcomes (Browne et al., 2019).

In contrast with previous studies (Chang et al., 2019; Johansen, Melle, et al., 2013; Wykes et al., 2013), patients' age or pharmacological regimens were not associated with WAI ratings. This result may be in part attributed to the recruitment setting (i.e., RFs). In outpatient settings, good medication adherence does require good WA, as shown by Chang et al. (2019). In RFs, medications are typically administered by staff, and patient adherence is strictly monitored. Thus, we may suggest that better WA is not required to improve adherence in people with SSD when adherence is already granted by the treatment setting.

Factors associated with high versus low discrepancy between WAI-T and WAI-P

After calculating the discrepancy between WAI-T and WAI-P, we found that older staff members had higher "Discrepancy total" and "Discrepancy agreement"; on the contrary, lower patients' age was associated with a higher 'Discrepancy relationship'. Finally, patients with less severe negative symptoms presented with higher 'Discrepancy agreement'.

To the best of our knowledge, there are no studies in the literature investigating the effect of staff members' age on the level of discrepancy between WAI-P and WAI-T. Regarding the age of the staff members, it could be hypothesized that the level of experience may be a mediator of the discrepancy of the WAI evaluations. Hersoug et al. (2001) found a negative correlation between staff members' experience and their WA ratings. This suggests that staff members with longer professional experience, in order to have realistic expectations, may exhibit reluctance in assigning higher WAI ratings until they feel confident about a stable alliance, and they are thoroughly convinced that the therapeutic process aligns effectively with the designated tasks and goals of the therapy (Hersoug et al., 2009). Staff members with higher work experience may tend to attribute conservatively lower WA mean ratings, thus accounting for the higher discrepancy resulting from our study.

We also found that younger patients were more likely to be classified in the group of high 'Discrepancy relationship'. Younger patients are characterized by different levels of inclination to recognize their illness and engage in treatment (insight), positive symptoms, and personality traits than older patients (Bielańska et al., 2016; Gerretsen & Pollock, 2011; Johansen, Melle, et al., 2013). To date, evidence has suggested that insight impairment is greatest in the early stages of illness and in later life while improving modestly during middle age. In one study, it was found that insight level was not associated with WAI-P but negatively associated with WAI-T, which may account for an increase in the discrepancy (Johansen, Iversen, et al., 2013).

Our findings emphasize the importance of establishing a positive WA with younger patients, as they tend to exhibit higher levels of 'Discrepancy relationship,' possibly due to their impaired illness awareness. This highlights the need for clinicians to choose tailored therapeutic interventions aimed at enhancing the propensity of patients with schizophrenia to recognize their illness, particularly for patients experiencing their first episode of psychosis. An example of such an intervention is Metacognitive Reflection Insight Therapy (MERIT), which represents a recovery-oriented psychotherapeutic and rehabilitative approach, contrasting problem-focused or symptom-based approaches (Lysaker et al., 2020).

Furthermore, the inverse relationship between age and positive psychotic symptoms is well-established (Peters et al., 2022). Improvements in positive symptoms, as well as negative symptoms, have been significantly related to WA assessed by staff members but not patients (Browne et al., 2021).

Strengths and limitations

Data from this cross-sectional study were leveraged from a large multicentric observational cohort. To the best of our knowledge, this is the largest study using WAI in patients with SSD and staff. In fact, in the 13 studies included in the review by Shattock et al. (2018), the mean sample size included 54.5 (±41.4) patients. Excluding Berry's study (Berry et al., 2015), this mean value decreases to 45.4 (±26.3). The patients' sample was homogeneous regarding their clinical characteristics, and the assessment did include a rather wide range of tools. Moreover, the multi-professional composition of our staff members may represent an additional value of our study that can count on the multifaceted evaluation of the WA. Additionally, some variables (e.g., lifetime duration of psychiatric hospitalizations) were coded as categorical as per DiAPASon protocol, with a potential loss of richness in data analysis.

However, each RF can adopt a different theoretical framework in providing psychiatric rehabilitation, and this could account for some heterogeneity with respect to previous data. Moreover, it is

important to note that our staff sample was composed of different healthcare categories working in RFs and this may have affected WA ratings; this may also explain the differences with the results of other studies. Finally, the cross-sectional nature of the study does not allow the drawing of cause-effect relationships.

To the best of our knowledge, this is the first investigation focused on a cohort of long-term patients diagnosed with SSDs in treatment at RFs. Previous research has evaluated the reliability and validity of the WA among individuals with SSDs in different settings, such as inpatient setting (Svensson & Hansson, 1999) or mixed settings, including both outpatients and inpatients (Goldsmith et al., 2015; Johansen, Melle, et al., 2013; Smerud & Rosenfarb, 2008).

CONCLUSIONS

WA may significantly influence treatment outcomes. Our study links WA to sociodemographic and clinical factors in people with SSD. Findings suggest the need to prioritize positive WA in better-educated and more clinically severe patients. Alternative care pathways and interventions that improve the propensity of patients with SSD to recognize their illness and psychosocial functioning may enhance the therapeutic alliance. The correlation between higher discrepancies in WA ratings and younger patient age, together with older staff age, highlights the potential role of age differences within the dyad in shaping a positive therapeutic alliance. Future longitudinal studies will clarify the impact of patient and staff characteristics on WA and long-term outcomes.

AUTHOR CONTRIBUTIONS

Laura Fusar-Poli: Conceptualization; methodology; writing – original draft; writing – review and editing. **Fabio Panariello:** Conceptualization; writing – original draft; writing – review and editing; methodology. **Katherine Berry:** Conceptualization; writing – review and editing; methodology. **Matteo Rocchetti:** Conceptualization; writing – review and editing; methodology; funding acquisition; project administration; investigation; resources. **Letizia Casiraghi:** Conceptualization; writing – review and editing; methodology; resources; investigation. **Matteo Malvezzi:** Conceptualization; writing – review and editing; methodology; formal analysis; software. **Fabrizio Starace:** Conceptualization; writing – review and editing; funding acquisition; project administration; resources; methodology. **Manuel Zamparini:** Conceptualization; writing – review and editing; methodology; software; formal analysis; data curation. **Cristina Zarbo:** Methodology; writing – review and editing; conceptualization; resources; project administration; data curation; investigation. **Giovanni de Girolamo:** Methodology; writing – review and editing; conceptualization; funding acquisition; investigation; project administration; resources.

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CONFLICT OF INTEREST STATEMENT

The authors declare that they have no competing interests.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions. Dataset referring to this manuscript is published with restricted access on Zenodo platform and accessible at this link: Zenodo link: https://doi.org/10.5281/zenodo.8138300.

ETHICS STATEMENT AND CONSENT TO PARTICIPATE

The study has been approved by the ethical committees (ECs) of the three main participating centres: EC of IRCCS Istituto Centro San Giovanni di DioFatebenefratelli (31/07/2019; no. 211/2019), EC of Area Vasta Emilia Nord (25/09/2019; no. 0025975/19), and EC of Pavia (02/09/2019, no. 20190075685).

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