

# Common Factors and Depressive Symptom Relief Trajectories in Group Teletherapy for Persons Ageing with HIV

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Telepsychology research has focused primarily on treatment efficacy, with far less attention devoted to how common factors relate to teletherapy outcomes. This research identified trajectories of depressive symptom relief in 105 older people living with HIV with elevated depressive symptoms enrolled in a randomized clinical trial testing two 12-session group teletherapies and compared common factors (e.g., therapeutic alliance and group cohesion) across depressive symptom trajectory groups. Growth mixture modelling of weekly depression scores identified three depressive symptom change groups: (1) 'early improvers' (31%) who reported reductions in depressive symptoms by Session 4; (2) 'delayed improvers' (16%) whose symptoms improved after Session 5 and (3) 'non-improvers' (53%). Therapeutic alliance was unrelated to treatment outcome group. Group cohesion was greater in early improvers than non-improvers. Group cohesion was unexpectedly lower, and group member similarity was greater in delayed improvers than non-improvers. Early improvers had been living with HIV/AIDS for fewer years than non-improvers. In group teletherapy, group cohesion and group member similarity are more important than client–therapist alliance. Copyright © 2015 John Wiley & Sons, Ltd.

## Key Practitioner Message:

- In group teletherapy with older people living with HIV (OPLWHIV), three latent outcome trajectory groups emerged over the 12-week treatment period: (1) non-improvers (53%); (2) early improvers (31%) and (3) delayed improvers (16%).
- In group teletherapy with OPLWHIV, group cohesion is a stronger predictor of depressive symptom relief than is client–therapist alliance.
- OPLWHIV in group teletherapy who do not respond to treatment until the latter therapy sessions can still experience depressive symptom relief comparable with early responders.

**Keywords:** HIV, Ageing, Depression, Therapeutic Alliance, Group, Cohesion

## INTRODUCTION

Telepsychology is an increasingly popular and cost-effective way to deliver mental health services and is currently Medicaid reimbursed in 41 states (Secure Telehealth, 2015). Telephone-delivered psychotherapy is an innovative way to deliver mental health services to clients in the privacy and convenience of their place of residence. Many psychotherapies, including cognitive behavioural therapy

(Mohr *et al.*, 2005), supportive therapy (Bank, Arguelles, Rubert, Eisdorfer, & Czaja, 2006), interpersonal psychotherapy (Ransom *et al.*, 2008), coping effectiveness training (Heckman *et al.*, 2006) and supportive–expressive therapy (Heckman *et al.*, 2013), have been administered successfully via telephone to individuals and groups living with psychiatric disorders and/or chronic health conditions.

Teletherapy demonstrates depression treatment efficacy. Mohr, Hart, Vella, Heckman and Simon's (2008) meta-analysis showed that telephone-administered psychotherapies significantly reduced depressive symptoms across all assessment periods in teletherapy clients compared with controls ( $d = .26$ ); even greater symptom reductions were found when analyses were limited to changes from

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pre-intervention to post-intervention ( $d = .82$ ). Moreover, the mean attrition rate in teletherapy studies (7%) was lower than attrition in in-person interventions ( $M = 37\%$ , range = 14% to 65%).

While the telephone is an increasingly viable modality by which to deliver numerous psychotherapies, it is unclear if fundamental therapeutic factors (i.e., common factors) requisite for successful face-to-face therapy (e.g., therapeutic alliance and group cohesion) can be established and communicated over the telephone and whether they influence teletherapy outcomes. For the most part, since its inception, teletherapy research has focused almost exclusively on what works (i.e., efficacy and effectiveness trials) as opposed to *how* teletherapy works (i.e., process research). What little research has examined common factors in teletherapy has yielded mixed findings. One study found that therapeutic alliance was poorer in teletherapy than in face-to-face therapy (Greene *et al.*, 2010), another found alliance to be comparable between telephone and in-person environments (Stiles-Shields, Kwasny, Cai, & Mohr, 2014), and yet another found that the role of alliance depended on the type of teletherapy administered (Beckner, Vella, Howard, & Mohr, 2007).

The face-to-face psychotherapy literature includes many studies examining temporal patterns of symptom change, the impact of critical sessions, the evolution of therapeutic alliance over time and the relationship of therapy processes to outcomes (Hayes, Feldman, *et al.*, 2007; Tang & DeRubeis, 1999; Tang, Derubeis, Hollon, Amsterdam, & Shelton, 2007). These studies show that symptom change is rarely linear (Hayes, Laurenceau, Feldman, Strauss, & Cardaciotto, 2007) and that early therapeutic gains predict more favourable treatment outcomes (Hayes, Feldman, *et al.*, 2007; Ilardi & Craighead, 1994; Lutz, Stulz, & Kock, 2009). This literature also shows that many non-specific factors (e.g., therapeutic alliance) accelerate these favourable outcomes (Ilardi & Craighead, 1994; Vittengl, Clark, & Jarrett, 2005).

While individual face-to-face psychotherapy outcomes are highly influenced by common factors (accounting for 30–70% of outcome variance; Imel & Wampold, 2008), the roles of common factors and their relationships with treatment outcomes in group teletherapy remain unknown. Group therapy administered through traditional telephones (e.g., conference calls) prohibits group members from seeing one another and affords no visual cues that can inform therapists' decisions. Both of these limitations can influence, and potentially reduce, the group's bond and task orientation. Because interpersonal processes such as therapeutic alliance (Horvath, Del Re, Flunkiger, & Symonds, 2011) and group cohesion (Burlingame, McClendon, & Alonso, 2011) are two of the strongest predictors of outcome in face-to-face psychotherapy (Martin, Garske, & Davis, 2000), it is important to examine how these factors evolve and influence treatment outcomes in teletherapy.

The current study examined the process of therapeutic change as it evolved during telephone-administered, group psychotherapies for older people living with HIV (OPLWHIV). This population is an ideal candidate for telephone-administered psychotherapies because depression is highly comorbid with HIV and because the unpredictable nature of the disease and changes associated with normal ageing often impedes access to face-to-face mental health services in this group. An epidemiologic study (Grov, Golub, Parsons, Brennan, & Karpiak, 2010) found that 39% of community-dwelling HIV-infected older adults exhibited symptoms of major depressive disorder compared with 1–10% in HIV-seronegative older adults (Bing *et al.*, 2001; Blazer, 2009). Elevated depression rates in OPLWHIV are troubling because depressed OPLWHIV report impaired daily functioning, increased frailty, poor engagement and retention in care, greater rates of high HIV-transmission risk behaviours and more comorbid health conditions, most commonly cardiovascular disease and hepatitis (Havlik, 2009; High, Brennan-Ing, Clifford, Cohen, Currier, *et al.*, 2012; Negin *et al.*, 2012). Finally, OPLWHIV are less likely than their younger counterparts to seek mental health treatment (Zanjani, Saboe, & Oslin, 2007). This exploratory study used growth mixture modelling (GMM) to identify and characterize weekly trajectories of symptom change from treatment initiation (Session 1) to termination (Session 12) in two group teletherapies for depressed OPLWHIV. Specifically, this research (1) identified latent populations based on common patterns of symptom change and treatment outcome and (2) determined if widely studied common factors, such as therapeutic alliance and group cohesion, differentiated patterns of symptom change and treatment outcomes.

## METHODS

### *Study Design*

This research was a secondary analysis of data from a randomized clinical trial that investigated whether two group teletherapies (coping enhancement group teletherapy [tele-CET] and supportive-expressive group teletherapy [tele-SEGT]) provided depressive symptom relief in OPLWHIV with elevated depressive symptoms (Heckman *et al.*, 2013). Clients were recruited through AIDS service organizations in 25 states and satisfied the following inclusion criteria: (1)  $\geq 50$  years of age; (2) a diagnosis of HIV infection or AIDS; (3) Geriatric Depression Scale (GDS) scores of  $\geq 10$  at pre-intervention and (4) adequate cognitive functioning, defined by a score of  $\geq 70$  on the Modified Mini-Mental State Examination at eligibility screening. All enrolled persons provided written informed consent, and the university's institutional review board approved the study's protocol.

After completing pre-intervention assessments, clients were randomly assigned to 12 weeks of tele-SEGT, 12 weeks of tele-CET or a usual care control condition. Because this study characterized trajectories of depressive symptom relief in response to receipt of group teletherapy, only data from the two active teletherapies were analysed.

Of the 174 clients assigned to the two teletherapies, 105 were included in the current analyses. Thirty-six clients were excluded because they returned pre-session questionnaires' missing key data, and 33 clients (19%) were excluded because they no longer satisfied the depression inclusion criterion prior to the first teletherapy session. Clients excluded from analyses for these two reasons were more highly educated than retained clients,  $F(1, 172) = 4.3$  and  $p = .039$ . Retained and excluded clients

did not differ on any other demographic or clinical variable (all  $p_s > .05$ ).

### Client Characteristics and Intervention Conditions

The study's final sample consisted of 55 tele-SEGT and 50 tele-CET clients ( $n = 105$ ). Sample characteristics are shown in Table 1. Both teletherapies were delivered via group teleconference calls in 12 weekly, 90-min sessions facilitated by two Ph.D.—and/or Masters-level practitioners. Each teletherapy group followed the same format: clients and therapists telephoned into a pre-arranged toll-free 'teletherapy space'; clients provided brief updates about the previous week; therapists reviewed the session's agenda and treatments were administered through

Table 1. Client characteristics and therapeutic variables by intervention condition ( $n = 105$ )

Variable	Coping enhancement		Supportive-expressive		$\chi^2$	$p$
	<i>n</i>	(%)	<i>n</i>	(%)		
Race/ethnicity					5.89	.027
Whites	15	(27.3%)	8 (10.2%)	(16.0%)		
Persons of colour	40	(72.7%)	42 (89.8%)	(84.0%)		
Gender					.636	.497
Male	28	(51.9%)	22 (44.9%)	(44.9%)		
Female	26	(48.1%)	27 (55.1%)	(55.1%)		
Unemployed	48	(87.3%)	45 (91.8%)	(91.8%)	.571	.450
Diagnosis					1.84	.175
HIV+	27	(50.0%)	18 (36.6%)			
AIDS	27	(50.0%)	31 (63.3%)			
	M	SD	M	SD	<i>t</i>	<i>p</i>
Age	57.86	5.98	58.97	5.18	.433	.666
Education (years)	12.04	1.72	11.86	1.51	.782	.436
Age at HIV diagnosis	41.61	8.04	42.22	8.24	.294	.771
Years living with HIV	16.25	5.76	16.76	5.96	.372	.666
Therapeutic alliance <sup>†</sup>						
Composite	185.9	34.46	184.84	42.05	.148	.883
Task	63.08	13.34	62.05	17.54	.394	.694
Bond	63.33	9.63	63.42	11.70	.434	.698
Goal	59.00	13.77	61.41	15.83	.327	.665
Depression <sup>‡</sup>						
Session 1	17.29	5.33	17.22	4.94	.048	.962
Session 4	16.04	7.14	15.52	6.78	.379	.705
Session 5	14.91	7.40	14.12	7.14	.555	.580
Session 12	12.64	7.83	12.34	6.89	.205	.838
Treatment attendance	8.96	2.35	9.44	2.34	.659	.511
Group climate <sup>§</sup>						
Cohesion	3.30	.440	3.39	.502	.603	.548
Implementation and planning	3.31	.554	3.43	.554	.567	.572
Counterproductive activity	2.19	1.02	2.50	1.06	.151	.134
Perceived similarities <sup>¶</sup>	6.96	1.81	7.03	1.61	.073	.942

Coping enhancement ( $n = 55$ ) and supportive-expressive ( $n = 50$ ).

SD = standard deviation.

<sup>†</sup>Therapeutic alliance measured by the Working Alliance Inventory—client version.

<sup>‡</sup>Depression was measured by the Geriatric Depression Scale.

<sup>§</sup>Group climate was measured by the Modified Group Experiences Scale.

<sup>¶</sup>Perceived similarities were measured by the Group Members Similarities Scale.

facilitated group discussions. Co-therapists followed detailed session outlines in intervention manuals.

### *Coping Enhancement Group Teletherapy*

Drawing upon Lazarus and Folkman's (1984) Transactional Model of Stress and Coping, the study team developed an age-appropriate tele-CET for OPLWHIV. Tele-CET used cognitive behavioural principles to teach clients how to appraise stressors, develop adaptive problem-focused and emotion-focused coping strategies, apply coping strategies to stressor characteristics and assess their effectiveness, and optimize coping through appropriate social supports.

### *Supportive-Expressive Group Teletherapy*

Using principles derived from humanistic psychology, tele-SEGT focused on fostering empathy and positive regard, facilitator transparency, and maintaining a present-moment focus, which facilitated clients' efforts to explore difficulties associated with normal ageing and living with HIV as an older adult. This comparison therapy was selected because of its demonstrated efficacy in other clinical populations (Spiegel *et al.*, 1999) and its widespread use in clinical settings. Furthermore, tele-SEGT provided an ethically appropriate comparison intervention against which tele-CET was compared.

### *Procedures*

Teletherapy groups consisted of either men or women, but not both. For men, groups were further stratified by sexual orientation, with heterosexual men assigned to separate groups from gay and bisexual men. Stratification based on self-identity was necessary based on clients' stated preferences in our formative research with OPLWHIV (Heckman *et al.*, 2006). Small groups comprising six to eight clients provided greater opportunity for participation and enabled co-therapists to better monitor clients' verbal participation. A closed-group format was used; new clients were not permitted to join the group after the second session.

Eighteen therapists served as group co-therapists and, like clients, were located in various regions of the USA. Therapists facilitated only one type of treatment to avoid intervention drift. To increase the study's external validity, formal training in the teletherapist's assigned group therapy was not conducted. As might occur in many real-world clinical settings, therapists were provided their assigned intervention manual and asked to review the manual prior to co-facilitating their teletherapy, arguably making this RCT = Randomized clinical trial a combined efficacy-effectiveness trial. Fidelity to treatment was monitored through post-session responses to a 'Therapy Content Checklist'. Adherence monitoring also occurred

through monthly telephone-based supervision sessions (Heckman *et al.*, 2013).

### *Assessment Instruments and Procedures*

Clients were mailed a booklet that contained 12 pre-session surveys that assessed depressive symptoms during the previous week (one per week for the duration of the teletherapy). Single assessments of common factors and process measures (i.e., therapy expectations, therapeutic alliance, perceived group similarity and group environment characteristics) were completed by clients prior to assigned sessions during teletherapy. Clients completed each survey immediately prior to the start of the therapy session. At the end of 12 weeks, clients returned pre-session survey booklets via regular mail to the research office. Pre-session surveys included the following measures (all  $\alpha_s$  are based on data from the current study).

#### *Geriatric Depression Scale (Yesavage, Brink, Rose, & Leirer, 1982–1983)*

The GDS was completed immediately before each weekly teletherapy session. The 30-item GDS assessed cognitive, affective and behavioural symptoms of depression but did not assess physiologic symptoms to avoid confounding with HIV manifestation, HIV treatments and normal ageing. The GDS demonstrated good internal consistency across all 12 administrations ( $\alpha_s$  ranged from .88–.92).

#### *Working Alliance Inventory (Horvath & Greenberg, 1989)*

The 36-item Working Alliance Inventory was completed by clients immediately before Session 5 and assessed clients' perceptions of the therapeutic relationship. In this study, the phrase 'my therapist' was replaced with 'my group facilitators'. Items were summed to yield a composite score ( $\alpha = .92$ ) and three 12-item subscales: task ( $\alpha = .91$ ), goal ( $\alpha = .85$ ) and bond ( $\alpha = .84$ ).

#### *Intervention Credibility Subscale*

The four-item 'credibility subscale' of the Credibility/Expectancy Questionnaire (Devilly & Borkovec, 2000) assessed whether clients thought that their teletherapy would be helpful. Clients completed the intervention credibility subscale immediately prior to Session 3 after receiving sufficient information to form a belief about their therapy's perceived helpfulness ( $\alpha = .90$ ).

#### *Modified Group Environment Scale (Wilson *et al.*, 2008)*

The 25-item, self-administered Modified Group Environment Scale (MGES) assessed each teletherapy group's social climate. The MGES yielded three subscales: cohesion ( $\alpha = .89$ ); implementation and preparedness ( $\alpha = .90$ ).

and counterproductive activity ( $\alpha = .83$ ). Clients completed the MGES immediately prior to Session 4.

#### Group Member Similarity Scale

The five-item Group Member Similarity Scale, developed for this clinical trial, assessed the degree to which clients perceived themselves to be similar to other teletherapy group members in terms of age, education completed, annual income, sexual orientation and 'overall' ( $\alpha = .84$ ). The Group Member Similarity Scale was self-administered immediately prior to Session 11.

#### Demographic Characteristics

Clients provided demographic (e.g., age, race/ethnicity, education, income and relationship status) and HIV-related health information (e.g., year of HIV/AIDS diagnosis and mode of infection) at pre-intervention.

#### Data Analytic Plan

The data analytic plan consisted of three phases. First,  $\chi^2$  tests of association and independent samples *t*-tests examined potential differences in demographic and HIV-related health characteristics between the two teletherapy conditions to support the combining of clients in the two teletherapies into one larger client pool for subsequent analyses. Second, GMM identified categories of clients based on common trajectories of depressive symptom

relief across the 12 teletherapy sessions. GMM identifies trajectories of longitudinal change on an outcome variable of interest. Clients were assigned to one, and only one, trajectory based on the likelihood of group membership that corresponded to their own symptom trajectories over time. Finally, multinomial logistic regression assessed if demographics, HIV-related characteristics, psychotherapy-related variables, alliance-related variables and group-climate variables predicted change trajectories.

## RESULTS

### Preliminary Analyses and Growth Mixture Modelling Model Selection

Preliminary analyses found that clients in the two teletherapies differed only in race; a greater proportion of tele-CET clients were Caucasian ( $n = 15$ , 27%) compared with tele-SEGT clients ( $n = 8$ , 16%),  $\chi^2(1) = 5.89$  and  $p = .027$  (Table 1). Given the large number of similarities between the two teletherapy conditions, GMM models were constructed using a single sample that pooled clients from the two treatments. The best model was obtained by fitting a piecewise growth curve to the data. Specifically, changes in depressive symptoms were most accurately modelled by characterizing trajectories in two segments: Weeks 1 through 4 and Weeks 5 through 12 (Figure 1).

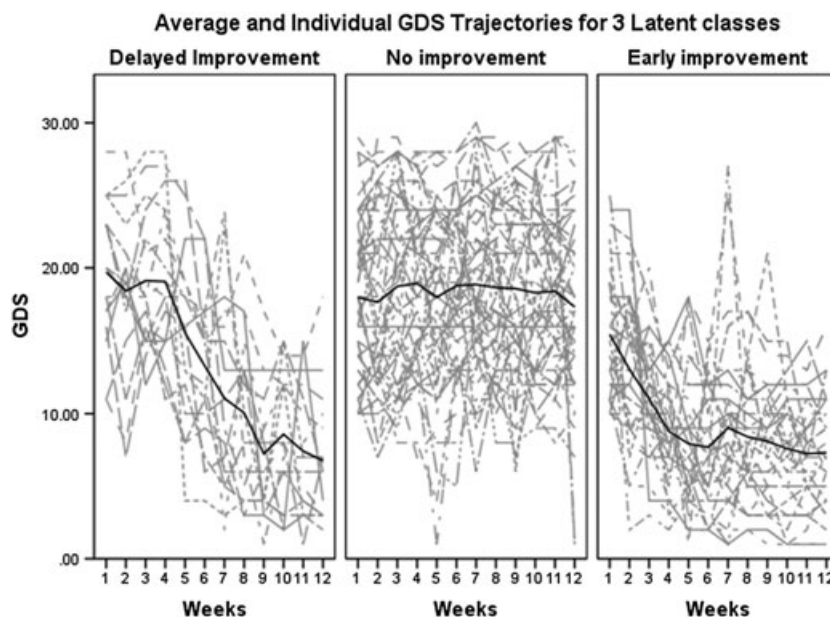


Figure 1. Average trajectories of change (dark line) with the distribution of individual trajectories (grey lines) for the three categories. GDS, Geriatric Depression Scale

### Categories of Depressive Symptom Relief

Figure 1 depicts the three trajectory groups identified in the GMM analysis. The first category ( $n = 56$ , 53.3%) consisted of clients who initiated treatment with mild-to-moderate depression (Session 1 GDS:  $M = 17.96$ , standard deviation [SD] = 4.96) and whose depressive symptoms remained constant throughout treatment. These non-improvers demonstrated no change in depressive symptoms from Sessions 1 to 4 (i.e., the first segment of the piecewise model) or Sessions 5 through 12 (the second piece of the model). The effect size ( $d$ ) of the reductions in depressive symptoms from Sessions 1 through 12 was  $d = .12$ . At Session 12, non-improvers still averaged mild-to-moderate levels of depressive symptoms ( $M = 17.30$ ,  $SD = 6.17$ ).

The remaining clients comprised two classes of treatment improvers. These two groups differed in their timing and rate of change (RC). The second latent class of clients, 'early improvers' ( $n = 32$ , 30.5%), began treatment with mild-to-moderate depressive symptoms (Session 1 GDS  $M = 15.48$ ,  $SD = 4.75$ ) and showed linear decreases in depressive symptoms through the first 4 weeks (mean  $RC = -2.28$ ,  $p < .001$ ) followed by only slight improvements across the remaining 8 weeks (mean  $RC = .12$ ,  $p < .001$ ). At Session 12, early improvers reported normal levels of depressive symptoms ( $M = 7.43$ ,  $SD = 4.20$ ). The effect size of depressive symptom relief from Sessions 1 through 12 was  $d = 1.67$ .

The third latent class of clients, 'delayed improvers' ( $n = 17$ , 16.2%), initiated treatment with mild-to-moderate levels of

depressive symptoms (Session 1 GDS:  $M = 19.71$ ,  $SD = 6.17$ ) that were unchanged from Sessions 1 through 4 ( $RC = -.12$ ,  $p = NS$ ). From Sessions 5 through 12, however, substantial reductions in depressive symptoms occurred, with an average instantaneous  $RC$  of  $-3.65$  ( $p < .001$ ) and a countervailing curvature rate of .27 for this period. Delayed improvers ended treatment with normal levels of depressive symptoms ( $M = 6.41$ ,  $SD = 4.64$ ) that did not differ statistically from early improvers at Session 12,  $t(46) = .776$  and  $p = .55$ . The effect size of symptom relief for delayed improvers from Sessions 1 through 12 was  $d = 2.68$ . Demographic characteristics and descriptive statistics for psychotherapy process variables for the three trajectory categories are presented in Tables 2 and 3, respectively.

### Predictors of Category Membership

Multinomial logistic regression analyses tested if demographics, HIV-related characteristics, intervention variables (e.g., treatment condition), therapeutic alliance or group environment characteristics predicted latent group membership. Several demographic and health-related variables emerged as significant predictors in the model-building analyses: gender, years living with HIV/AIDS and conversion to AIDS (yes/no). Of the three therapeutic alliance variables, only therapeutic bond significantly differentiated the trajectory classes. Finally, of the group-environment variables, group cohesion, implementation

Table 2. Demographic characteristics of clients by trajectory category ( $n = 105$ )

Characteristic	Early improvers		Delayed improvers		Non-improvers	
	M	(SD)	M	(SD)	M	(SD)
Age	58.14	(4.49)	55.70	(4.99)	59.18	(6.04)
Education (years)	11.55	(1.25)	11.40	(1.56)	12.34	(1.88)
Age at HIV diagnosis	43.31	(6.86)	39.73	(6.95)	40.30	(10.26)
Years living with HIV dx	14.34	(5.52)	16.71	(6.68)	18.08	(5.39) <sup>†</sup>
Characteristic	<i>n</i>	(%)	<i>n</i>	(%)	<i>n</i>	(%)
Treatment condition						
Coping enhancement	15	(46.9%)	10	(58.8%)	30	(53.6%)
Supportive-expressive	17	(53.1%)	7	(41.2%)	26	(46.4%)
Gender						
Male	10	(32.3%)	10	(58.8%)	30	(54.5%)
Female	21	(67.7%)	7	(41.2%)	25	(45.5%)
Race/ethnicity						
Whites	3	(9.4%)	3	(17.6%)	17	(30.4%)
Persons of colour	29	(90.6%)	14	(82.4%)	39	(69.6%)
AIDS diagnosis						
Yes	17	(53.1%)	13	(72.2%)	30	(55.6%)
No	15	(46.9%)	5	(17.8%)	24	(44.4%)

Early improvers ( $n = 32$ ); delayed improvers ( $n = 17$ ) and non-improvers ( $n = 54$ ).

SD = standard deviation.

<sup>†</sup> $p < .05$

Table 3. Psychotherapy variables by latent trajectory class

Variable	Trajectory class					
	Early improvers		Delayed improvers		Non-improvers	
	M	(SD)	M	(SD)	M	(SD)
Depression						
Session 1	15.48	(4.75)	19.71	(4.96)	17.96	(5.29)
Session 6	7.66	(4.22)	12.00	(5.60)	18.62	(5.85)
Session 12	7.43	(4.20)	6.41	(4.64)	17.30	(6.17)
Session attendance	8.68	(2.61)	9.47	(2.55)	9.28	(2.24)
Intervention credibility	-.221	(4.44)	-.022	(2.88)	-.412	(4.15)
Working Alliance Inventory						
Composite	186.22	(37.63)	204.73	(33.69)	179.98	(38.32)
Task	65.69	(15.40)	66.00	(13.29)	59.96	(14.87)
Goal	62.87	(15.08)	63.59	(12.28)	56.87	(14.51)
Bond	63.62	(10.86)	64.65	(10.90)	62.03	(10.04)
Group member experience						
Group cohesion	3.37	(.532)	3.14	(.394)	3.15	(.609)
Implementation/planning	3.33	(.642)	3.44	(.316)	3.32	(.527)
Counterproductive activity	2.51	(1.07)	2.29	(1.12)	2.26	(1.02)
Group member similarities	7.35	(1.56)	7.77	(1.12)	6.56	(1.88)

Early improvers ( $n = 32$ ); delayed improvers ( $n = 17$ ) and non-improvers ( $n = 54$ ).  
SD = standard deviation.

and planning, and group member similarity significantly predicted group membership. No intervention-related variable (treatment condition, number of teletherapy sessions attended or perceived intervention credibility) differentiated the three classes.

We next tested the significant predictors listed previously ( $p < .10$ ) from each variable cluster in a final multinomial logistic regression model ( $p < .05$ ). Non-improvers were used as the reference category against which the two improver classes were compared (Table 4). The final model specification indicated a good overall fit,  $\chi^2 = 38.55$ ,  $p = .005$  and significant effects for three predictors: number of years living

with HIV/AIDS, group cohesion and perceived group member similarity.

Number of years living with HIV differentiated early improvers ( $M = 14.00$ ,  $SD = 5.63$ ) from non-improvers ( $M = 18.08$ ,  $SD = 5.39$ ),  $Wald = 8.16$  and  $p = .004$ . For every one unit increase in years living with HIV, the odds of being a non-improver were 1.17 times higher than the odds of being an early improver. In addition, early improvers reported greater group cohesion than non-improvers ( $Wald = 4.18$ ,  $p = .041$ , Table 4).

In contrast, stronger group cohesion at Session 4 predicted a 15.5 times lower likelihood of membership in the

Table 4. Summary of final multinomial logistic regression analysis predicting trajectory category membership

Correlates	Early improvers versus							Delayed improvers versus						
	Non-improvers							Non-improvers						
	B	SE	OR	95% CI	Wald	$p$		B	SE	OR	95% CI	Wald	$p$	
Gender	-.669	.512	1.12	.171, 1.53	1.43	.232		.110	.73	1.17	.268, 4.65	.015	.879	
Years living with HIV	-.156	.055	.856	.770, .952	8.16	.004		-.123	.069	.884	.772, 1.01	2.82	.076	
AIDS diagnosis	.035	.549	1.07	.335, 3.04	.012	.949		-1.35	.817	.321	.065, 1.59	2.29	.164	
Bond	-.012	.035	.988	.922, 1.06	.124	.724		.016	.046	1.02	.929, 1.11	.038	.727	
Group cohesion	1.76	.859	5.79	1.24, 42.62	4.18	.041		-2.74	1.25	.065	.006, .753	5.68	.029	
Implementation and planning	-1.45	.790	.236	.044, 1.28	3.34	.067		1.75	1.22	5.75	.532, 62.25	2.04	.150	
Group member similarities	.269	.186	1.31	.915, 2.05	2.10	.148		.869	.349	2.39	1.20, 4.73	5.55	.013	

The reference group is non-improvers.

Early improvers:  $n = 31$ ; delayed improvers:  $n = 17$  and non-improvers:  $n = 54$ .

95% CI = confidence intervals for odds ratios; gender: (0 = male, 1 = female) and AIDS diagnosis (0 = no, 1 = yes).

SE = standard error. OR = odds ratio.

delayed improvers group compared with the non-improvers group ( $OR = .065$ ,  $Wald = 5.68$ ,  $p = .029$ ). As Table 3 shows, delayed improvers had the lowest cohesion level of the three groups at Session 4. Perceived group member similarity also differentiated delayed improvers from non-improvers ( $Wald = 5.55$ ,  $p = .013$ ), but in the expected direction. The odds ratio of 2.39 indicated that as perceived group member similarity increased, the odds of being in the delayed improvers class relative to the non-improvers class also increased.

## DISCUSSION

This study found three distinct trajectories of depressive symptom relief in OPLWHIV enrolled in group teletherapy. Slightly more than half of clients (53%) were non-improvers; however, the remaining clients (47%) reported significant reductions in depressive symptoms across the 12 teletherapy sessions. Two-thirds of improvers reported symptom relief early in treatment (prior to or at Session 4 of the 12-session therapy), while the remaining one-third reported symptom relief in the latter teletherapy sessions. These findings are consistent with those from face-to-face psychotherapy research (Imel & Wampold, 2008) and suggest that, similar to in-person therapy, the timing and rates of symptom relief in group teletherapy vary. Differences in depressive symptoms relief in this clinical population may be related to factors such as personality, behavioural factors (e.g., alcohol and substance use) and comorbid health conditions (Menchetti *et al.*, 2014; Olatunji, Davis, Powers, & Smits, 2013).

Non-improvers had been living with HIV/AIDS for more years than early improvers, suggesting that one's HIV chronicity might complicate depression treatment via telephone. Teletherapists might consider forming separate groups for newly diagnosed OPLWHIV and longer-term survivors. Newly diagnosed OPLWHIV may experience depression because of the surprise of their diagnosis; difficulties adjusting to living with HIV, such as disclosing one's HIV-seropositive status to family members, friends and sex partners to conform to HIV disclosure laws and establishing and navigating a new healthcare network that includes diverse healthcare professionals. Depression in OPLWHIV who have been living with HIV for many years may be related to multiple incidents of perceived and enacted discrimination, the loss of many friends to HIV, the onset of comorbid health conditions (e.g., hyperlipidaemia, diabetes and hypertension), greater neurocognitive compromise and the physical and psychosocial sequelae of adhering to polypharmacy regimens to manage one's HIV and comorbid disorders (Lakatos, Szabo, Bozzai, Banhegyi, & Gazdag, 2014; Patel *et al.*, 2015). Depression resulting from one or more of these complications may be too difficult to treat through brief teletherapy. Among OPLWHIV, the

causes and amplifiers of depression in those with greater HIV chronicity may require longer and more intensive teletherapy compared with those who have been living with HIV for fewer years.

Regarding the role of the common factors, clients' therapeutic alliance with group co-therapists was unrelated to depressive symptom relief. In fact, therapeutic alliance in the two improver groups was no higher than alliance in the non-improver group. Depressive symptom trajectory membership was, however, related to group cohesion and perceived similarity to other group members. Early improvers reported greater group cohesion at Session 4 than non-improvers. In the delayed improver group, group cohesion was weak at the midpoint of teletherapy; however, this did not preclude eventual symptom relief. Although delayed improvers reported the lowest group cohesion levels midway through teletherapy, this group did report the greatest perceived group member similarity at Session 11. Perhaps delayed improvers developed stronger cohesion during the mid-teletherapy to latter-teletherapy sessions, at which time symptom relief occurred, although the study's data collection schedule prohibits formal testing of this possibility. It is plausible that, even with lower group cohesion, increased group member similarity enabled some clients to eventually develop a sense of communality, relate more easily to other group members and provide and receive support, all of which resulted in symptom relief. This possibility is supported by research linking greater group homogeneity to more favourable psychotherapy treatment outcomes (Yalom, 1995). These patterns of findings demonstrate that group process variables in teletherapy are more predictive of symptom relief than therapeutic alliance and therapy outcome expectations. These findings also suggest that, even though group teletherapy provides no visual cues for clients or providers, clients are capable of perceiving the extent to which they are similar to other group members and that these perceptions are important to subgroups of clients who may benefit from teletherapy.

Several limitations are noteworthy. As with any GMM analysis, variables selected for model inclusion may have influenced outcomes. Common factors measures were administered only once, and the schedule used to administer these measures may have influenced findings. Findings related to common factors and their relationships with teletherapy outcomes generalize only to the administration schedule used in this study. Another potential limitation was the non-trivial number of clients excluded from analyses due to the remittance of depressive symptoms between eligibility screening and the initiation of teletherapy groups. Finally, this research focused exclusively on therapeutic outcomes at the completion of the 12-week teletherapies; analyses of depressive symptom relief over longer-term follow-up (e.g., 4-month and 8-month follow-up) were not conducted.

## Clinical Implications

For researchers and practitioners conceptualizing and implementing group teletherapy, study results have at least three implications. Providers can anticipate considerable variability in clients in group teletherapy, with outcome subgroups consisting of (1) clients who evidence no improvement, (2) clients who experience rapid symptom relief that is maintained for the remainder of treatment and (3) clients who do not improve until late in therapy but who, nonetheless, experience levels of depressive symptom relief comparable with those who report rapid symptom reduction. Greater HIV chronicity may require more intensive teletherapeutic intervention. Stronger cohesion among group members was more related to psychotherapy outcomes in early improvers than was therapeutic alliance. Teletherapists may want to maximize group cohesion using strategies that rely less on visual cues. These strategies may involve encouraging group members to exchange contact information during therapy to promote greater communication and support that extends beyond teletherapeutic sessions. Experiential feedback from group members to each other's communications may also increase group cohesion and therapy efficacy and is a feasible strategy to increase cohesion in teletherapy. Finally, for a subgroup of individuals, symptom relief is possible regardless of group cohesion as long as these clients perceive themselves as being similar to other members in the group. As group teletherapy becomes an increasingly viable mode of administering psychotherapy to geographically or psychologically distant individuals, the extent to which study findings generalize to other clinical populations warrants investigation.

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## AUTHOR CONTRIBUTIONS

T.G.H.: overall study oversight, study conceptualization, interpretation of study findings, oversaw manuscript

preparation activities and wrote first draft of manuscript; B.D.H.: assisted in study conceptualization, oversaw development of intervention manuals, provided interventionist supervision, assisted in interpretation of study findings and assisted in manuscript preparation; T.A.: assisted in study conceptualization, served as lead therapist of multi-person therapist team, assisted in interpretation of study findings and contributed to several versions of the manuscript; J.B.: primary data analyst and wrote several sections of the manuscript; M.S.: assisted in study conceptualization, oversaw data collection and patient retention activities, assisted in interpretation of study findings and assisted in manuscript preparation and T.L.: secondary data analyst, interpretation of study findings and assisted in manuscript preparation.

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