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BRIEF COMMUNICATION

Engaging Street-Involved Youth in Dialectical Behaviour Therapy: A Secondary Analysis

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Abstract

Objective: The objective of this secondary analysis was to identify factors associated with engagement of street-involved youth in a Dialectical Behavioural Therapy (DBT) intervention. **Methods:** This was a cross-sectional correlational study. Youth were recruited from two agencies providing services to street-involved youth in Canada. Mental health indicators were selected for this secondary analysis to gain a better understanding of characteristics that may account for levels of engagement. **Results:** Three distinct groups of participants were identified in the data, a) youth who expressed intention to engage, but did not start DBT (n=16); b) youth who started DBT but subsequently dropped out (n=39); and c) youth who completed the DBT intervention (n=67). Youth who did engage in the DBT intervention demonstrated increased years of education; increased depressive symptoms and suicidality; and lower levels of resilience and self-esteem compared to youth participants who did not engage in the intervention. **Conclusions:** These findings indicate that it is possible to engage street-involved youth in a DBT intervention who exhibit a high degree of mental health challenges. Despite the growing literature describing the difficult psychological and interpersonal circumstances of street-involved youth, there remains limited research regarding the process of engaging these youth in service.

Key Words: *street-involved youth, homeless youth, engagement, Dialectical Behaviour Therapy*

Résumé

Objectif: L'objectif de cette analyse secondaire était d'identifier les facteurs associés à l'engagement des adolescents de la rue dans une intervention de thérapie comportementale dialectique (TCD). **Méthodes:** Il s'agissait d'une étude corrélationnelle transversale. Les adolescents ont été recrutés dans deux organismes offrant des services aux adolescents de la rue du Canada. Des indicateurs de la santé mentale ont été sélectionnés pour cette analyse secondaire afin de mieux comprendre les caractéristiques qui peuvent rendre compte des niveaux d'engagement. **Résultat:** Trois groupes de participants distincts ont été identifiés dans les données: a) les adolescents qui ont exprimé l'intention de s'engager, mais n'ont pas commencé la TCD (n = 16); b) les adolescents qui ont commencé la TCD mais l'ont ensuite abandonnée (n = 39); et c) les adolescents qui ont terminé l'intervention de TCD (n = 67). Les adolescents qui se sont engagés dans l'intervention de TCD ont démontré plus d'années de scolarité, des symptômes accrus de dépression et de suicidabilité, et des niveaux plus faibles de résilience et d'estime de soi comparativement aux adolescents participants qui ne se sont

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pas engagés dans l'intervention. **Conclusions:** Ces résultats indiquent qu'il est possible d'engager dans une intervention de TCD des adolescents de la rue qui présentent un degré élevé de problèmes de santé mentale. Malgré la littérature croissante décrivant les circonstances psychologiques et interpersonnelles difficiles des adolescents dans la rue, la recherche demeure limitée à l'égard du processus d'engager ces adolescents dans les services.

***Mots clés:** adolescents de la rue, jeunes sans abri, engagement, thérapie comportementale dialectique*

The profound level of mental health problems, such as depression, anxiety, self-harm and suicidality among street-involved youth in urban centers has been well documented (Edidin, Ganim, Hunter, & Karnik, 2012; McCay et al., 2010; Milburn, Rotheram-Borus, Rice, Mallet, & Rosenthal, 2006). Although these severe mental health problems amongst street-involved youth are well known, effective interventions to address and improve the mental health of this population remain limited (Altena, Brilleslijper-Kater, & Wolf, 2010; Collins & Barker, 2009; Kidd, 2003; McCay et al., 2010). Dialectical Behaviour Therapy (DBT) is an empirically supported intervention (which includes both individual and group components) initially developed to treat symptoms associated with borderline personality disorder (Linehan, 1993). This intervention has since been adapted and applied to various populations, in particular to adolescents experiencing a range of mental health challenges including; suicidality (Katz, Cox, Gunasekara, & Miller, 2004; Rathus & Miller, 2002), self-harm (Miller, Rathus, & Linehan, 2007), depression, and anxiety (Bohus et al., 2004). It is noteworthy that all of these mental health challenges are related to problems with regulating emotions (Linehan, 1993; 2000) and are common to street-involved youth (Chen, Thrane, Whitbeck, & Johnson, 2006; McCay et al., 2015) and as such, DBT has the potential to be effective with these vulnerable youth. Additionally, DBT directly addresses challenges with engagement as therapists and clients openly discuss commitment to therapy as well as problem solving around therapy-interfering behaviours and making sustained positive changes (Miller et al., 2007).

While interventions such as DBT have the potential to be effective, the difficulty of engaging urban street-involved youth in services remains a challenge (Collins & Barker, 2009; McCay et al., 2010). It is known, however, that when youth are in crisis they seek help from medical, addiction, and/or mental health services (Hudson et al., 2010). Furthermore, the literature highlights that services for street-involved youth need to focus on the development of a range of skills, such as problem-solving and interpersonal skills, within the context of trusting relationships with service providers and be offered in settings readily accessed by youth (e.g. shelters and drop-ins) (Hudson et al., 2010; Karabanow & Clement, 2004).

In an effort to address the need for accessible and acceptable mental health intervention for street-involved youth, the primary research team has implemented and evaluated an adapted version of DBT for adolescents (Miller et al., 2007) at two Canadian agencies in Toronto and Calgary providing services to homeless youth. The intervention was provided free of charge by existing agency staff. Ethics approval was obtained from all participating and local research ethics boards. It was anticipated that DBT would reduce the high levels of psychological distress and promote overall functioning in these vulnerable youth (McCay et al., 2015). However, the degree to which youth would engage in the DBT intervention was relatively unknown. In order to address the challenge of engagement, a secondary analysis of baseline data generated in the primary DBT study was conducted. The purpose on this secondary analysis was to identify factors that facilitate or inhibit street-involved youths' decision to engage in the DBT intervention. The term street-involved youth has been adopted for this study as it captures a broad range of youth and young adults (ages 16-24) who have unstable housing and live in precarious situations, or who may be absolutely homeless (Elliot, 2013; Kelly & Caputo, 2007).

Methods

Baseline data from 122 street-involved youth was examined, providing a cross-sectional sample with 52% (n=63) of youth participants from Toronto and 48% (n=59) from Calgary. Self-report questionnaires were administered by experienced research staff who met with the youth at each of the respective research sights. To be eligible, street-involved youth must have: previously lived on the street or in short-term residential programmes for a minimum of one month; been between the ages of 16 and 24 years; been able to speak and understand English; and been able to provided informed consent. Three distinct groups were identified within the data: a) Youth who expressed intention to engage but did not start the DBT intervention (not engaged, 13%, n=16); b) Youth who started DBT but subsequently dropped out due to missing four or more group or individual sessions in a row (dropped-out, 32%, n=39). Examples of reasons for dropping out included: having left the agency abruptly; left the city; and conflict with new work/school schedule; and, c) Youth who completed the intervention, which required attendance at both group and individual sessions without missing four or more group or individual sessions in a row (engaged, 55%, n=67). Participants who engaged in the DBT intervention attended an average of eight individual sessions and nine group sessions out of a possible 12 sessions for each. Participants who dropped out of the intervention attended on average two individual sessions and three group sessions.

An adapted version of DBT for adolescents by Miller, Rathus, and Linehan (2007) was implemented and evaluated in the primary study. Eighteen agency staff including social workers, youth workers and a few healthcare providers, with no prior experience in DBT, were trained in the intervention via webinars with a DBT expert, as well as online training resulting in DBT certification and self-study manuals. The same training was provided to all staff regardless of the allocation to individual and/or group therapists (see McCay et al., 2015 for details regarding the training methods). Miller et al.'s 16-week DBT intervention was reduced to 12 weeks on the recommendation of our community collaborators who indicated that it would be extremely challenging to keep street-involved youth engaged for longer than 12 weeks. The family component of the intervention was removed to better meet the needs of the majority of street-involved youth who did not have family readily available to participate in the intervention. The core components of the intervention that were included in the skills group were: mindfulness, distress tolerance, interpersonal effectiveness and emotion regulation (Miller et al., 2007), with dialectics being integrated into the individual sessions. Weekly individual therapy sessions utilized diary cards and chain analysis to understand individual goals and challenges, and discuss core problem-solving strategies. A 24-hour crisis plan was developed in the individual sessions with youth participants and included access to 24-hour crisis support involving in-person counseling available through participating agencies.

Statistical analysis

All data were analyzed using the Statistical Package for the Social Sciences (SPSS) 21 for Windows. Statistical significance was set at $p \leq 0.05$. Independent t-tests were employed to assess for differences between groups. Chi-square analyses were conducted to assess differences in categorical data.

Measurements

Mental health indicators were selected for this secondary analysis to gain a better understanding of the characteristics of the three groups (engaged, not engaged, and dropped-out) in order to determine whether there were differences that accounted for their level of engagement. The five standardized measures included in this analysis were previously utilized with street-involved youth as indicators of mental health (McCay et al., 2010). The coefficient alphas of each measure for the current study are listed along with descriptions of the measures. The *Beck Depression Inventory* (BDI) (Beck, Ward, Mendelson, Mock & Erbaugh, 1961) is a well-known 21-item self-report measure of psychological distress and depression (α = 0.92). Scores range from 0 to 63 with score increments indicating the following: 0-10 Normal ups and downs; 11-16 Mild mood disturbance; 17-20 Borderline clinical depression; 21-30 Moderate depression; 31-40 Severe depression; and over 40 Extreme depression (Beck et al., 1961). The *Resilience Scale* (RS) (Wagnild & Young, 1993) is a 25-item self-report scale with a seven-point Likert response format (α = 0.93). Scores range from 25 to 175 points, and a score of 146 or above has been considered to indicate a high degree of resilience (Wagnild & Young, 1993). The *Rosenberg Self-esteem Scale* (RSES) (Rosenberg, 1979) is a 10-item, 4-point Likert self-report inventory to measure global self-worth (α = 0.92). Scores range from 10 to 40 with higher scores representing higher self-esteem (Rosenberg, 1979). *The Depressive Symptom Index-Suicidality Subscale* (DSI-SS) (Joiner, Pfaff, & Acres, 2002) is a brief four-question measure assessing suicidal ideation (α = 0.91). Scores range from 0 to 12 with scores equal or greater than 1 indicating an elevated risk for suicide (Joiner et al., 2002). The *Michigan Alcohol Screening Test – Adolescent Version* (MAST) (Snow, Thurber, & Hodgson, 2002) is a 19-item self-report inventory that has been modified from the adult version to include items consistent with adolescent experiences (α = 0.89). Scores range from 0 to 19, with higher scores indicating higher levels of harmful substance use (Snow et al., 2002). In addition, *socio-demographic data pertaining to* age, gender, sexual orientation, current relationship status, length of time on the street, length of time residing in Canada, living arrangements, education, work and service utilization were also collected.

Results

Several significant differences were identified between Toronto and Calgary-based youth with regard to socio-demographic data. Firstly, Toronto-based youth were more likely to live in a shelter (n=36) than Calgary youth (n=10) (=21.84, df=2, p=0.00). Toronto-based youth were older (M=21.44) (SD=2.06) than Calgary-based youth (M=20.20) (SD=2.62) (t=2.90, df=110.17, p=0.005). Furthermore, Toronto-based youth had lived in Canada (M=16.33) (SD=7.60) for fewer years than Calgary-based youth (M=19.44) (SD=3.87) (t=2.88, df=93.51, p=0.005). Lastly, Toronto-based youth were more likely to have seen a psychiatrist in the past month (n=30) (48%) than Calgary-based youth (n=11) (19%), x^2 (1, N=122) = 11.46, p=.001. However, no statistically significant differences were identified between study variables according to site; therefore data from both sites were analyzed together.

Demographic characteristics are provided in Table 1. The sample was comprised of 57 males and 64 females; virtually all were single (n=115) (94.3%), and the majority were heterosexual (n=86) (70.5%) with the mean age of 20.84 years (SD=2.42). Approximately one third of the youth had seen a psychiatrist (n=41) (33.6%) and/or therapist (n=40) (32.8%) within the last month and 18% (n=22) had accessed substance abuse treatment within the last month. To the best of our knowledge none of the youth had previously been enrolled in a DBT intervention.

Table 1. Overall demographic characteristics of study participants (N=122)

	Mean	SD
1. Age	20.84	2.42
2. Length of time on street (weeks)*	171.72	150.73
3. Length of time in Canada (years)	17.83	6.26
4. Length of education (years)**	10.87	2.22
	N	%
5. Study site		
Toronto	63	51.6
Calgary	59	48.4
6. Gender		
Male	57	46.7
Female	64	52.5
Other	1	0.8
7. Current living situation		
Shelter	46	37.7
Transitional housing	31	25.4
Other	45	36.9
8. Relationship status		
Single	115	94.3
Common law	6	4.9
Missing	1	0.8
9. Sexual orientation		
Straight	86	70.5
Gay	13	10.7
Bisexual	20	16.4
Other	3	2.5
10. School attendance		
Yes	27	22.1
No	94	77
Missing	1	0.8
11. School involvement		
High school	14	11.5
College	2	1.6
University	1	0.8
Other	11	9
13. Employment		
Yes	41	33.6
No	81	66.4
14. Service use at least once in the past month		
Psychiatrist	41	33.6
Therapist	40	32.8
Substance abuse treatment	22	18

* 4 values missing; ** 3 values missing

Table 2. Comparison of engaged and not-engaged youth across mental health measurements						
	Engaged (n=67)	Not-Engaged (n=16)				
Measurement	Mean (SD)	Mean (SD)	m	t	df	p
Depression (BDI)	27.16 (13.37)	17.06 (10.19)	10.1	3.34	28.77	0.002
Self-Esteem (RSES)	25.4 (7.11)	30.31 (9.22)	4.91	2.34	81	0.022
Alcohol (Adol MAST)	6.49 (4.90)	8.31 (4.73)	1.82	1.34	81	0.18
Resilience (RS)	114.99 (27.24)	130.23 (25.39)	15.23	2.04	81	0.045
Suicidality (DSI-SS)	2.33 (2.46)	1.00 (1.83)	1.33	2.43	29.62	0.022

BDI scores range from 0 to 63 with scores between 0-10 = normal ups and downs; 11-16 = Mild mood disturbance; 17-20 = Borderline clinical depression; 21-30 = Moderate depression; 31-40 = Severe depression; and over 40 = Extreme depression.

RSES scores range from 10-40 with higher scores representing higher self-esteem.

MAST scores range from 0 to 19, with higher scores indicating higher levels of harmful substance use.

RS scores range from 25-175 with 25-120 = very low resiliency; 121-130 = moderately low resiliency; 131-144 = moderate resiliency; 145-160 = moderately high resiliency; 161-175 = very high resiliency

DSI-SS scores range from 0-12 with scores equal or greater than 1 indicating elevated risk of suicide.

Table 3. Comparison of engaged and dropped-out across mental health measurements						
	Engaged (n=67)	Dropped-out (n=39)				
Measurement	Mean (SD)	Mean (SD)	m	t	df	p
Depression (BDI)	27.16 (13.37)	24.15 (12.91)	3.01	1.13	104	0.26
Self-Esteem (RSES)	25.4 (7.11)	26.62 (7.18)	1.22	0.85	104	0.40
Alcohol (Adol MAST)	6.49 (4.90)	7.85 (5.51)	1.35	1.31	104	0.193
Resilience (RS)	114.99 (27.24)	124.35 (28.41)	9.35	1.68	104	0.096
Suicidality (DSI-SS)	2.33 (2.46)	1.64 (2.47)	0.69	1.38	104	0.170

No difference in socio-demographic factors were found between those who engaged versus those who did not engage in the intervention, with the exception that youth who did not engage had statistically significantly fewer years of education (M=9.5, SD=3.09) than those who did engage (M=11.19, SD=1.92) (t=2.77, df=80, *p*=0.007) and that youth who did engage were also statistically significantly more likely to have seen a psychiatrist in the last month (n=28) (42%) than youth who did not engage (n=2) (13%), x^2 (1, N=83) = 4.80, p=.028. When comparing socio-demographic factors between youth who engaged and youth who dropped-out, the only factor approaching significance was length of time on the street, with those who dropped-out having spent more time on the street as measured in years (M=3.85, SD=3.32) than those youth who engaged and stayed in the intervention (M=2.80, SD=2.36) (t=1.87, df=100, p=0.064).

Statistically significant differences were found between youth who engaged in the intervention and those who did not engage on several mental health indicators (see Table 2). Specifically, youth who engaged reported statistically significantly higher levels of depressive symptoms (t=3.34, df=28.77, p=0.002) and increased suicidal ideation (t=2.43, df=29.62, p=0.022) than those who did not engage. As indicated in Table 2, the mean obtained on the BDI in the engaged group falls within the high end of the moderate depression range. Whereas the BDI scores for the not engaged group indicates mild depression. Both the engaged and not engaged groups had elevated DSI-SS scores (over 1); indicating an elevated level of suicidality. Additionally, non-engaged youth had statistically significantly higher levels of resilience (t=2.04, df=81, p=0.045), as well as statistically significantly higher levels of self-esteem (t=2.34, df=81, p=0.022). Although there were significant differences in resilience and self-esteem between engaged and not engaged youth, both groups scored below normative values for adolescents on both scales (McCay et al., 2010; Vasconcelos-Raposo, Fernandes, Teixeira, & Bertelli, 2012). There were no significant differences in levels of substance use between the two groups. Upon comparison between

engaged youth and youth who dropped-out of the intervention (see Table 3), there were no statistically significant differences in any of the study variables of interest. However, a trend approaching significance indicated ($t=1.87$, $df=100$, $p=0.64$) that youth who dropped-out of DBT spent more time on the street (in years) than youth who engaged.

Discussion

The purpose of this secondary analysis was to identify factors that facilitate or inhibit street-involved youths' decision to engage in the DBT intervention. Despite study participants' low level of mental health service use, over fifty percent of youth in the current study did engage in DBT. The capacity to engage youth in DBT may be, in part, attributable to the fact that the intervention was offered on-site in a safe and accessible environment. This observation is consistent with the literature which emphasizes the need to offer services for street-involved youth in supportive and non-threatening environments (Hudson et al., 2010; Karabanow & Clement, 2004).

The socio-demographic characteristics of the youth participants in the current study are consistent with attributes of street-involved youth reported in the literature; with youth participants being of similar age (Fielding & Forchuck, 2013; McCay et al., 2010; Zerger, Strehlow, & Gundlapalli, 2008) and experiencing high levels of mental health challenges (Edidin et al., 2012; McCay et al., 2010; Milburn et al., 2006; Zerger et al., 2008). Overall, the study findings demonstrated that youth who engaged in the DBT intervention experienced significantly higher levels of depressive symptoms and suicidal ideation compared to youth who did not engage. It is noteworthy that DBT for adolescents targets depressive symptoms and suicidality (Groves, Backer, van den Bosch, & Miller, 2012; Katz et al., 2004) and may explain, to some degree, the fact that youth participants experiencing these symptoms did engage in the intervention.

Further, youth who did not engage in the DBT intervention reported significantly lower levels of depressive symptoms and suicidal ideation, along with increased resiliency, and self-esteem at baseline compared to youth who engaged. This elevated level of resilience in the non-engaged group may suggest that these youth were able to cope with their current challenges and as such did not feel the need to engage in the DBT intervention. On the other hand, it is important to keep in mind that non-engaged youth did demonstrate elevated levels of depression and suicidality, along with substance abuse issues suggesting that these vulnerable youth are still in need of a mental health intervention such as DBT. It is also noteworthy that youth who did not engage in DBT had significantly less years of formal education than those who engaged in the intervention. The degree to which educational level influenced participants' decision to engage in DBT is unknown and warrants further investigation.

In addition, youth who dropped-out of the intervention experienced comparable levels of mental health challenges compared to youth who engaged, however youth who dropped out of the intervention were not able to sustain their engagement in the intervention. Furthermore, a trend indicated that youth who dropped-out of DBT spent more time on the street than youth who engaged. This trend may be consistent with the study by Hudson et al. (2010) which explicates that youth who are well integrated in street cultural frequently reach an equilibrium, whereby accessing services becomes less of a priority. Hudson et al. suggest that outreach programs are needed to engage youth who no longer view accessing services as a priority.

Given the limited evidence regarding intervention research in street-involved youth, the question of which interventions will most effectively meet the full spectrum of mental health need observed in this vulnerable population remains to be answered. According to a systematic review of interventions for homeless youth some emerging evidence suggests that cognitive behavioural approaches are promising (Altena et al., 2010). DBT is an intervention based on cognitive behavioural approaches which incorporates a range of problem solving and interpersonal skills and as such offers promise for vulnerable youth experiencing a range of mental health symptoms (Miller et al., 2007). Innovative engagement strategies, which demonstrate the relevancy of DBT to youths' future goals, need to be explored in future studies.

Limitations

This is a secondary analysis, which has inherent limitations, given the availability of data that directly addresses the question of interest. This analysis would have been enhanced by the inclusion of qualitative data to further identify the reasons for youths' level of engagement or decision to drop out, as well as the inclusion of standardized measures of engagement. These considerations should be incorporated within future study designs. In addition, the cross-sectional nature of the design suggests that these findings should be viewed with caution as they provide correlational data and cannot determine causal relationships between variables of interest.

Conclusions

Despite the growing literature describing the difficult psychological and interpersonal circumstances of street-involved youth, there remains limited research regarding the process of engaging these youth in services (Collins & Barker, 2009; McCay et al., 2010). This secondary analysis provides an increased understanding of the factors that may influence the engagement of street-involved youth, such that youth who experience a high degree of mental health challenge did engage in an adapted DBT intervention. In

part, these authors attribute the fact that the intervention was offered on-site in a safe and accessible environment, and that DBT targets the depressive and suicidal symptoms experienced by these youth, to this success. However, significantly fewer years of education, as well as a longer duration of homelessness were noted as possible barriers to establishing and sustaining engagement with marginalized youth who did not engage or who dropped out of the DBT intervention. Increasing the availability of interventions based on cognitive behavioural approaches, such as DBT, may prove promising to engage youth, as well as addressing this population's psychological distress; warranting further attention and investigation. Furthermore, the implementation of evidence-based interventions in community-based settings may well be feasible, and is necessary to build resources for positive youth outcomes in street-involved youth.

Acknowledgements/Conflicts of Interest

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