

Untangling the Alliance-Outcome Correlation: Exploring the Relative Effect of Age and Gender in Treatment of Adolescence Substance Abuser

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Abstract

Although the relationship between the therapeutic alliance and outcome has long been established across numerous studies and meta-analyses, less is known about this in treatment of adolescence substance abuse. This study investigates factors that influence alliance-outcome relationship in adolescence substance abuse treatment. To achieve this objective, this study explored the relative effect of demographic variables, i.e. (age and gender) in a sample of adolescent substance abuser at the rehabilitation treatment centre of University college hospital, (UCH) Ibadan, Oyo State Nigeria. Fifty-three adolescents took part in this study, and completed self-report measures of readiness and expectation (client's theory of change) prior to treatment, therapeutic alliance measures during treatment. The findings indicates that, age do not predict alliance-outcome relationship in adolescence substance abuse treatment, as there was no moderating effect for client's age. In addition, the finding showed a significant sex difference in pre-treatment motivational variables, client ratings of the alliance and treatment outcome. Finally, it was suggested that early identification of demographic variables that influence adolescent's treatment; as adolescent's attributions of resistance are associated with age and gender.

Keywords: Therapeutic alliance; Adolescent substance abuse; Demographic variables; Alliance-outcome correlations

Introduction

Therapeutic alliance has been recognized as one of the main principle of effective adolescent substance abuse treatment [1] and established as a consistent predictor of treatment outcomes in psychotherapy research [2-4]. While the value of psychotherapy continue to rise and recognized the process of identifying therapeutic factors that account for variance in adolescence treatment outcomes has proved difficult [5-9]. While much has been done in the past to assess alliance-outcome correlation in adult's treatment, only few have investigated variability alliance-outcome correlation in adolescence treatment. The few researches that examined this in alliance-outcome relationship concluded that 30% of the variance in treatment outcomes is due to clients and therapist's characteristics; while 15% of outcome variance is accounted for by therapeutic techniques [10,11].

Therapeutic alliance is defined as "the mutual and emotional bond between therapist and patient" [4]. While the construct is relates to engagement, and much acknowledged in psychotherapy [12,13] its effectiveness remain a vital subject of research in adolescence substance abuse treatment [14,15]. Although there is no uniformity in the definition of therapeutic alliance [10,16], the convergence empirical and theoretical evidences established the construct as entailing the relationship between the therapist and patient, as well as agreement on therapeutic goals and tasks [17,18]. This definition makes therapeutic alliance an important and strong predictor of treatment outcome in adolescence substance abuse treatment [2,19].

Historical Background to Psychotherapy

Earlier research on psychotherapy outcome such as Luborsky et al. [20] established significant relationship between patient-therapist match on gender and alliance-outcome relationship in adult's treatment. Historical beliefs on therapeutic assessment suggested that, matching of client-therapist characteristic is positively related to treatment [21]. The socio-ecology theory on treatment also posited that, people tend to identify with the persons similar to them [22]. Further, gender schema theory developed by Bem's [23] suggested that, client's preferred clinicians who shared the same characteristics with them. All this putting together suggested that, people relied on their gender schema to manage and process information based on their cultural meanings. As a result, one can conclude by suggest that, client and therapist of the same sex viewed the world and things around them in the same gender lens and shared similar perspective on difficult issues in their environment.

However, despite common preferences cited above, there is paucity of data on child/adolescent psychotherapy particularly, on substance abuse treatment. This made it hard to confirm whether variability in alliance-outcome relationship is related to demographic or social resources [24]. Based on this foregoing, the present study explores the effects of socio-demographic as measured in the current study as gender and age on therapeutic alliance in treatment of adolescence substance abuser in Nigeria. The knowledge gain from this study would help to identify and develop alliance process that supports adolescence substance abuse treatment.

Alliance-outcome Relationship in Adolescent Substance Abuse Treatment

Therapeutic alliance is considered an integral part of successful treatment, and consistently reported as predicting treatment outcomes in psychotherapy [2-4]. In fact, looking at it from research and theoretical perspectives, therapeutic alliance is an essential tool for successful treatment [12]. Therapeutic alliance has its roots in psychodynamic theory, where it was seen as healthy and trusting aspects of client-therapist alliance bond. Although no common definition on the construct was agreed on, many works on the concept adopted Bordin's [25] pantheoretical definition of the alliance.

For example, Hatcher and Barends [17] defined alliance as the level of complex transaction i.e. personal and social characteristics that client and therapist brings into treatment, [26] Although these characteristics influenced the alliance formation, it is imperative to state that the correlation between alliance and outcome does not account for this intricacy. This further explained why the relation is hard to understand in adolescents' treatment. Moreover, there are limited researches on therapeutic alliance in adolescent substance abuse treatment. Few of the most dependable finding in this area documented that therapeutic alliance measured in the early stage of treatment has moderate effect on adolescent therapy [27]. The interpretation of alliance-outcome association is confronted with arrays of methodological and conceptual issues [28]. For instance, it was argued that client's characteristics that promote good alliances can also drive better outcomes [7].

Recent research used multilevel approaches to measure therapist-client variability in alliance process. These studies showed that therapist contribution, that is, their characteristics during alliance formation, are more significant than the client's contributions [29-32]. This was corroborated by Dinger et al. [30] in which they reported that, therapist effects are significantly related to alliance-outcome correlation. Baldwin et al. [29] also reported that, therapist input in alliance statistically predicted treatment outcome, compared to client input.

Also, a study by Marcus et al. [33] on a sample of university student receiving treatment at the university counselling centres using OWM model found relationship alongside clients' perceiver variance and error as responsible for most of the differences that come from clients rated alliance. Further, the study revealed little agreement regarding alliance among clients who received therapy from the same. In addition, the study relates (70%) of variation in the therapist alliance ratings to relationship, while perceiver only responsible for 30% (i.e. some therapists generally provided stronger alliance ratings across their clients than did other therapists). Furthermore, a study by Marcus et al. [31] reported dyadic reciprocity as responsible for the connectedness in alliance scores. However, when outcome was measured, the study reported an association between therapist collaborator effects and outcome. This means that therapists who usually obtain higher alliance scores from their clients, had clients who are better.

Despite the strong correlation between therapeutic alliance and outcome across several different contexts, instituting causality in therapeutic alliance is hard. This is due to the principal characteristics of the actors in the alliance, that is, the client and the therapist examined and the fact that alliance-outcome relationship cannot be experimentally controlled. However, DeRubeis et al. [7] and Strunk, et al. [34] suggested four causes of variability in alliance and relates them

to outcome. The first cause is linked to clients. This means that clients form relationship with therapist based on their social characteristics, i.e. age and gender, that is, their attachment style and social orientations influenced their attitude toward alliance formation in treatment [35].

The second cause is related to the therapist characteristics. From this perspective, therapist positively engaged their clients during treatment based on their social lens. In this case, the alliance-outcome correlation is linked to the variability in therapists' ability to successfully engage clients in treatment. This perspective was proposed by Rogers [36], and it viewed therapist as someone who is capable of being genuine, empathic and demonstrate unconditional positive regard to their clients. The third source of variability in the alliance is associated to the interface between the therapist and clients. This means that some therapist found it easier to form robust relationships with clients, regardless of their gender, age, race or religion; whereas others are less influenced by these variables.

Additionally, research linked alliance variability to good outcomes. In this instance, change in therapy is assumed as promoting strong alliances and not the other way round.

Overall, these findings underlined the relational effect of the therapeutic alliance by expressing alliance and outcome relationships as a multifaceted process that cannot be explained by a simple correlation. Thus, the psychological and social resources that clients brings to the treatment coupled with their treatment related beliefs, attitudes and prior experiences, influenced the alliance-outcome relationship [37,38].

Ecological Consideration in Therapeutic Alliance Research and Practice

While therapeutic relationship has long been acknowledged as relatively free from external influence, the process of developing an alliance within a larger context remain an issue in psychotherapy. Therapeutic alliance is generally conceived as insight-oriented psychotherapies, as clients and therapists often isolated from external demands. This is becoming increasingly difficult, as shielding of client and therapist from external realities in their environment is hard. Based on this perspective, this study used ecological model to discuss two sources of ecological disruptions, i.e., alliance development and treatment outcome in psychotherapy.

Traditionally, insight-oriented psychotherapies are insulated from external strain. However, it has become an issue because it is highly complex to insulate client and therapist from the external realness in treatment setting. Therefore, tackling the ecological disruption would facilitate and sustain positive therapeutic alliance in psychotherapy. The process would also assists the therapist to constructively integrate external demands into therapeutic relationship and offers clients the opportunity to positively adjust to treatment setting. This therefore, augmented the meaningfulness of therapeutic alliance and lessening the discussions about alliance-outcome ruptures in clinical setting.

An ecological perspective showed that the social context in which a client bestows confidences on therapist varies significantly, and the interactions are beyond the direct control of the therapist or client. As a result of this interference, sociological factors, such as age, gender, culture, race, treatment setting, and procedure; external protocol, and circumstances that surrounded treatment influenced the nature of the alliance-outcome relationship in clinical setting. These contextual

factors are referring to as the ecology of psychotherapy and it is imperative for clinicians to address them in treatment of adolescence substance abuse by instituting therapeutic framework and alliance that support treatment. Ecological perspective also revealed that the contextual problems in contemporary psychotherapy originated outside the boundaries of the therapeutic framework; as a result, therapist and client are encapsulated in number of ecosystems or supportive structures. While this might be a significant clinical heuristic, the circumstances under which it happens influenced the structural veracity of the therapeutic frame, and prompted the need to identify the external issues that influenced treatment before the establishment of the frame.

Despite the variations in ecological framework, the degree of control exercise by the therapist, the condition of the treatment, coupled with the nature of the alliance threatens the reliability of the psychotherapy framework. Though, this is beyond the therapist control, the dangers that arise from the uncontrollable external circumstances influenced the alliance foundation, and act as ecological disruption to treatment. Therefore, addressing these ecological issues required the creation of a therapeutic framework that supports the alliance-outcome relationship in psychotherapy. This would help the client and therapist to interpret and appreciate the external imposed experiences before it becomes an issue in the alliance-outcome relationship.

Objective of the Current Study

Because of this paucity of studies, and given the limited research on adolescence substance abuse, this study investigates the correlative effect of age and gender on alliance-outcome relationship in adolescence substance abuse treatment. Founded on prior studies that examined the alliance-outcome relationship in adults [38], the current study hypothesized significant differences in alliance-outcome relationship in treatment of adolescence substance abuser based on demographics (i.e. gender and age).

Method

Research setting

The present study examined the therapeutic alliance in adolescent substance abuse treatment centre at the University college hospital, (UCH) Ibadan, Oyo State Nigeria. Ibadan is the capital of Oyo State, and is located in the South West part of Nigeria, with a population of around 3 million people. The city and its suburb areas consist of 10 Local Government Council and were rated as the second largest city in Africa, after Cairo, Egypt. The University College Hospital, (UCH) treatments centre for people with behavioural and substance disorders was purposefully selected for this research. The centre is individual and family therapy focused and thus closely implements the principles of Alcoholics Anonymous and Narcotics Anonymous within the therapeutic centre.

The centre is abstinence-based and focuses on assisting clients to develop and maintain abstinence from all mood-altering chemicals. The centre also provides a wide range of in-treatment services, including psychological and chemical assessments, medical supervision, individual and group counselling, and recreational therapy. Clients typically have contact with a number of service providers throughout their rehabilitation. Depend on their needs, clients engaged in individual counselling with primary clinician three times per week, The average length of treatment stay was 38.65 days

(SD=19.16), while the median length was 40 days. On average, participants received 14.80 (SD=9.78) sessions of individual therapy during their treatment periods.

Participants

Participants for the present study were 53 consecutively-referred adolescent males and females assigned to the University College Hospital, (UCH) Ibadan, Rehabilitation Centre for substance abuse treatment. The participant ranged between 14 and 18 years of age (M=16.27, SD=0.96), and the sample was nearly two-thirds male (64.2%, n=52). Majority of the clients came from the urban area of the state. However, a small number of clients were referred from the rural area. As a result of this limitation the sample was not a full representation of clients receiving rehabilitation on substance abuse in Nigeria. In addition, the study sample was more similar regarding ethnic and demographic variables, than was the total client population of adolescent with substance abuse in Nigeria.

The study participants met criteria for substance abuse or dependence across a wide range of substances, but the main choice were alcohol. For those participants with available diagnostic data (n=78), 74.4% met diagnostic criteria for alcohol dependence (n=46) or alcohol abuse (n=12). Nearly two-third of the sample (44.8%, n=36) had clinical histories with significant symptoms of one or more comorbid mental health disorders. It should be mentioned that formal diagnostic testing and other assessment was not part of the processes for normal clinical intake in the centre. Rather, a standardized clinical interview and client-reported clinical history was used to arrive at diagnostic formulations. As such, the data regarding psychiatric diagnoses are incomplete as it suggested the types of symptomatology but not psychiatric disorders per se. Given the nature of the intake assessment, the study excluded adolescents with mental disability, eating disorder and schizophrenia. Further, those adolescents with excessive drug use which required inpatient treatment were also excluded from the study.

There is no reported case of which a prospective participant or his/her guardian failed to provide consent for participation in the study. A prior power analyses for the planned statistical procedures (i.e. linear and logistic regression) suggested that 50 participants would be enough has a sample size to detect a moderate effect using four predictors. Data collection took place over the course of approximately 3months, from January to March, 2015. Clinicians who participated in this study were four full- and part-time clinical psychologist staffs of the rehabilitation centre. The mean age of clinicians was 28.50 years (SD=4.14).

Measures

Demographics questionnaire

This consists of background information on the respondent's, such as age, gender, grade level, referral source, behavioural health treatment history, and legal status (i.e. whether participant was earlier involved in the juvenile criminal justice system).

Therapeutic alliance was assessed using a modified version of the Working Alliance Inventory-Short Form [39,40]. This is a 12-item alliance measure derived from the original client-rated WAI [40], and is based on Bordin's [25] pantheoretical model focusing on the bond, task, and goal components of the alliance. The items are rated from 1 to

7 on a Likert-type scale, with anchor descriptors ranging from “1-never” to “7-always.” Scores range from 12 to 84, with higher scores indicating a stronger alliance. The wording of the original WAI was slightly altered, and the changes made are similar to those used by Tetzlaff et al. [41]. The changes were made with the intent of maintaining the original content and fracture structure of the items, while creating a measure that was developmentally appropriate for adolescent clients. For example, the WAI item “_and I have built a mutual trust” was changed to “My counsellor and I trust each other”. The therapist form is the original WAI-S [39,40]. Based on Tetzlaff et al. [41], the adapted WAI reported high internal consistency (Cronbach’s $\alpha=0.93$). This appears consistent with factor-analytic data regarding the use of the WAI in adolescent populations, as it yielded a single general alliance factor [42]. This study analyzed the alliance using WAI-S total scores. Earlier research using adapted versions of the WAI in adolescent samples [42] reported a moderate correlation ($r=0.40$) between therapist and client ratings of the alliance.

Problem severity was assessed by a questionnaire based on Ohio Scales Youth Rating-Short Form (OS) [43] which was designed to measure therapeutic outcome in 4 domains, such as problem severity, current functioning, satisfaction with behavioural health services and hopefulness. However, the current study only used the part that measures problem severity and this consists of 20 items, rated on a scale ranging from 0 (not at all) to 5 (all of the time). The items assess age-appropriate problem areas such as interpersonal, behavioural, and psychological/emotional problems. The ratings for each item are summed to derive a total score. Lower scores indicate lower youth-reported problem severity. The OS was administered during the clinical intake assessment and again during the week prior to discharge from residential treatment. The psychometric evaluation of the OS problem severity scale indicates strong internal consistency estimates (Chronbach’s α range: 0.90-0.95) and adequate one-week test-retest reliability ($r=0.72$).

Psychological symptoms were assessed using the center for epidemiological studies depression scale for children (CES-DC) [44]. This 20-item youth self-report depression inventory assess whether clients ever and currently experience any form of psychological symptoms, with possible scores ranging from 0 to 60. Each response to an item is scored as follows: 0=“Not At All” 1=“A Little” 2=“Some” 3=“A Lot. However, items 4, 8, 12, and 16 are phrased positively, and thus are scored in the opposite order: 3=“Not At All” 2=“A Little” 1=“Some” 0=“A Lot”. Higher CES-DC scores indicate increasing levels of depression. The developers of the CES-DC have used the cut-off score of 15 as being suggestive of depressive symptoms in children and adolescents, as scores over 15 is indicative of significant levels of depressive symptoms.

Clients’ expectation about treatment were assessed using the Treatment Expectations Questionnaire [38]. It is loosely based on a list of clients’ negative thoughts toward treatment by Liese and Beck [45]. Clients were asked to indicate how much they agreed (5-point Likert scale: strongly agree to strongly disagree) with 10 statements, two each assessing beliefs or expectations about: a) the utility of treatment, b) the service, c) the counsellor, d) the perceived difficulty of treatment, and e) their readiness for treatment. The internal consistency of the scale in the current study was satisfactory (Chronbach’s $\alpha=0.74$).

Readiness for change was assessed using the URICA 32-item self-report questionnaire that prompts respondents to focus on current problem behaviour. Each item on the URICA is rated on a 5-point Likert-type format in which a score of 1 indicates strong disagreement

and a score of 5 represents strong agreement. However, some items on the scale have reverse scored. The scale dedicates 8 items to each of the four dimensions: pre-contemplation, contemplation, action, and maintenance stages of change. Scores for each subscale are calculated by summing the items pertaining to a specific subscale. The subscale with the highest summed score indicates a higher probability of a person being in the particular stage of change that corresponds to that subscale. Using this method, one can assign respondents to one of the four categories. However, because of the relatively little evidence regarding the URICA’s psychometric properties in adolescent populations, the current study used adapted version for adolescents participants. For example, Item 28 on the original URICA reads, “...I feel I might be having a recurrence of a problem I thought I had resolved.” This item was changed to read, “...a problem I thought I already fixed maybe coming back. Therefore, the internal consistency estimates for the subscales (coefficient alphas ranging from 0.77 to 0.88) were satisfactory and consistent with those found in adult samples.

Procedure

Confidentiality

The researcher upholds the significance of maintaining morally accepted norms and values in scientific research. As a result of this important principle, this study addressed the issue of confidentiality. The researcher assured the participants that the answers and comments given during the investigation will be treated with confidentiality and their views will not be questioned in the future. Each participant was allocated a participant number. Data gathered from each participant were categorized by participant number, and no identifying information regarding the participant was attached to data forms. This list was kept safe in the medical records office at the treatment facility. The researcher also promotes the principle of anonymity and ensures that the participants answer the questions pose to them with confidence. At the conclusion of the data collection and after the data had been satisfactorily checked, the master list was destroyed.

Obtain informed consent

Voluntary participation is a prerequisite for this study. During the intake proceedings, the researcher sought for permission from the adolescents and their guardians to participate in the study. Sufficient information concerning the research was given to the participants so that they can make an informed decision. The researcher gave the participants a comprehensive synopsis of the nature of the research, including the risks and benefits, after which the necessary consent was obtained in writing.

Data collection

At the intake clinical assessment, participants completed the stages of change measure, the demographics questionnaire, and the OS in order to obtain baseline data. Counsellors were expected to meet with individual clients two to three hours per week, and this is varied according to client need and other circumstances. The alliance was measured following the sessions three and six, as well as a third assessment in the week prior to the discharge date. Clinicians and participants completed the respective forms of the WAI-S at these times. Clinicians were given all necessary materials for each client in

advance and were expected to keep track of the number of sessions they had with each client. In addition, the researcher gave frequent (i.e. at least weekly) reminders to the counselling staff to complete the alliance measures. Participants and counsellors were given a private space to complete the form in the absence of the other party. Both parties were blind to the other's ratings over the course of treatment. Anecdotal feedback from participants and clinicians indicated this measure could be completed in less than five minutes.

As indicated above, there was a significant issue with missing data, most of which was alliance ratings. More specifically, at session three, counsellors provided alliance ratings for only 74.0% (n=46) of the total sample, while only 77.3% of clients (n=48) provided early alliance ratings. Following session six, response rates dropped to 55.1% (n=37) and 54.3% (n=35) for counsellors and clients, respectively. At the last days of the treatment, when the final alliance ratings were acquired, 46.1% of ratings were returned for both counsellors and clients. These data include those participants who dropped out of treatment before session six. Even with this, the data gathered robustly suggests a sub-optimal return rate on the alliance measures. Lastly, to complete the measure at intake, the adolescent's participants completed the OS again prior to discharge. It was estimated in this study that the OS could be completed inside 15 minutes. The behavioural compliance data (i.e. appropriate/inappropriate behaviour ratings) were obtained through records review and the data were compiled to represent compliance during the treatment stay. At the same time, this study obtained the discharge status (i.e. ASA, ASR, WSA) through records review.

Results

An alpha level of 0.05 was used for all statistical tests.

Preliminary Analyses

Variables	N	Mean	Std. Deviation	Std. Error Mean
Age	53	17.8868	0.84718	0.11637
Total client rated alliance	53	58.2830	20.49519	2.81523
Total counsellor rated alliance	53	57.4340	17.88479	2.45666
Total treatment expectation	53	24.0000	8.05749	1.10678
Total treatment readiness	53	43.2453	6.91127	0.94934
Level at discharge	53	1.7358	0.73774	0.10134

Table 1: Descriptive statistics for all variable of interest in the study.

Descriptive statistics for all the process and outcome variables used in this study are described below (Table 1). The sample size for each measure varies slightly because of variations in the availability of data. As was stated earlier in the general objective, this study explores the effect of age and gender on alliance-outcome relationship in adolescence substance abuse treatment in Nigeria.

Identification of Possible Covariates

Initial analyses were conducted in this present study to determine whether client's demographic and clinical variables were significantly associated with alliance-outcome relationship in adolescence substance

abuse treatment. Therefore, the hypothesis below was proposed and tested.

Hypothesis 1: There would be significant differences in the alliance-outcomes relationship based on demographics (i.e., gender and age) in treatment of adolescence substance abuser in Nigeria.

The results of this current study failed to identify any significant differences based on age of participants. This means that age does not have any influence on the key variables of interest in this study, nor does it predicted the level of outcomes. Therefore the null hypothesis is rejected.

	Gender	N	Mean	Std. Deviation	df	t	p
Client readiness for change	Male	33	45.3636	3.86344	52	20.5	0.005
	Female	20	39.7500	9.21598			

Table 2: t-value on gender and client readiness for change subscale.

However, to determine whether participant gender had a significant effect on the alliance-outcome relationship, a series of independent samples t-tests was performed (Table 2 above). Data regarding pre-treatment participant characteristics (e.g., treatment readiness, expectation, perceptions of the alliance, behavioural compliance, and outcome domains) were assessed as dependent variables and participant's gender was evaluated as independent variables.

The results indicated a significant difference between sexes on three variables: treatment readiness as measured by the URICA, client expectation and the client rated alliance following session three of individual therapy. Specifically, it was found that males (M=45.36, SD=3.86) reported higher pre-treatment levels of treatment readiness (Table 2) on the URICA than females (M=39.75, SD=9.22), $t(52)=20.5, p<0.05$.

Also at intake, the study found that female participants (M=24.20, SD=9.38) (Table 3) expressed greater treatment expectation than the male participants (M=23.88, SD=7.29), $t(51)=-0.14, p<0.005$.

	Gender	N	Mean	Std. Deviation	df	t	p
Total treatment expectation	Male	33	23.8788	7.29194	51	-0.14	0.005
	Female	20	24.2000	9.38420			

Table 3: t-value on gender and client treatment expectation subscale.

Finally, the findings established that males (M=63.33, SD=14.89) reported better perceptions of the alliance after session three of individual therapy than the females participants (M=49.95, SD=25.66), $t(51)=2.40, P<0.005$.

However, when the primary analyses that included the behavioural treatment compliance or outcome variables were observed, sex was entered as a covariate and was found not to be significantly influenced any of the models in which it was entered. Though, the study did not measure for the negligible sex effects in the data, but was carried out in order to exhaust the possibilities of detecting omnibus effects were

present (Table 4). The results shows that there were no significant difference between sex and any of the behavioural treatment compliance or outcome variables (M=1.85, SD=0.76), t (51)=1.45, P>0.005. The study also found no significant sex differences in counsellor ratings of the alliance (M=17.80, SD=4.46), t (51)=3.98, P>0.005. Additionally, the study found no significant differences between counselors and any of the following variables; client treatment readiness, expectation and outcome measures used in the study (M=57.43, SD=17.88), t (52)=23.4, P>0.005.

	Gender	N	Mean	Std. Deviation	df	t	p
Client alliance perception	Male	33	63.3333	14.89477	51	2.40	0.005
	Female	20	49.9500	25.66274			

	Female	20	49.9500	25.66274		
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Table 4: t-value on gender and client perception of the alliance subscale.

In order to determine if there were response biases in this study (e.g. whether clients were differentially selected for alliance ratings based on pre-treatment measured or unmeasured characteristics), a series of one-way analyses of variance was done, utilizing readiness for change, compliance, number of individual therapy sessions received during treatment, and outcome variables as dependent variables and the number of completed alliance ratings (i.e. 0-7 ratings completed) as a categorical independent variable (Table 5). However, all the resulting analyses failed to identify any significant differences between alliance response categories (all P's>0.05). This implied that response bias did not influence the high attrition rate in alliance ratings over time.

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Treatment expectation	Between Groups	2479.667	35	70.848	1.344	0.262
	Within Groups	896.333	17	52.725		
	Total	3376.000	52			
Treatment readiness	Between Groups	1785.145	35	51.004	1.241	0.324
	Within Groups	698.667	17	41.098		
	Total	2483.811	52			
Level at discharge	Between Groups	19.135	35	0.547	1.014	0.506
	Within Groups	9.167	17	0.539		
	Total	28.302	52			
Number of individual counselling sessions treatment	Between Groups	884.336	35	25.267	1.563	0.164
	Within Groups	274.833	17	16.167		
	Total	1159.170	52			
Treatment Progress	Between Groups	60.591	35	1.731	0.939	0.578
	Within Groups	31.333	17	1.843		
	Total	91.925	52			

Table 5: F-value on alliance response categories.

Discussion

The present study addressed the need for additional research in the alliance-outcome correlation in treatment of adolescence substance abuse. While much is known about the essential role of therapeutic alliance in treatment outcome, less is known about the predictor of this critical relationship in adolescence substance abuse treatment. This is because it has not been a common practice to assess the relationship between the alliance and outcome in adolescent's population. In comparison to other available literature regarding relationship between therapeutic alliance and treatment outcomes, only few studies explored the sociological factors that contributed to therapeutic alliance. This

study sought to expand this knowledge base by exploring the relative effect of age and gender on alliance-outcome relationship in a sample of adolescent's substance abuser.

While the current study examined the correlative effect of demographic variables, i.e. ages, gender on alliance-outcome, it was found that age does not predict alliance-outcome relationship in adolescence substance abuse treatment, as this association was only observed at one time in this current study. This result was not surprising given the tentative nature of the link between age and alliance development in literature [27,46]. A meta-analysis study conducted by Shirkand Karver [27] lends credence to this belief, as it identified only 23 published studies and dissertations that addressed

therapeutic alliance in adolescence treatment. Although their study reported similar effect size of alliance in adolescence psychotherapy compared to that of adult literature, they were not able to find a moderating effect for a number of potential variables, including the client's age. Given these shortfalls in meta-analysis studies, particularly, those that measured the methodology and the lack of real world symbol, it is obvious that there were lack of suitable research in the realm of adolescence psychotherapy.

In addition, the study confirmed a significant sex difference in pre-treatment motivational variables (measured as treatment readiness) and initial client ratings of the alliance, with male's participants reported higher levels readiness variables. This implied that adolescent males seeking substance abuse treatment are more inclined towards search for professional help than the adolescent females. However, this statement cannot be fully verified because majority of the participants in the present study were court-referred clients, and it is not clear whether or not their decision to participate in treatment is influenced by the motivational indices.

Despite the significant differences reported in this study on gender, it is interesting to know that no association exists between levels of pre-treatment readiness for treatment, initial alliance for male participants and outcome. Specifically, analysis of the descriptive data proposes that, for male participants, initial alliances were higher ($M=49.95$) and established lesser variability ($SD=25.66$). Therefore, possible interactions between these variables, at least in males, were probable masked by the limited variability in the alliance variable.

Limitation

Although this study offers vital information about potential socio-demographic predictors of the alliance-outcome relationship in adolescence substance abuse treatment, certain study limitations are acknowledged. First, given the small sample size of the participants, the ability to identify significant associations was reduced; therefore, future research should repeat these findings in a larger sample size. Second, indicator used to assess interpersonal and socio-demographic factors at pre-treatment were only acquired from adolescents' self-reports and demographic information and this creates two different problems.

First is the issue of shared method variance associated with using the same informant to report on both the independent predictors and dependent variable. In addition, self-reported measures of symptom severity and interpersonal functioning are limited by the fact that some aspects of the symptom severity measured are implicit and may occur outside patients' awareness. Future studies, therefore, should measure interpersonal qualities using multiple informant perspectives.

Another Limitation in this Study is the Issue of Transference Interpretation on Alliance

While earlier studies investigates relationship between transference interpretations, therapeutic alliance, and outcome in adult's treatment, not much has been done in adolescence "short-term" psychotherapy [47]. The general consensus in therapeutic research is that with adolescence personality disorder substance abuser transference interpretations are very high risk interventions [48]. Based on this assumption, future research on early interpretative work with the negative transference is necessary to prevent premature termination and therapeutic stalemates in adolescence substance abuse treatment. The third limitation is that only participant's socio-demographic

variables were measured on the alliance-outcome relationship. The findings signifying that some therapists always respond to their clients in manners that methodically sway the alliance. This showed that future study should embrace therapist characteristics [49].

Clinical Implications and Future Direction

Although the concept of alliance outcome relationship has long been discussed in the treatment literature, relatively little is known about the influence of the socio-demographic factors in adolescence substance abuse treatment. Therefore, the results of this study have potentially important clinical implications for adolescence psychotherapy [50]. Primary among this is the relative importance of clients' variability in the alliance with regard to outcomes. In a situation where clients therapists have trouble forming an alliance, it behove on the therapists to focus on their own contributions and give little concentration to clients 'characteristics that might influenced alliance-outcome relationship. Indeed, client's attributions of resistance or maladaptive attachment styles are associated to age and gender and this accounted for their poor alliance. This according to the current findings would be immaterial with regard to outcomes.

While this clarification may be grist for therapeutic work, its impact on therapeutic relationship is overwhelming. Along these lines, therapists may benefit from regular monitoring of their alliances with clients and, when they observe any incongruent in their relationship with client; they should reflect on their actions and make necessary adjustment. This is important in light of the emerging adolescent substance abuse treatment research that found client socio-demographic variables as influencing therapeutic alliance and outcomes [51].

Additionally, the findings of the current study have significant inferences for increasing therapeutic engagement and retention, both of which have been earlier acknowledged as central to adolescence substance abuse treatment. Therefore, early identification of sociological factors that influenced adolescent's treatment is useful to "red flag" particular clients who are more difficult to engage. While a large portion of the variance in the alliance-outcome relationship remains unsolved, future investigation should focus on other factors that impact on this relationship. One of this is the exploration of therapist characteristics (e.g. experience, recovery status, trustworthiness) and techniques (e.g. empathy, reflection) that support the clients' attributes [52].

Finally, based on the analyses presented in the present study, it appears that the major focal point for future study should be to identify therapist 'social resource that impact on alliance, since clients' social resources seem to account for a smaller proportion of the variance in alliance-outcome relationship in treatment of adolescence substance abuse.

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