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Review

The relationship between the therapeutic alliance and client variables in individual treatment for schizophrenia spectrum disorders and early psychosis: Narrative review

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HIGHLIGHTS

- Better medication adherence and recovery were related to both alliance perspectives.
- Less severe symptoms were related to better provider-rated alliance.
- Better insight and social support were related to better client-rated alliance.
- Better provider-rated alliance predicted better adherence and functioning.
- Better client-rated alliance was related to greater recovery outcomes.

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ABSTRACT

Given the high rates of treatment disengagement and medication nonadherence in individuals with schizophrenia spectrum disorders and early psychosis, fostering a strong alliance in treatment is critical. Moreover, the role of the therapeutic alliance extends beyond that in traditional psychotherapy because of the multifaceted nature of treatment. Thus, this review provides a comprehensive discussion of the relationship between the alliance and client variables across various provider types and individual treatments. This review summarizes existing research on (a) client correlates/predictors of the therapeutic alliance and on (b) the relationship between the alliance and client treatment outcomes in individual treatment for schizophrenia spectrum disorders and early psychosis. Parallel literature searches were conducted using PubMed and PsycINFO databases, which yielded 1202 potential studies with 84 studies meeting inclusion criteria. With regard to correlates/predictors, the existing evidence suggests that better insight, medication adherence, social support, and recovery variables were related to better client-rated alliance. Better medication adherence and recovery variables as well as less severe symptoms were related to better provider-rated alliance. In terms of alliance-outcome relationships, evidence suggests that a strong provider-rated alliance was predictive of improved functioning and medication and treatment adherence. There was some limited evidence that better client-rated alliance was related to improved recovery outcomes. Despite mixed results and heterogeneity among studies, this review suggests that a strong alliance can be beneficial in individual schizophrenia treatment. Thus, training and supervision of providers should emphasize developing a positive alliance, particularly with clients for whom developing an alliance may be difficult.

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1. Introduction

The therapeutic alliance, broadly defined as the client-therapist relationship, has been widely accepted as a critical element of psychotherapy. A positive alliance occurs when the client and therapist agree on both the treatment targets (goals) and the value of planned strategies to achieve them (tasks; Bordin, 1979; Horvath & Luborsky, 1993). Moreover, a high-quality alliance is characterized by collaboration, mutual trust, and support (bond; Bordin, 1979; Horvath & Luborsky, 1993). Decades of research have reported a moderate association between the alliance and outcomes across a variety of psychotherapies (Flückiger, Del Re, Wampold, Symonds, & Horvath, 2012; Horvath, Del Re, Flückiger, & Symonds, 2011; Martin, Garske, & Davis, 2000). Moreover, individuals with a stronger therapeutic alliance are less likely to drop out of psychotherapy (Sharf, Primavera, & Diener, 2010), further highlighting its impact on treatment engagement.

Although a considerable amount of research has examined the role of the therapeutic alliance in general adult psychotherapy, far less has focused on its relevance to the treatment of those with serious mental illnesses like schizophrenia. Schizophrenia is a chronic mental illness that most often results in the indefinite need for psychological and pharmacological treatment. Despite advances in treatment for this population in both the pharmacological and non-pharmacological realms, these individuals remain difficult to engage and maintain in treatment (Kreyenbuhl, Nossel, & Dixon, 2009). Disengagement from services and medication nonadherence often leads to relapse, risk of suicide, and high rates of inpatient hospitalizations that interrupt work, school, and outpatient programming (Higashi et al., 2013; Kreyenbuhl et al., 2009). As a result, it is commonplace for individuals with schizophrenia to receive several types of treatments from multiple providers of varying disciplines throughout their lives (Priebe & McCabe, 2006; Priebe, Richardson, Cooney, Adedeji, & McCabe, 2011). The multifaceted nature of schizophrenia treatment offers an opportunity to expand the study of the therapeutic alliance from the standard client-therapist relationship in psychotherapy to that which develops across treatments and with different types of providers.

A small number of reviews have examined the role of the alliance in schizophrenia treatment (Hewitt & Coffey, 2005; McCabe & Priebe, 2004; Priebe et al., 2011; Shattock, Berry, Degnan, & Edge, 2018). Hewitt and Coffey (2005) reviewed studies that examined the alliance in mental health nursing and concluded that a positive alliance is "necessary but not sufficient" (p. 567) to promote improved outcomes for persons with schizophrenia. Reviews by McCabe and Priebe (2004) and Priebe et al. (2011) evaluated studies of the alliance in psychiatric treatments for individuals with severe mental illnesses. Results indicated that the alliance is predictive of improved short-term and long-term client outcomes including fewer hospitalizations, improved symptoms, and better functioning (McCabe & Priebe, 2004; Priebe et al., 2011). Finally, a recent review by Shattock et al. (2018) examined the therapeutic alliance in psychological therapy for individuals with schizophrenia and provided further support that a positive alliance predicts improved treatment outcomes (e.g., psychotic symptoms, hospitalizations, medication use). Furthermore, they identified several client (e.g., insight, symptoms) and therapist (e.g., genuineness, empathy) characteristics that were predictive of the therapeutic alliance across studies. Nevertheless, there is no published review that has examined the role of the alliance *across treatments and provider types* exclusively in individual schizophrenia treatment. Moreover, since the existing reviews focused primarily on the association between the alliance and outcomes (with the exception of the Shattock et al., 2018 review), far less is known about the predictors and correlates of the alliance in this population.

The present review sought to address this gap by providing a comprehensive discussion of the relationship between the alliance and client variables in individual schizophrenia treatment. Given the heterogeneity in types of treatments and providers, this review focused on studies that examined *client* variables in individual treatment. Therefore, studies that only examined relationships between alliance and other types of variables (e.g., treatment condition, therapist characteristics, time, etc.) or those that examined other types of treatment modalities (e.g., group or family) were excluded. As such, this review summarized existing research on (a) client correlates/predictors of the therapeutic alliance and on (b) the relationship between the alliance and client treatment outcomes in individual treatment for schizophrenia spectrum disorders and early psychosis.

2. Literature search

PubMed and PsycINFO databases were searched for all peer-reviewed, English language articles available online between January 1, 1980 and December 31, 2017 using the search terms ("schizophrenia" OR "psychosis" OR "psychotic" OR "schizophrenia spectrum") AND ("alliance" OR "therapeutic relationship" OR "working relationship"). We selected 1980 as the cutoff given that the Diagnostic and Statistical Manual of Mental Disorders-Third Edition was published during that year, thereby facilitating more reliable diagnostic criteria for schizophrenia.

3. Inclusion criteria and search results

Studies were included in the present review if they met the following criteria: (1) at least 80% of the sample comprised individuals with schizophrenia spectrum disorders or individuals described as experiencing "first episode or early psychosis," (2) was an empirical study with quantitative data (i.e., reviews, case studies, and qualitative papers were excluded), (3) use of a validated therapeutic alliance scale (e.g., those reviewed in Martin et al., 2000 or equivalent scales with adequate psychometrics), (4) therapeutic alliance was assessed between client and mental health provider in the context of individual treatment (e.g., psychosocial interventions, medication management, psychotherapy), and (5) assessed the relationship between a validated therapeutic alliance scale and client variables in cross-sectional or prospective studies.

These database searches yielded 1202 potential studies once duplicates were removed. The lead author screened articles systematically by title, abstract, and full-text (Fig. 1). Upon review, 84 studies met inclusion criteria. The first (JB) and second (AN) authors coded all 84 studies for the following characteristics: sample and provider type, intervention and assessment points, alliance measure(s) and rater perspective(s), primary client variable(s), and main alliance findings (See appendices for description of all included studies). Of the 84 studies, 72 included analyses examining predictors or correlates of the alliance (i.e., cross-sectional designs or studies in which client variables were measured prior to the alliance) and 30 included analyses examining relationships between the alliance and subsequent client outcomes (i.e., prospective studies in which alliance was measured prior to outcomes). Eighteen studies included both types of analyses.

The first (JB) and second (AN) authors also calculated proportions of studies reporting significant/not significant findings across several categories of variables (Note: proportions were calculated separately for client-rated, therapist-rated, and observer-rated alliance, which results in different totals across categories; Tables 1 and 2). When studies included correlations and regression/linear mixed modeling analyses on the same variables (or several regression/linear mixed models), they were coded as significant/not significant based on findings from final models. Further, if studies examined multiple variables within a given category (e.g., positive symptoms and negative symptoms would both fall under the category of illness-related characteristics), studies were coded as significant if *any* of the variables were significant and only coded as not significant if *all* variables in a given category were not significant.

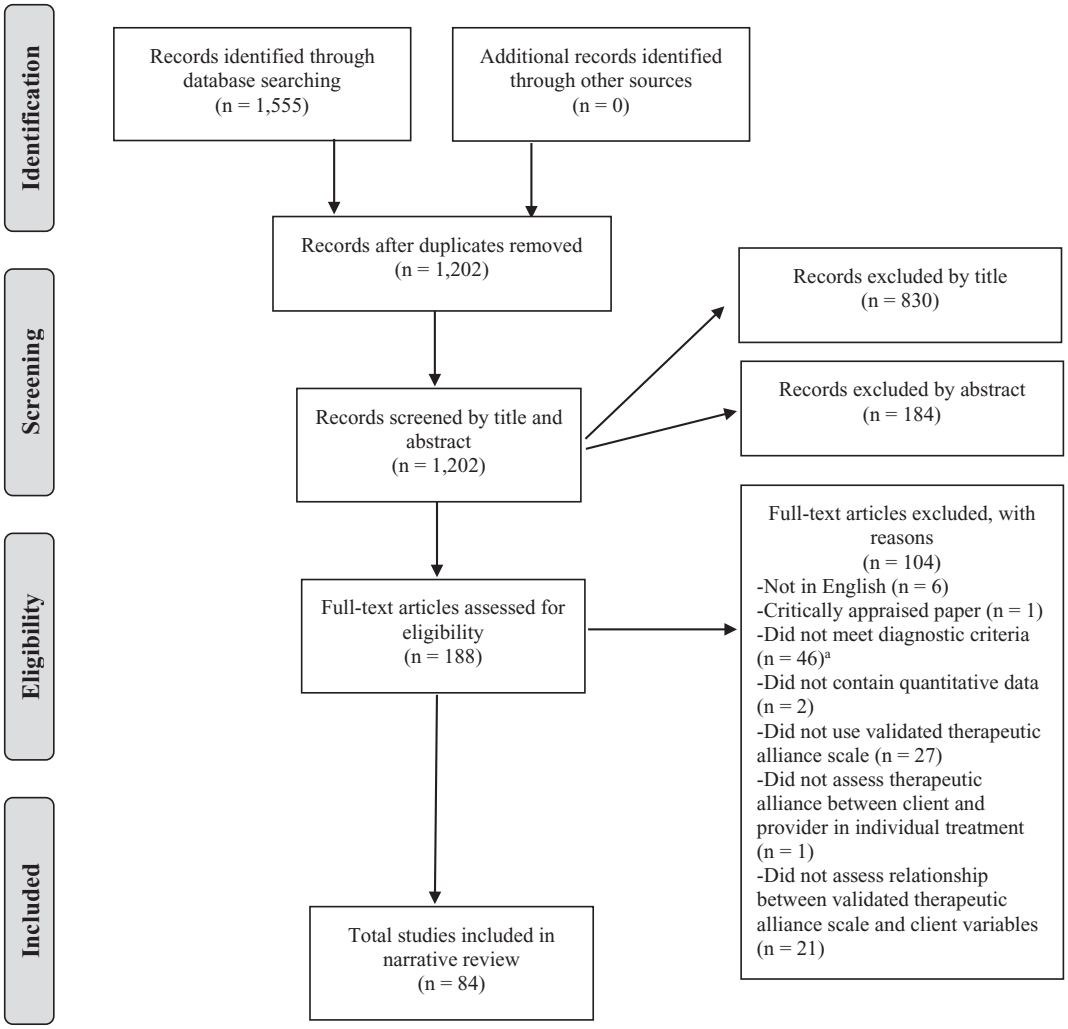

Fig. 1. PRISMA flow diagram.
Note. All records that were not published journal articles (i.e., books, conference papers, book chapters, panels, dissertations/theses) were screened out at the title level. When full-text articles were excluded for more than one reason, only the first reason (based on the inclusion criteria order listed in this figure) was noted.
[a] Five studies did not report the percentage of individuals with schizophrenia spectrum disorder diagnoses or first episode/early psychosis in the sample. As a result, these papers were excluded from the review (and coded as not meeting this paper's diagnostic criteria).

4. Correlates and predictors of the therapeutic alliance

Seventy-two studies examined various correlates/predictors of the alliance across several types of treatments including psychological therapy (k = 24), hospital services or day programs (k = 16), mental health services (k = 12), psychiatric services (i.e., medication; k = 11), early intervention services (k = 3), vocational interventions (k = 3), cognitive remediation (k = 2), and psychiatric rehabilitation (k = 1). Additionally, the alliance was measured between clients and therapists (k = 32), psychiatrists/prescribers (k = 19), mental health staff or clinicians (k = 16), case managers (k = 3), and vocational workers and clinical keyworkers (e.g., case managers; k = 2). Finally, the alliance was assessed from the perspective of the client only (k = 24), provider only (k = 8), observer only (k = 2), client and provider (k = 37), or observer and provider (k = 1).

4.1. Illness-related characteristics

Illness-related characteristics including symptoms, remission, illness severity, and hospitalizations were the most commonly examined correlates and predictors of the alliance (38/72 studies). With regard to provider-rated alliance, several studies reported that less severe total symptoms were significantly related to better provider-rated alliance when the alliance was measured from the psychiatrist's perspective (Donnelly et al., 2011; Hamann, Cohen, Leucht, Busch, & Kissling, 2007; Hamann, Kruse, Schmitz, Kissling, & Pajonk, 2010; Widschwendter et al., 2016). Furthermore, lower severity of specific domains of symptoms was significantly related to better provider-rated alliance. Specifically, less severe positive (Catty et al., 2010; Donnelly et al., 2011; Wittorf et al., 2009), negative (Catty et al., 2010; Cechnicki, Chechlińska, Stork, & Wojnar, 2000; Donnelly et al., 2011; Jung, Wiesjahn, & Lincoln, 2014; Wittorf et al., 2010), disorganized (Cavelti, Homan, & Vauth, 2016; Lysaker, Davis, Buck, Outcalt, & Ringer, 2011), and depressive (Huddy, Reeder, Kontis, Wykes, & Stahl, 2012) symptoms, as well as lower activation and autistic preoccupation (Couture et al., 2006) were related to better provider-rated alliance. Further, less severe negative symptoms were correlated with better therapist-rated alliance in two studies; however, they were not significant in regression analyses in combination with additional variables (Johansen, Iversen, Melle, & Hestad, 2013; Wittorf et al., 2009). Interestingly, two studies noted significant relationships in the opposite direction such that more severe depression (Barrowclough, Meier, Beardmore, & Emsley, 2010) and increased anxiety (Catty et al., 2011) were associated with better provider-rated alliance. Finally, better

Table 1
Box score for studies examining correlates and predictors of the alliance (k = 66)[a].

Domain[b,c]	Client-rated alliance	Provider-rated alliance	Observer-rated alliance
Illness-related characteristics (k = 38)			
Significant	15[d]	16[d]	0
Not Significant	15	10	1
Insight (k = 24)			
Significant	14[e]	6	0
Not Significant	9	8	0
Medication-related beliefs, behaviors, and experiences (k = 22)			
Significant	15	7	0
Not Significant	5	1	0
Domains of functioning (k = 21)			
Significant	8	7	0
Not Significant	11	9	0
Demographic and personality characteristics (k = 17)			
Significant	7	6	0
Not Significant	8	4	1
Recovery characteristics (k = 13)			
Significant	9[e]	3	1
Not Significant	2	1	0
Interpersonal characteristics (k = 10)			
Significant	6	1	0
Not Significant	4	4	0

Note. The table above illustrates the number of studies that reported significant/not significant findings for each of the specified domains. As noted in the main text, studies were coded as significant if *any* of the variables in a given category were significant and only coded as not significant if *all* variables in a given category were not significant.

[a] Six studies identified in this review did not fall into one of the above categories and thus, were not described in the above table. Appendix A, however, describes all 72 studies examining correlates and predictors of the alliance that met the inclusion criteria for this review.

[b] Several studies examined multiple domains. As such, domain totals do not sum to total unique studies.

[c] Domain totals represent number of studies that examined the relationship between the alliance (from any perspective) and the specific domain. Domain totals are not simply the sum of client-rated, provider-rated, and observer-rated given that several studies included more than one alliance perspective.

[d] Two studies reported significant results in the opposite direction of expected.

[e] One study reported significant results in the opposite direction of expected.

provider-rated alliance was shown to correlate with remission status (Catty et al., 2010; Catty et al., 2011) and fewer past hospitalizations (Prince, 2007).

A smaller number of studies reported non-significant findings between provider-rated alliance and any symptom domain (Berry, Gregg, Lobban, & Barrowclough, 2016; Evans-Jones, Peters, & Barker, 2009; Hofer, Habermeyer, Mokros, Lau, & Gairing, 2015; Johansen, Melle, Iversen, & Hestad, 2013; Mulligan et al., 2014; Ruchlewska, Kamperman, van der Gaag, Wierdsma, & Mulder, 2016), or number of inpatient admissions (Evans-Jones et al., 2009). Further, several studies that noted significant relationships between provider-rated alliance and certain symptom domains also reported non-significant findings between alliance and other symptom domains (For an example, refer to Couture et al., 2006). In addition to symptom-based measures, no differences in provider-rated alliance were found between clients with and without a sexual assault/trauma history[1] (Lysaker, Davis, Outcalt, Gelkopf, & Roe, 2011; Picken, Berry, Tarrier, & Barrowclough, 2010) or a comorbid personality disorder diagnosis (Fornells-Ambrojo et al., 2015). Lastly, in an observer-rated alliance study, Davis and Lysaker (2007) found that individuals with higher alliance did not differ from those with lower alliance in terms of lifetime hospitalizations or symptom severity.

[1] Sexual assault/trauma history was coded as an illness-related characteristic given the impact of such experiences on symptoms of psychosis.

Table 2
Box score for studies examining alliance and outcomes (k = 30).

Domain[a,b]	Client-rated alliance	Provider-rated alliance	Observer-rated alliance
Illness-related characteristics (k = 14)			
Significant	2	4	0
Not Significant	8	5	0
Domains of functioning (k = 13)			
Significant	3	7	1
Not Significant	6	4	0
Medication and treatment adherence (k = 10)			
Significant	3	6	1
Not Significant	3	2	0
Recovery characteristics (k = 7)			
Significant	4	2	0
Not Significant	3	4	0

Note. The table above illustrates the number of studies that reported significant/not significant findings for each of the specified domains. As noted in the main text, studies were coded as significant if *any* of the variables in a given category were significant and only coded as not significant if *all* variables in a given category were not significant.

[a] Several studies examined multiple domains. As such, domain totals do not sum to total unique studies.

[b] Domain totals represent number of studies that examined the relationship between the alliance (from any perspective) and the specific domain. Domain totals are not simply the sum of client-rated, provider-rated, and observer-rated given that several studies included more than one alliance perspective.

Very inconsistent results were reported between illness-related variables and client-rated alliance. Specifically, less severe total (Berry et al., 2016; Donnelly et al., 2011; Hamann et al., 2010; Tessier et al., 2017; Wykes, Rose, Williams, & David, 2013), positive (Donnelly et al., 2011; Lysaker, Davis, Buck, et al., 2011; Tessier et al., 2017; Wittorf et al., 2010), negative (Berry et al., 2016; Donnelly et al., 2011; Lysaker, Davis, Buck, et al., 2011; Melau et al., 2015), and disorganized/thought disorder (Lysaker, Davis, Buck, et al., 2011; McCabe & Priebe, 2003; Melau et al., 2015) symptoms were related to better client-rated alliance. Moreover, lower hostility, anxiety and depression, and illness severity were significantly associated with better client-rated alliance (Bayle, Tessier, Bouju, & Misdrahi, 2015; Hofer et al., 2015; McCabe & Priebe, 2003; Tessier et al., 2017). Better client-rated alliance was also significantly correlated with less severe excitative, depressive, and negative symptoms; however, results were not significant when examined in final regression/linear mixed modeling analyses in combination with other variables (Johansen, Iversen, et al., 2013; Johansen, Melle, et al., 2013; Jung et al., 2014). Further, client-rated alliance was significantly correlated with dysphoric mood, activation, anxiety, and depression, but only depression remained significant when all of these variables (as well as a measure of social skills) were examined in regression analyses (Huddy et al., 2012). As was the case in provider-rated alliance work, two studies reported significant relationships in the opposite direction such that more severe total symptoms (Ruchlewska et al., 2016) and depression (Mulligan et al., 2014) were related to better client-rated alliance. Finally, clients without a history of sexual assault had a significantly higher client-rated alliance with their therapist than clients with a sexual assault history (Lysaker, Davis, Outcalt, et al., 2011).

Nevertheless, a substantial number of studies did not find significant relationships between client-rated alliance and any symptom domain (Bourdeau, Théroux, & Lecomte, 2009; Cavelti et al., 2016; Couture et al., 2006; Day et al., 2005; Evans-Jones et al., 2009; Jung, Wiesjahn, Rief, & Lincoln, 2015; Kvrgic, Cavelti, Beck, Rüsch, & Vauth, 2013;

Staring, van der Gaag, & Mulder, 2011; Widschwendter et al., 2016; Wittorf et al., 2009). In addition, hostility and suspicion were not related to client-rated alliance in one study (Dunn, Morrison, & Bentall, 2006).

Overall, existing research is highly mixed and contradictory with regard to relationships between illness-related characteristics and client-rated (15/30 studies reported any significant findings although 2/15 were in the opposite direction of expected) and provider-rated (16/26 studies reported any significant findings although 2/26 were in the opposite direction of expected) perspectives of the alliance. Findings were slightly less mixed when considering only the studies that examined relationships between symptom severity and the alliance. Specifically, there seems to be more evidence that less severe symptoms were significantly related to better provider-rated alliance (13/22 studies reported significant findings in this direction) as compared to client-rated alliance (11/28 studies reported significant findings in this direction). Despite the significant heterogeneity, there appears to be some support that symptom severity is related to provider ratings but not client ratings of the alliance.

4.2. Insight

A substantial number of studies examined relationships between insight and the therapeutic alliance, almost all of which included an alliance measure rated from the perspective of the client (23/24 studies). Thirteen of these twenty three studies reported that better insight and awareness of the need for treatment were significantly related to better client-rated alliance (Barrowclough et al., 2010; Bayle et al., 2015; Berry et al., 2016; Day et al., 2005; Dunn et al., 2006; Hamann et al., 2010; Helene, Helene, Jean, Jean-Marc, & Antoinette, 2014; Kvrgic et al., 2013; Lysaker, Davis, Buck, et al., 2011; Misdrahi, Petit, Blanc, Bayle, & Llorca, 2012; Ruchlewska et al., 2016; Wittorf et al., 2009; Wittorf et al., 2010). One study noted a significant relationship in the opposite direction such that poorer insight was related to better client-rated alliance (Bourdeau et al., 2009). Despite a number of studies reporting significant relationships, several others reported non-significant associations between insight and client-rated alliance (Cavelti et al., 2016; Evans-Jones et al., 2009; Huddy et al., 2012; Johansen, Iversen, et al., 2013; Johansen, Melle, et al., 2013; Jung et al., 2014; Jung et al., 2015; Staring et al., 2011; Tessier et al., 2017).

Mixed results were present in provider-rated alliance work with five studies reporting significant relationships between insight and alliance (Barrowclough et al., 2010; Hamann et al., 2010; Johansen, Iversen, et al., 2013; Johansen, Melle, et al., 2013; Novick et al., 2015) and seven studies reporting non-significant findings (Berry et al., 2016; Cavelti et al., 2016; Evans-Jones et al., 2009; Huddy et al., 2012; Jung et al., 2014; Wittorf et al., 2010; Wittorf et al., 2009). Moreover, better illness awareness (Ruchlewska et al., 2016) but not awareness of treatment need (Lysaker, Davis, Buck, et al., 2011) was related to better provider-rated alliance.

Overall, there appears to be more support that better insight and awareness of treatment needs are related to better client-rated (13/23 studies reported significant relationships in this direction) but not provider-rated (6/14 studies reported significant relationships) alliance across various treatment and provider types.

4.3. Medication-related beliefs, behaviors, and experiences

Medication-related beliefs, behaviors, and experiences were examined in a sizeable number of studies, the majority of which examined the alliance from the client's perspective (20/22 studies). This work illustrated that better medication adherence was significantly associated with better client-rated alliance with one's psychiatrist (Bayle et al., 2015; Dassa et al., 2010; Holzinger, Löffler, Müller, Priebe, & Angermeyer, 2002; Jaeger, Weisshaupt, Flammer, & Steinert, 2014; Misdrahi et al., 2012; Misdrahi, Verdoux, Lancon, & Bayle, 2009; Tessier et al., 2017) or with one's case manager (Montreuil et al., 2012). Further, better client-rated alliance with one's clinician was significantly associated with increased odds of better medication adherence among those receiving community mental health services (McCabe et al., 2012). Lincoln et al. (2016) examined relationships between alliance and medication refusal and found that clients who had refused antipsychotic medication for at least three months had significantly lower client-rated alliance with their psychiatrist than those who had taken antipsychotic medication for at least three months. A cross-sectional study showed that client-rated alliance with one's clinician enhanced illness representation (i.e., beliefs and understanding of one's illness), which led to an intention to change adherence behavior (Rungruangsiripan, Sitthimongkol, Maneesriwongul, Talley, & Vorapongsathorn, 2011). In addition to adherence-related measures, more positive attitudes toward medication and a better subjective experience of medication (including having fewer side effects) were related to better client-rated alliance with one's clinician (Bourdeau et al., 2009) or with one's psychiatrist (Day et al., 2005; Hamann et al., 2010). Lastly, in a randomized controlled trial of antipsychotic medication, Wykes et al. (2013) reported a significant decline in client-rated alliance with one's psychiatrist over two years for those receiving long-acting injectable medication but not for those receiving oral medication. Fewer studies reported non-significant findings between medication attitudes or adherence and client-rated alliance with one's therapist (Barrowclough et al., 2010; Jung et al., 2014; Lecomte et al., 2008) or with one's psychiatrist (Chen, Wu, & Huang, 2014; Widschwendter et al., 2016).

Similarly to client-rated alliance studies, better medication adherence was related to better alliance as rated by one's case manager (Montreuil et al., 2012), therapist (Jung et al., 2014; Weiss, Smith, Hull, Piper, & Huppert, 2002), or treatment coordinator (Corriss et al., 1999). Better clinician-rated alliance was associated with increased odds of better medication adherence (McCabe et al., 2012). Further, more positive medication attitudes were related to better psychiatrist-rated (Hamann et al., 2010; Widschwendter et al., 2016) and therapist-rated (Barrowclough et al., 2010) alliance. Medication adherence was significantly correlated with therapist-rated alliance; however, it was not significant when examined in linear mixed modeling analyses along with additional variables (Jung et al., 2014).

Taken together, the existing evidence suggests that better medication adherence, more positive attitudes toward medication, and a better subjective experience of medication are related to better client-rated (15/20 studies reported significant findings) and provider-rated (7/8 studies reported significant findings) alliance across various treatment and provider types.

4.4. Domains of functioning

Twenty-one studies examined relationships between several domains of functioning (e.g., global, social, neurocognitive, and vocational) and the alliance. Better global functioning was significantly associated with better vocational worker-rated alliance (particularly symptoms and disability components of functioning; Catty et al., 2010) as well as better psychiatrist-rated and nurse-rated alliance (Donnelly et al., 2011). Furthermore, less overall social disability and fewer social problems were significantly related to better provider-rated alliance (Catty et al., 2010; Catty et al., 2011; Couture et al., 2006; Ruchlewska et al., 2016). Better social functioning was significantly correlated with better therapist-rated alliance; however, results were not significant when examined in linear mixed modeling analyses along with additional variables (Jung et al., 2014). Finally, Riehle et al. (2015) found that poor rapport with an interviewer (measured by a single item on Positive and Negative Syndrome Scale and hypothesized to serve as a proxy for interpersonal functioning) was significantly related to poor therapist-rated alliance. In terms of neurocognitive functioning, better visual spatial reasoning was significantly associated with better

therapist-rated alliance among those receiving cognitive behavioral therapy (Davis & Lysaker, 2004).

Several studies reported non-significant findings between provider-rated alliance and domains of functioning including global functioning (Berry et al., 2016; Cavelti et al., 2016; Jung et al., 2014), social functioning, social skills, or interpersonal problems (Barrowclough et al., 2010; Huddy et al., 2012; Johansen, Melle, et al., 2013; Mulligan et al., 2014), neurocognition or theory of mind emotion (Johansen, Iversen, et al., 2013; Jung et al., 2014), and employment level (Evans-Jones et al., 2009).

Similarly to provider-rated alliance studies, overall mixed findings were present among studies that examined associations between client-rated alliance and functioning measures. Specifically, better global (Donnelly et al., 2011; Tessier et al., 2017) and social functioning (Melau et al., 2015) as well as fewer submissive/hostile interpersonal problems (Johansen, Melle, et al., 2013) were significantly related to better client-rated alliance. Additionally, better social skills were significantly related to better client-rated alliance; however, it was not significant when examined in final regression models in combination with other variables (Huddy et al., 2012). Similarly, better global functioning was significantly correlated with better client-rated alliance; however, it was not significant when examined in linear mixed modeling analyses along with additional variables (Jung et al., 2014). Moreover, better mastery (an aspect of metacognition defined as an "awareness of one's and other's thoughts and feelings"; Davis, Eicher, & Lysaker, 2011, p. 86) and better theory of mind emotion (Jung et al., 2014) were significantly associated with better client-rated alliance. Yet, poorer verbal memory was significantly correlated with better client-rated alliance (Davis & Lysaker, 2004). Finally, lacking a work history was significantly predictive of better client-rated alliance among those receiving a vocational intervention (Catty et al., 2011).

Non-significant relationships were reported between client-rated alliance and global functioning (Berry et al., 2016; Cavelti et al., 2016; Misdrahi et al., 2009), social functioning (Barrowclough et al., 2010; Catty et al., 2011; Couture et al., 2006; Jung et al., 2014; Mulligan et al., 2014; Wykes et al., 2013), social problems (Ruchlewska et al., 2016), neurocognition (Johansen, Iversen, et al., 2013), and employment level (Evans-Jones et al., 2009).

Overall, existing work suggests mixed results regarding relationships between social functioning factors and provider-rated alliance (5/10 reported significant relationships). Yet, social functioning factors do not appear to be consistently related to client-rated alliance (2/10 studies reported significant relationships). Finally, existing work suggests that global functioning is not reliably related to provider-rated alliance (2/5 reported significant relationships) or client-rated (2/6 reported significant relationships) alliance.

4.5. Demographic and personality characteristics

Seventeen studies examined relationships between demographic and personality characteristics and the alliance. Specifically, provider-rated alliance was significantly better for clients that were female, married, and living with a family member (Barrowclough et al., 2010; Hamann et al., 2010; Ruchlewska et al., 2016). Better alliance was also reported when clients and their vocational workers were the same sex (Catty et al., 2011). Moreover, lower levels of neuroticism were significantly related to better therapist-rated alliance (Bielanska, Cechnicki, & Hanuszkiewicz, 2016). In terms of age, one study found that older clients had a significantly better therapist-rated alliance than younger clients (Haddock et al., 2006) whereas others did not find age to be related to alliance (Evans-Jones et al., 2009; Huddy et al., 2012; Johansen, Iversen, et al., 2013; Johansen, Melle, et al., 2013). Further, provider-rated alliance was not significantly related to matching of client and therapist demographic factors including age, gender, and ethnicity (Evans-Jones et al., 2009). Finally, in an observer-rated alliance study, individuals with higher alliance did not differ significantly from those with lower alliance on age or education (Davis & Lysaker, 2007).

Better client-rated alliance was significantly related to being female, married, and an immigrant (Chen et al., 2014; Evans-Jones et al., 2009; Ruchlewska et al., 2016). In addition, higher levels of conscientiousness were significantly related to better client-rated alliance (Bielanska et al., 2016). Findings with regard to age were quite mixed in that some studies reported that better client-rated alliance was associated with older age (Johansen, Iversen, et al., 2013; Johansen, Melle, et al., 2013; McCabe & Priebe, 2003) whereas others reported non-significant relationships (Haddock et al., 2006; Hamann et al., 2010; Huddy et al., 2012; Kvrgic et al., 2013; Misdrahi et al., 2009). Further, Bielanska et al. (2016) reported that younger age was significantly related to better client-rated alliance. Non-significant findings were also reported between client-rated alliance and demographic characteristics including gender, ethnicity, and education (Barrowclough et al., 2010; Hamann et al., 2010; Melau et al., 2015; Misdrahi et al., 2009; Wykes et al., 2013).

In summary, there appears to be more evidence that demographic and personality factors are related to provider-rated (6/10 studies reported any significant findings) rather than client-rated (7/15 studies reported any significant findings) alliance. Yet, due to the heterogeneity in demographic variables examined and relatedly, the small number of studies examining a given variable, these results should be interpreted with caution.

4.6. Recovery characteristics

Recovery characteristics, or aspects that contribute to a client's overall sense of purpose and well-being as well as to one's ability to cope with life's challenges, are often the backbone of consumer definitions of recovery (Bellack, 2006). A number of these characteristics were examined in relation to the alliance including subjective quality of life, goal attainment, emotion regulation, stigma, and recovery style (i.e., the way in which an individual views and makes sense of their experience of psychosis). The few studies that examined these variables in relation to provider-rated alliance found that better quality of life (Catty et al., 2010), a more integrated recovery style (Startup et al., 2006), and better goal attainment (Gehrs & Goering, 1994) were related to better alliance. Yet, emotion regulation was not significantly related to provider-rated alliance (Owens, Haddock, & Berry, 2013). In the only study to examine relationships between these variables and observer-rated alliance, Startup et al. (2006) found that a more integrated recovery style was significantly related to better alliance.

A larger number of studies examined relationships between recovery characteristics and client-rated alliance. Specifically, better client-rated alliance was significantly associated with lower levels of self-stigma and perceived stigma (Chen et al., 2014; Kvrgic et al., 2013), better goal attainment (Gehrs & Goering, 1994), more hope and recovery (Hicks et al., 2012), and better emotion regulation (Owens et al., 2013). Several studies also reported that greater quality of life and satisfaction about several aspects of one's life were significantly related to better client-rated alliance (McCabe, Roder-Wanner, Hoffmann, & Priebe, 1999; Reininghaus, McCabe, Burns, Croudace, & Priebe, 2011; Wykes et al., 2013). One study, however, noted that lower quality of life was related to better client-rated alliance (Bourdeau et al., 2009). Non-significant findings were reported between client-rated alliance and internalized stigma (Helene et al., 2014) as well as with recovery style (Staring et al., 2011).

Overall, despite the small number of studies and heterogeneity in variables, there appears to be some support that recovery characteristics are related to provider-rated (3/4 studies reported significant findings), client-rated (9/11 studies reported significant findings although one of these studies reported findings in the opposite direction of expected), and potentially to observer-rated (sole study examining this perspective reported significant findings) alliance.

4.7. Interpersonal characteristics

A small number of studies examined relationships between the alliance and interpersonal characteristics such as attachment (i.e., interpersonal style thought to consist of two primary dimensions: avoidance and anxiety; Berry, Barrowclough, & Wearden, 2008), social contacts, and social support. In terms of provider-rated alliance, lower attachment avoidance was significantly related to better alliance in one study (Berry et al., 2008); however, non-significant relationships were reported in three other studies (Berry et al., 2015; Cavelti et al., 2016; Kvrgic et al., 2012). The only other interpersonal characteristic examined within provider-rated work was social contacts, which was not related to the alliance (Evans-Jones et al., 2009). When clients rated the alliance, results regarding attachment were similarly mixed in that two studies showed significant relationships (Berry et al., 2008; Kvrgic et al., 2012) and three did not (Berry et al., 2015; Cavelti et al., 2016; Kvrgic et al., 2013). In terms of other interpersonal variables, having friends (Bourdeau et al., 2009) and reporting higher levels of social support (Helene et al., 2014; Ruchlewska et al., 2016; Rungruangsiripan et al., 2011) were significantly related to better client-rated alliance. Yet, social contacts were not related to client-rated alliance (Evans-Jones et al., 2009).

Overall, better social support was most consistently related to better client-rated alliance (3 studies). In terms of attachment, existing work does not support relationships with provider-rated (1/4 studies reported significant findings) or client-rated (2/5 studies reported significant relationships) alliance.

5. The therapeutic alliance and outcomes

Thirty studies examined the prospective relationship between the alliance and a variety of outcome domains across several types of treatments including psychological therapy (k = 9), mental health services (k = 7), hospital services (k = 6), vocational interventions (k = 3), cognitive remediation (k = 2), psychiatric services (i.e., medication; k = 1), early intervention services (k = 1), and psychiatric rehabilitation (k = 1). Additionally, the alliance was measured between clients and therapists (k = 16), mental health staff or clinicians (k = 6), psychiatrists/prescribers (k = 4), case managers (k = 2), and vocational workers and clinical keyworkers (e.g., case managers; k = 2). Finally, the alliance was assessed from the perspective of the client only (k = 6), provider only (k = 8), observer only (k = 1), client and provider (k = 14), or observer and provider (k = 1).

5.1. Illness-related characteristics

Illness-related characteristics such as symptoms, remission status, and hospitalizations were most commonly examined among prospective alliance-outcome studies (14/30 studies). Results suggest that a strong client-rated alliance with one's therapist was significantly predictive of improvements in total symptoms among those receiving psychological therapy for substance use and psychosis (Berry et al., 2016). Further, better client-rated alliance was correlated with less severe general and negative symptoms at the end of cognitive behavioral therapy; however, neither therapist nor client variability in the alliance were related to these outcomes when multilevel models were conducted (Jung et al., 2014). Goldsmith, Lewis, Dunn, and Bentall (2015) demonstrated that in the presence of a strong client-rated alliance with one's therapist, attending more therapy sessions was associated with better total symptoms whereas in the presence of a negative alliance, attending more therapy sessions resulted in a worsening of symptoms. Nevertheless, several studies did not find significant associations between client-rated alliance and illness-related outcomes. Specifically, client-rated alliance with one's therapist was not significantly associated with symptoms or remission status among those receiving psychological therapy in a different group of studies (Berry et al., 2015; Dunn et al., 2006; Staring et al., 2011; Svensson & Hansson, 1999) or among those receiving cognitive remediation (Cella and Wykes, n.d.). Additionally, client-rated alliance with one's vocational worker was not significantly predictive of symptoms, rehospitalization, or remission among individuals receiving a vocational intervention (Catty et al., 2010), though the focus of the alliance in this context is to improve work rather than clinical outcomes. Further, client-rated alliance with one's clinician was not significantly predictive of the number of inpatient psychiatric days among those receiving community psychiatric services (Reininghaus et al., 2013).

When the alliance was assessed from the perspective of the provider, similarly mixed results emerged. On the one hand, a better therapist-rated alliance was significantly associated with reductions in global psychopathology, positive symptoms, and hospitalizations among those receiving psychological therapy (Frank & Gunderson, 1990). Further, strong vocational worker-rated alliance was also significantly predictive of better global, positive, negative, and general symptoms, and with remission among those receiving a vocational intervention (Catty et al., 2010). In addition, better clinician-rated alliance was significantly predictive of fewer psychiatric inpatient days (Reininghaus et al., 2013) among those receiving community psychiatric services. Finally, Byrne and Deane (2011) found support for the predictive model in which clinician-rated alliance significantly predicted insight into the need for treatment, which in turn significantly predicted medication adherence, which subsequently predicted symptoms among those receiving community-based mental health services. On the other hand, the strength of the therapist-rated alliance was not significantly related to symptoms among those receiving psychological therapy (Berry et al., 2015; Jung et al., 2014; Svensson & Hansson, 1999). Moreover, among those receiving inpatient hospital services, clinician-rated (Olfson et al., 1999) or psychiatrist-rated (Hamann et al., 2007) alliance was not significantly related to rehospitalization.

Taken together, the existing literature suggests that neither client-rated alliance (2/10 studies reported significant relationships) nor provider-rated (4/9 studies reported significant relationships) alliance was consistently related to illness-related outcomes.

5.2. Domains of functioning

A number of studies that examined the impact of the alliance on global, social, cognitive, and vocational functioning revealed significant relationships when the alliance was assessed from the provider's perspective (7/11 studies). Specifically, better mental health staff-rated alliance was significantly associated with more social and vocational activity among individuals receiving outpatient services (Berry & Greenwood, 2015). Moreover, a strong vocational worker-rated alliance was significantly predictive of less overall social disability and better functioning (particularly symptoms and disability; Catty et al., 2010) as well as of entering competitive employment (Catty et al., 2008). In addition, better therapist-rated alliance was associated with better social functioning (Frank & Gunderson, 1990) and global functioning (Svensson & Hansson, 1999) among those receiving psychological therapy. A strong provider-rated alliance was also significantly predictive of improved global and community functioning when the alliance was assessed from the perspective of one's psychiatrist (Novick et al., 2015) or one's case manager (Hopkins & Ramsundar, 2006). Finally, just one study examined the alliance from the observer perspective and found that clients with higher alliance ratings with their therapists in a cognitive behavioral therapy-based vocational rehabilitation program performed better in work quality than those with lower alliance ratings (Davis & Lysaker, 2007).

In comparison to studies that reported significant relationships between provider-rated (or observer-rated) alliance and improvements in multiple domains of functioning, far fewer did not find such relationships. Specifically, therapist-rated alliance was not significantly predictive of global or social functioning among those in psychological

therapy (Berry et al., 2015; Berry et al., 2016; Jung et al., 2014) or of working memory among those in cognitive remediation (Huddy et al., 2012).

In terms of client-rated alliance, Berry et al. (2016) reported a significant relationship with global functioning among those receiving psychological therapy. Further, a better client-rated alliance with one's vocational worker was significantly predictive of entering employment among those receiving a vocational intervention (Catty et al., 2008). For individuals receiving cognitive remediation, better client-rated alliance was related to improvements in non-verbal memory, executive functions, and functioning (i.e., spending more time engaged in structured activities; Cella & Wykes, In Press). Nonetheless, a larger number of studies (k = 6) reported non-significant findings between client-rated alliance and domains of functioning including global functioning (Berry et al., 2015; Jung et al., 2014; Svensson & Hansson, 1999), working memory (Huddy et al., 2012), social functioning or social disability (Catty et al., 2010; Jung et al., 2014), and vocational activity (Berry & Greenwood, 2015).

Overall, more evidence suggests that a strong provider-rated (7/11 studies reported any significant findings) but not client-rated (3/9 studies reported any significant findings) alliance was predictive of improved functioning.

5.3. Medication and treatment adherence

The majority of studies that examined associations between the alliance and indicators of adherence reported significant findings when the alliance was assessed from the provider's perspective (6/8 studies). Specifically, a strong therapist-rated alliance was significantly associated with clients attending more therapy sessions and remaining in therapy longer (Berry et al., 2016; Frank & Gunderson, 1990; Startup et al., 2006). Better provider-rated alliance was also significantly predictive of improved medication adherence when the alliance was assessed from the perspective of a therapist (Frank & Gunderson, 1990; Weiss et al., 2002), a case manager (Montreuil et al., 2012), or a clinician (Olfson et al., 2000). Finally, in a study that included an observer rating of the alliance, results showed that clients who dropped out of cognitive behavioral therapy had significantly less agreement on therapeutic tasks than those who remained in therapy, further highlighting the value of the alliance in promoting therapy engagement (Startup et al., 2006). Just two studies did not find relationships between therapist-rated alliance and adherence indicators including total weeks, number of sessions, and sessions per week in cognitive remediation (Huddy et al., 2012) and following up with outpatient treatment after hospital discharge (Westreich, Rosenthal, & Muran, 1996).

The relationship between client-rated alliance and adherence were assessed in six studies with three reporting significant findings and three reporting non-significant findings. Specifically, a strong client-rated alliance with one's psychiatrist predicted more positive attitudes toward medication, which in turn predicted better medication adherence among those receiving inpatient and outpatient mental health services (Baloush-Kleinman et al., 2011). Further, better client-rated alliance with one's therapist was significantly related to remaining in therapy longer among those receiving cognitive remediation (Huddy et al., 2012). Finally, in a small pilot trial of 10 inpatients, Westreich et al. (1996) found that individuals who did not follow-up with outpatient treatment after hospital discharge had better client-rated alliance of their inpatient therapist than those who did follow-up.[2] Non-significant findings were reported such that client-rated alliance with one's case manager (Montreuil et al., 2012) or one's psychiatrist (Holzinger et al., 2002) was not predictive of medication adherence. Additionally, client-rated alliance with one's therapist was not significantly related to the number of therapy sessions attended (Berry et al., 2016).

Overall, the existing evidence (6/8 studies) suggests that better provider-rated alliance is associated with better adherence across various treatment and provider types. But, mixed findings prevent firm conclusions regarding the relationship between client-rated alliance and adherence (3/6 studies reported any significant findings).

5.4. Recovery characteristics

Although the majority of studies examined illness-related and/or functioning outcomes, variables typically emphasized in scientific definitions of recovery (Bellack, 2006), a small number of studies examined additional aspects of client recovery (k = 7). Specifically, a positive client-rated alliance with one's mental health clinician was significantly related to greater hopefulness and community belonging (Berry & Greenwood, 2015), quality of life (Catty et al., 2010), and willingness to ask for help (Cavelti et al., 2016). Moreover, changes in client-rated alliance with one's clinician were significantly predictive of changes in recovery among those receiving community mental health services (Hicks et al., 2012). Yet, client-rated alliance with one's cognitive remediation therapist was not significantly related to self-esteem (Huddy et al., 2012) and changes in client-rated alliance with one's psychiatric rehabilitation therapist were not related to changes in goal attainment (Gehrs & Goering, 1994). Finally, early client-rated alliance was not significantly related to changes in quality of life (Svensson & Hansson, 1999).

When the provider rated the alliance, better ratings were significantly related to more hopefulness and community belonging (Berry & Greenwood, 2015) and a more integrative recovery style (i.e., more likely to accept psychosis as part of oneself; Cavelti et al., 2016). But, vocational worker-rated alliance and therapist-rated alliance were unrelated to quality of life (Catty et al., 2010; Svensson & Hansson, 1999) and cognitive remediation therapist-rated alliance was not associated with self-esteem (Huddy et al., 2012). Finally, changes in psychiatric rehabilitation therapist-rated alliance were not related to changes in psychiatric rehabilitation goal attainment (Gehrs & Goering, 1994).

Overall, more evidence suggests that better client-rated (4/7 studies reported any significant findings) but not provider-rated (2/6 studies reported any significant findings) alliance was related to improvements in recovery. Yet, these findings should be interpreted with caution given the heterogeneity of recovery variables and overall small number of studies.

6. General discussion

The purpose of this review was to summarize the existing literature on (a) the client correlates/predictors of the therapeutic alliance and on (b) the relationship between the alliance and client treatment outcomes in individual treatment for schizophrenia spectrum disorders and early psychosis. To our knowledge, this is both the largest review on the alliance in this population and the only review to focus on individual treatment for schizophrenia across a variety of treatments and providers.

Across the studies reviewed in this paper, there was evidence that better insight and medication adherence were significantly related to better client-rated alliance. However, symptom severity was not consistently associated with client-rated alliance. As such, it may be that awareness of one's illness and attitudes toward treatment are more relevant to a client's experience of the therapeutic relationship than the level of symptom severity. Further, clients who acknowledge the potential for treatment to be helpful (i.e., awareness of treatment need and attitudes toward medication) may also be more motivated and willing to fully engage with their providers. Interpersonal and recovery

[2] Although this study did not utilize inferential statistics due to small sample size, it was coded as “significant” for client-rated alliance and “not significant” for provider-rated alliance based on the mean differences and conclusions reported in the paper.

characteristics were also related to how clients rated the alliance, such that better social support and quality of life and lower perceived stigma were related to better ratings. These findings may suggest that clients who have had positive experiences with others outside of therapy are more trusting and optimistic, thereby leading to more favorable views of the therapeutic relationship. In fact, Holdsworth, Bowen, Brown, and Howat (2014) conducted a review on client engagement and similarly found that clients who were more cognizant of their problems, aware of the need for treatment, and had a more optimistic attitude had higher attendance levels.

In terms of provider-rated alliance, the existing evidence lends support that less severe symptoms as well as better recovery and medication adherence were associated with better alliance. It may be that clients who are highly symptomatic (potentially due to lower medication adherence) struggle to fully engage in treatment, thereby impacting how providers view the relationship. For example, clients who are experiencing positive symptoms (e.g., auditory hallucinations) can appear internally focused and as a result, may struggle to focus on comments or questions offered by the provider. As a result, providers may not feel that they are effectively connecting with the client or that there is much agreement on goals/tasks of treatment thereby leading providers to report a poor therapeutic alliance. Further, as suggested in the Shattock et al. (2018) review, providers may also interpret certain types of symptoms (i.e., blunted affect, amotivation) as indicative of a negative therapeutic alliance. As noted earlier, findings were more mixed with regard to relationships between symptom severity and client-rated alliance suggesting that clients' perception of the alliance is not clearly related to their symptomatology. As a result, a client may view the quality of the alliance as strong and yet his/her provider may view it as weak, in part because of the client's symptom severity.

Similarly to results reported by Shattock et al. (2018), social functioning variables were related to the alliance in half of the studies examining provider-rated alliance (5/10 studies reported significant findings) and in far fewer studies examining client-rated alliance (2/10 studies reported significant findings). It may seem surprising that these variables were not consistently related to the alliance given that difficulties in social relationships might be expected to translate to the client-provider dyad. But, given that relationships with clinicians can often occur at vulnerable times for clients (e.g., during an exacerbation of symptoms), they may be less influenced by one's overall social functioning ability. Instead, as our results suggest, the alliance may be more influenced by more dynamic clinical characteristics such as symptom severity and insight.

Although large meta-analyses in the general psychotherapy literature note consistent moderate relationships between the alliance and symptomatic outcomes (Horvath et al., 2011; Martin et al., 2000), the same results did not emerge in the present review (2/8 studies reported significant findings for client-rated alliance and 2/5 studies reported significant findings for provider-rated alliance). It should also be noted, however, that the number of studies that examined prospective relationships between the alliance and symptoms in this review was small ($k = 9$; four included only a client-rated alliance measure, one included only a provider-rated alliance measure, and four include measures from both perspectives), which should be considered when drawing conclusions. Nevertheless, there was evidence that the alliance predicted other types of outcomes. Specifically, a strong provider-rated alliance was predictive of improvements in several domains of functioning (e.g., global, social, and vocational). Additionally, a better provider-rated alliance was associated with better medication and treatment adherence across various treatment and provider types. The adherence findings are critically important given the difficulties with client engagement and high rates of treatment and medication nonadherence in this population (Higashi et al., 2013; Kreyenbuhl et al., 2009). Finally, there was some support that better client-rated alliance was related to greater hopefulness, quality of life, and willingness to ask for help, characteristics that are crucial to recovery for those with psychotic disorders (Bellack, 2006). Although it may be that the alliance is more important for some outcomes over others in individual schizophrenia treatment, the limited number of studies and heterogeneity among them precludes firm conclusions at this time.

Overall, the present review summarized the role of the alliance in individual treatment for schizophrenia and early psychosis across multiple types of treatments and providers. Furthermore, this review provided the most comprehensive discussion of client correlates and predictors of the alliance in this population to date. Extant research has illustrated that the alliance is important to consider when providing individual treatment to clients with schizophrenia, particularly given its relationship to functioning and treatment adherence. Though the present findings share similarities with those in the general psychotherapy literature, two important considerations should be mentioned. First, because of the multifaceted nature of individual schizophrenia treatment (as opposed to treatment for other disorders), these findings suggest that it is critical for all types of providers working with this population to emphasize the development of a strong alliance with their clients. In addition, some of the specific characteristics impacting the development of a strong alliance in this population may be distinct to schizophrenia spectrum disorders and potentially more challenging to address in treatment (e.g., low insight, severe symptoms, and/or poor medication adherence). As such, strategies to establish a strong alliance with these types of clients should be targeted in supervision and training.

7. Limitations and future directions

Although this review offers valuable insight into the role of the alliance in individual schizophrenia treatment, the results were highly mixed and heterogeneous. In order to elucidate potential explanations for these inconsistent findings, several limitations are worth noting about the present review and the research presented within it. First, as is the case with most, if not all alliance research, the present results were constrained to individuals in treatment and thus, cannot be applied to the broader population of those with schizophrenia spectrum disorders or early psychosis. Second, the overwhelming majority of studies reviewed in this paper included alliance ratings from the client and/or provider perspective with only three studies having included ratings from an independent observer (Davis & Lysaker, 2007; O'Driscoll, Mason, Brady, Smith, & Steel, 2016; Startup et al., 2006). Third, there was significant heterogeneity in the type of variables examined across the included studies, which hinders firm conclusions regarding characteristics most strongly related to the alliance. As such, studies examining correlates/predictors of the alliance were described within eight categories of variables whereas those examining relationships between alliance and outcome were described within four categories of variables. Fourth, given that this review examined relationships between the alliance and many variables without correction, the possibility for Type one error is high. Fifth and related, coding any significant finding within a given domain as evidence of a relationship between the client variable and the alliance may have been overly liberal, thereby placing undue emphasis on significant findings. Yet, given that we coded studies as significant/not significant based on findings from final models, it is also possible that some studies that were coded as not significant, had, in fact, reported some significant findings (e.g., correlations). As such, these limitations in tandem with the file drawer problem should be considered when interpreting the results of the present review.

In light of these limitations, there are many valuable opportunities for future work to add to the present literature. First, the inclusion of observer-rated alliance measures would be beneficial given the lack of knowledge surrounding this alliance rating perspective in treatment for this population. Moreover, observer ratings offer an independent account of the quality of the alliance and could potentially serve as a more reliable tool to track changes over time. This unique perspective may be

especially relevant in this population given that client and provider ratings are not always correlated. Of the studies reviewed in this paper, some found that client and provider ratings were significantly correlated (Barrowclough et al., 2010; Berry & Greenwood, 2015; Berry et al., 2016; Catty et al., 2011; Davis & Lysaker, 2004; Donnelly et al., 2011; Dunn et al., 2006; Gehrs & Goering, 1994; Hamann et al., 2010; Johansen, Iversen, et al., 2013; Jung et al., 2014; Lysaker, Davis, Outcalt, et al., 2011; McCabe et al., 2012; Montreuil et al., 2012; Ruchlewska et al., 2016) whereas several others did not (Couture et al., 2006; Evans-Jones et al., 2009; Hofer et al., 2015; Huddy et al., 2012; Jung et al., 2015; Mulligan et al., 2014; Wittorf et al., 2009). Discrepant ratings may also reflect issues with the validity and reliability of alliance ratings made by clients and providers due to the power differential present in treatment. Specifically, clients may not want to speak negatively about their providers and providers may not want to portray themselves in a negative light by reporting a poor alliance. These issues may also be affected by symptoms specific to those with schizophrenia spectrum disorders or early psychosis. For example, psychotic symptoms (e.g., delusional beliefs or auditory hallucinations about treatment and/or the therapist) could certainly impact how a client experiences the therapeutic alliance. Additionally, providers might interpret negative symptoms (e.g., blunted affect) as indicative of a poor alliance. As such, observer-based alliance measures may be especially important for this population.

Furthermore, as noted in the Shattock et al. (2018) review, clients generally rated the alliance more favorably than did their providers (Barrowclough et al., 2010; Catty et al., 2011; Evans-Jones et al., 2009; Jung et al., 2014; Jung et al., 2015; Lysaker, Davis, Buck, et al., 2011; Mulligan et al., 2014; Ruchlewska et al., 2016; Wittorf et al., 2009). It may be that clients and providers focus on distinctive aspects of the alliance, which in turn results in differences in their perception of its quality. Despite the potential value of observer-rated alliance measures, they are rarely included because of the resources required to make such ratings. The only study that included both an observer and a provider rating found that these ratings were correlated, perhaps suggesting that the provider's view may be similar to that of an independent rater (Startup et al., 2006). Because client ratings were not included in any of the observer-rated alliance studies, their relationship to observer ratings remains unknown.

Second, as mentioned previously, prior reviews have focused solely on the alliance-outcome relationship (with the exception of the Shattock et al., 2018 review), which is surprising given the large number of studies that examined predictors and correlates of the alliance. Therefore, future meta-analytic work would add to the literature by providing estimates as to the strength of the relationship between the alliance and specific variable domains. This type of work would allow for a more comprehensive and nuanced understanding of the client variables most closely associated with the alliance. This information, in turn, could be integrated into clinician training and supervision to aid providers in developing an alliance with clients for whom it may be particularly difficult.

Third, future reviews and empirical work should consider the role of provider characteristics in the therapeutic alliance as well as the role of the alliance in a wider array of treatments. In their review of psychological therapy studies, Shattock et al. (2018) found that greater therapist genuineness and empathy were related to better client-rated alliance and that the alliance was predictive of symptomatic outcomes in studies of group treatment. Moreover, there is support from studies on samples without psychosis that therapist characteristics are correlated with the alliance (Ackerman & Hilsenroth, 2003) and that therapist variability in the alliance impacts outcomes (Baldwin et al., 2007; Del Re et al., 2012). Finally, given that it is currently not possible to firmly state whether the alliance is causally related to outcomes or whether it represents a by-product of other aspects of the treatment or individuals within the dyad, novel methodological and analytical procedures aimed at testing such hypotheses would be valuable. Specifically, in light of the new model proposed by Zilcha-Mano (2017), future work might consider examining the alliance multiple times throughout treatment to better understand how state-like and trait-like aspects contribute to outcomes.

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Contributors

JB conducted the initial article search, screened all articles by title, abstract, and full-text. JB and AN coded all included articles. JB wrote the first draft and AN, MK, KB, and DP provided edits to the manuscript. All authors contributed to and have approved the final manuscript.

Declaration of competing interest

The authors declare that they have no conflicts of interest.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.cpr.2019.05.002.

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