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BRIEF COMMUNICATION

Social Determinants of Health among Youth Seeking Substance Use and Mental Health Treatment

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Abstract

Objective: The extent to which social determinants of health problems occur among youth with mental health and addiction concerns and the impact of social determinants on their treatment is unknown. This study examined the prevalence of social determinants of health problems among treatment-seeking youth, their perceptions of interference with treatment, and the association between social determinants of health and mental health/addiction difficulties. Method: Youth ages 15-24 seeking out-patient treatment for substance use concerns, with or without concurrent mental health concerns, reported on substance use, mental health and social determinants of health. Descriptive statistics and logistic regression analyses were used to determine the extent of social determinant of health problems and their relationship with mental health, substance use, and crime or violence problems. Results: In all, 80% of youth endorsed social determinants of health concerns in at least one domain; nearly 70% identified financial concerns, and many identified substantial problems in each domain and anticipated treatment impacts. Youth most frequently identified financial problems as likely to impact treatment. Cumulative number of social determinants of health problems and individual domains of social determinants of health problems were related to overall mental health and addiction concerns. Conclusions: Given their prevalence and association with mental health and addiction concerns, social determinants of health problems should be routinely assessed among treatment-seeking youth and integrative services that address these concerns in addition to symptomatology should be considered.

Key Words: social determinants of health, youth, substance use, mental health, treatment engagement

Résumé

Objectif: La mesure dans laquelle les déterminants sociaux des problèmes de santé sont présents chez les jeunes ayant des problèmes de santé mentale et de dépendance ainsi que l'impact des déterminants sociaux sur leur traitement sont inconnus. Cette étude a examiné la prévalence des déterminants sociaux des problèmes de santé chez les jeunes recherchant un traitement, leurs perceptions de l'interférence avec le traitement, et l'association entre les déterminants sociaux de la santé et les difficultés de santé mentale/dépendance. Méthode: Des jeunes de 15 à 24 ans cherchant un traitement ambulatoire pour des problèmes d'utilisation de substances, avec ou sans problèmes de santé mentale co-occurrents, ont rapporté leur utilisation de substances, leur santé mentale et les déterminants sociaux de la santé. Des statistiques descriptives et des analyses de régression logistique ont servi à déterminer la portée des déterminants sociaux des problèmes de santé et leur relation avec les problèmes de santé mentale, d'utilisation de substances, et de criminalité ou de violence. Résultats: En tout, 80 % des jeunes ont reconnu l'action des déterminants sociaux des

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problèmes de santé dans au moins un domaine; près de 70 % ont identifié les ennuis financiers, et beaucoup ont identifié des problèmes substantiels dans chaque domaine et anticipé les impacts sur le traitement. Les jeunes estimaient très fréquemment que les problèmes financiers étaient susceptibles d'avoir un impact sur le traitement. Le nombre cumulatif de déterminants sociaux des problèmes de santé et les domaines individuels des déterminants sociaux des problèmes de santé étaient liés aux problèmes généraux de santé mentale et de dépendance. Conclusions: Étant donné leur prévalence et leur association aux problèmes de santé mentale et de dépendance, les déterminants sociaux des problèmes de santé devraient être régulièrement évalués chez les jeunes recherchant un traitement et des services intégratifs qui s'attaquent à ces problèmes en plus de la symptomatologie devaient être envisagés.

Mots clés: *déterminants sociaux de la santé, jeunes gens, utilisation de substances, santé mentale, engagement au traitement*

Introduction

Research has not fully examined the social determinants of health (SDH) among youth seeking mental health and addictions (MHA) services, and how social adversity impacts youth MHA concerns and related issues, as well as their treatment engagement. The circumstances in which people live, or the SDH, including factors such as income, food and housing security, and access to services, strongly contribute to health status and inequity (Commission on Social Determinants of Health, 2008; Kondo, 2012; Marmot, 2010). There is also increasing recognition that adverse social conditions, including food and housing insecurity, detrimentally affect mental health (Compton, 2014; Fisher & Baum, 2010).

Problems with the SDH may lead to accumulative stress, predisposing individuals to mental health disorders (Allen, Balfour, Bell, & Marmot, 2014). Indeed, there is evidence that poverty contributes to psychological concerns among children (Costello, Compton, Keeler, & Angold, 2003) and that family income supplements have benefits for adolescents that extend into adulthood, including reduced substance use disorder rates (Costello, Erkanli, Copeland, & Angold, 2010). Previous research examining mental health among youth and adults who are homeless, street-involved, and living in poverty or disengaged from employment and educational structures has identified links between greater social disadvantage and poorer mental health, indicating the importance of the SDH among youth with MHA concerns (Cleverley & Kidd, 2011; Henderson, Hawke, & Chaim, 2017; Kim, Neuendorf, Bianco, & Evans, 2016; Kirst, Frederick, & Erickson, 2011; Smith, Hawke, Chaim, & Henderson, 2017). Compared to their stably housed peers, unstably housed youth present with higher rates of substance use problems, crime and violence concerns, and concurrent mental health and substance use disorders (Smith et al., 2017). In addition, food insufficiency is associated with greater psychosocial impairment and mental health symptoms among children (Kleinman et al., 1998; Melchior et al., 2012) and linked to depression and suicidality in adolescents (Alaimo, Olson, & Frongillo, 2002). The relationship between substance use and socioeconomic status in young adulthood may be more complex, as both poverty and higher income are associated with greater substance use during this developmental period (Stone, Becker, Huber, & Catalano, 2012).

Research further suggests that problems with SDH may impact treatment engagement, although many gaps in the literature remain. For example, a meta-analysis of substance use prevention and treatment outcomes among emerging adults found that socioeconomic status was too infrequently reported in studies to permit examination of whether socioeconomic status moderates outcomes (Davis, Smith, & Briley, 2017). Nevertheless, it has been found that among heroin-using street-involved youth, housing and finances are perceived as barriers to both accessing and continuing with substance use treatment (Brands, Leslie, Catz-Biro, & Li, 2005). Difficulty accessing treatment due to transportation has also been identified as a perceived treatment barrier (Mensinger, Diamond, Kaminer, & Wintersteen, 2006). Given that youth as a whole demonstrate high treatment dropout rates and are reluctant to seek treatment (e.g., Edlund et al., 2002; Rickwood, Deane, Wilson, & Ciarrochi, 2005; Stahler, Mennis, & DuCette, 2016; Zachrisson, Rödje, & Mykletun, 2006), the impact of the SDH on youth service utilization warrants exploration. Examining the SDH among treatment-seeking youth is needed to understand how problems in these areas relate to mental health concerns and treatment engagement during this critical intervention period.

The objectives of the present study are to: (1) determine the prevalence of SDH concerns among youth presenting for outpatient substance use and mental health treatment; (2) examine whether youth perceive these concerns as likely to meaningfully impact their treatment engagement; and, (3) examine the associations between SDH and MHA concerns. It is hypothesized that many youth will report SDH concerns and that these concerns will be considered barriers to treatment among a substantial proportion of youth and will be related to higher MHA symptom levels.

Method

Participants

Participants were 189 youth aged 15-24 seeking treatment for substance use concerns at an outpatient concurrent disorders program (i.e., a program for substance use problems with or without co-occurring mental health concerns) within an urban mental health hospital in Toronto, Canada (Centre for Addiction and Mental Health). This age range is consistent with the United Nations' definition of youth (United Nations Department of Economic and Social Affairs). Data were collected from March 2013–May 2014 and procedures were in accordance with hospital research ethics board approval. Informed research consent was obtained from all participating youth, who represented 88% of youth presenting for services at this program during the data collection period. All participants accessing services, attending the orientation session, completing intake assessments, and providing informed consent were included in the study. According to the research ethics board approval, parental consent for the use of data for research purposes was not required. Study measures were administered cross-sectionally in self-report format upon entry into services as part of a pre-treatment assessment.

Measures

Social Determinants of Health. Youth were asked on a self-report form to report whether they had concerns in any of the following domains: food security, living arrangements, finances, and access to treatment ("being **able to get to** this treatment location"), each represented by a single item (e.g., "Do you have any concerns about **money**?"). Youth were then asked to rate the extent of those concerns on a 5-point Likert scale (*not at all* to *very significant*) (e.g., "How significant are your concerns about **money**?"). Youth who indicated that a concern was *somewhat* or *very significant* were coded to have a substantial concern in that domain. They were then asked to indicate the extent to which they perceived that problems in each domain would impact their engagement in treatment on a 5-point Likert scale (*not at all* to *very much*) (e.g., "To what extent do you think your concerns about **money** will impact your treatment participation?"). Ratings of *somewhat* or *very much* were coded as indicating that the domain was likely to "substantially" impact treatment.

Global Appraisal of Individual Needs – Short Screener (Dennis, Chan, & Funk, 2006). The GAIN-SS is a self-report measure assessing internalizing, externalizing, and substance use disorders, and problems related to crime or violence, with five items per subscreener. Each item in the scale can be rated on a 4-point scale indicating how recently each symptom was a significant problem (e.g., past month = 3, past year = 2, over a year ago = 1, or never = 0). Subscreeners are scored by summing the number of significant symptoms experienced in the past year, with scores ranging from 0 to 5 (Dennis et al., 2006). Reliability of the GAIN-SS subscreeners was estimated using Cronbach's alpha coefficients and was found to be between 0.64 and 0.83 (Table 1). Based on the established GAIN-SS criteria, youth are considered at a high likelihood of a diagnosis of internalizing, externalizing or substance use concerns and having crime/violence problems if they have endorsed three or more past-year symptoms in a given area; this dichotomous result was used in the regression analyses. The GAIN-SS has been validated for use with adolescents and adults with demonstrated internal consistency, reliability, and validity (Dennis et al., 2006).

Analyses

Descriptive statistics were used to determine the frequency and percentage of youth who endorsed problems in SDH domains, rated those problems as substantial, and indicated that problems were likely to substantially impact treatment engagement. Since some youth had concerns in multiple domains, the cumulative number of substantial problems with SDH was calculated as a sum of the four domains (range 0-4). The relationship between GAIN-SS subscale scores and both cumulative substantial problems with SDH and individual SDH domains were examined using standard logistic regressions, with each GAIN-SS subscreener as the dichotomous predicted value and, first, the cumulative SDH score, then, each individual SDH domains, as the predictor variables. Analyses were controlled for sex (male/female), and age (continuous) to account for developmental stage and sex differences, since MHA issues are known to have differential associations with age and sex (Henderson et al., 2017; Merikangas et al., 2010). Participants missing more than four responses (>20%) on the GAIN-SS were considered to have invalid responses and therefore were not included in the GAIN-SS analyses (n = 11); since SDH measures were comprised of single-item data per variable, all available data was used. The data was analyzed using SPSS 24 (IBM Corp, 2016).

Results

The average age of participants was 19.26 years (*SD* = 2.31). In all, 118 (62%) identified as male, 68 (36%) as female, 1 as 'trans', 1 as 'other,' (missing: n = 1). The majority of youth were White/European (65%), born in Canada (85%), and spoke English as their first language (90%). In addition, 43% were unemployed, 26% employed part-time, 5% employed full-time, and 27% were students.

Concerns in all domains of SDH were endorsed in the sample (Table 2). Financial problems were most frequently cited as a concern (69%) and rated as substantial (61%); among those who identified substantial financial problems, 35% believed these problems would have a substantial impact on treatment. Thirty-one percent identified living situation concerns and 26% rated the concerns as substantial, with 49% of those with substantial concerns expecting their

Table 1. Descriptive Statistics for the Global Appraisal of Individual Needs – Short Screener

Screener	No of items	Cronbach's alpha	Mean	S.D.
Internalizing Disorder Screener	5	0.82	3.74	1.45
Externalizing Disorder Screener	5	0.66	2.92	1.21
Substance Disorder Screener	5	0.72	4.07	1.28
Crime/Violence Screener	5	0.64	1.57	1.35

Table 2. Frequency of social determinant of health concerns and perceived treatment impact

Social determinant of health domain	Concerns identified	Substantial problems	Substantial treatment impact
	Yes	Yes	Yes
Finances – n (%)	131	115	42
	(69.3%)	(60.8%)	(22.2%)
Living situation – n (%)	58	49	32
	(30.7%)	(25.9%)	(16.9%)
Food security – n (%)	42	33	13
	(22.2%)	(17.5%)	(6.9%)
Treatment access – n (%)	42	32	27
	(22.2%)	(16.9%)	(14.3%)

Table 3. Logistic regressions predicting high probability of diagnosis on GAIN-SS subscales from cumulative problems with social determinants of health

	Wald χ^2	Odds Ratio	95% CI
	Internalizing Subscale - Past Year		
Cumulative SDH Problems	4.33*	1.61	1.03 – 2.52
	Model χ^2 (3) = 32.470, p <.001, Nagelkerke R^2 = 0.27		
	Externalizing Subscale – Past Year		
Cumulative SDH Problems	4.45*	1.51	1.03 – 2.22
	Model χ^2 (3) = 8.093, p = .044, Nagelkerke R^2 = 0.07		
	Substance Use Subscale – Past Year		
Cumulative SDH Problems	5.06*	1.97	1.09 – 3.55
	Model χ^2 (3) = 6.763, p = .080, Nagelkerke R^2 = 0.07		
	Crime and Violence Subscale – Past Year		
Cumulative SDH Problems	3.39	1.42	0.98 – 2.07
	Model χ^2 (3) = 14.535, p = .002, Nagelkerke R^2 = 0.12		

Note. Control variables are age and sex (Male/Female) (omitted from table); df = 1 for all Wald statistics; CI = Confidence Interval; GAIN-SS = Global Appraisal of Individual Needs – Short Screener; SDH = Social Determinants of Health; * p < .05.

living situation to substantially interfere with treatment. Twenty-two percent of the sample endorsed food security concerns, with 18% considering these concerns substantial; when substantial food security concerns were identified, 39% believed those concerns would substantially interfere with treatment. Lastly, 22% of youth identified concerns regarding access to treatment, which were considered substantial concerns by 17%, among whom 72% believed those concerns would substantially interfere with treatment. Eighty percent of youth endorsed SDH concerns of any magnitude in at least one domain, with 74% reporting a substantial concern in at least one area.

Relation between Problems with Social Determinants of Health and Mental Health

Logistic regressions of the relationship between the cumulative number of problematic SDH concerns and high probability of diagnoses on GAIN-SS subscreeners, controlling for sex and age, are presented in Table 3. Significant associations were found between cumulative SDH problems and high probability of diagnoses (or crime/violence concerns) on three of four GAIN-SS subscales. The odds of having internalizing disorder were significantly higher for youth with substantial cumulative SDH concerns as compared to those youth who did not have these SDH concerns (Wald χ^2 (1) = 4.33, p = .037). Similarly, odds of having an externalizing disorder or substance use disorder were significantly higher for youth with substantial cumulative SDH concerns (externalizing subscale, Wald χ^2 (1) = 4.45, p =.035; substance use subscale, Wald χ^2 (1) = 5.06, p = .025). The crime and violence subscale did not reach statistical significance, at Wald χ^2 (1) = 3.39, p = .066.

Table 4 presents logistic regression analyses of the prediction of each of the GAIN-SS subscreeners by entering all four individual domains of SDH together. Results show that after controlling for age (p > .05) and sex (p = .003) youth with substantial problems with finances (χ^2 [1] = 5.00, p = .025) and access to treatment (χ^2 [1] = 4.19, p = .041) had significantly higher odds of meeting the criteria for a high likelihood of a diagnosis on the internalizing subscale. For the externalizing subscale, only youth with financial concerns had higher odds (χ^2 (1) = 4.98, p = .026), after controlling for age (p = .007) and sex (p = .801). The finance SDH domain was significantly associated with the substance use subscale (χ^2 (1) = 4.56, p = .03; age p = .84, sex p = .82). For the crime and violence subscale, substantial problems with living situation emerged as a significant predictor (χ^2 (1) = 6.80, p = .009). Table 5 presents the correlations between SDH domains and GAIN-SS subscreeners, demonstrating the bivariate relationships particularly between financial problems, living situation, and GAIN-SS subscreeners.

Discussion

The present study examined several facets of SDH among youth seeking substance use treatment with or without mental health concerns: the prevalence of problems with SDH, youth's perception of whether these problems would interfere with their treatment participation, and their association with mental and behavioral health concerns. Findings demonstrate that problems with SDH are common among service-seeking youth. The majority of youth endorsed concerns in at least one SDH domain, indicating that problems of this nature are likely to impact a meaningful number of treatment-seeking youth. Financial problems were particularly prevalent among service-seeking youth, with many youth expecting their financial concerns to impact their treatment participation. This finding aligns with previous research identifying a link between lower income and greater likelihood of self-reported barriers to mental health service use (Steele, Dewa, & Lee, 2007). Across the domains of SDH, large proportions of youth expected the identified problems to interfere with their treatment engagement. Notably, many youth identifying problems with their living situation or their ability to access treatment expected these problems to impact their ability to engage in treatment.

Results further suggest an important relationship between economic disadvantage and MHA concerns. Finances emerged as significantly related to internalizing, externalizing and substance use disorders. Economic disadvantage can affect children's mental health through different mechanisms including malnutrition, large household size and poor housing, which can in turn be associated with other risk factors for poor mental health like domestic violence, abuse and neglect, parental alcohol abuse etc. (Dashiff, DiMicco, Myers, & Sheppard, 2009; Vostanis, 2012). By differentially exposing youth to factors that compromise health, lack of financial resources and its impact on daily life may represent a proximal risk factor in the development of these concerns among youth (Commission on Social Determinants of Health, 2008; Viner et al., 2012). Findings further suggest the importance of youth's concerns with their living situation as they relate to crime and violence problems, consistent with recent work demonstrating associations between precarious housing and crime/violence issues and concurrent disorders (Smith et al., 2017). In contrast with previous research demonstrating associations between food insufficiency and mental health (Alaimo et al., 2002; Kleinman et al., 1998; Melchior et al., 2012), food security was not a significant predictor of mental health concerns. This discrepancy warrants further study.

Beyond specific domains of SDH, results call attention to the potential cumulative impact of multiple problems with SDH and heightened MHA concerns. Many participants endorsed substantial problems with multiple SDH domains, indicating that it may be fairly common for youth presenting for MHA treatment to experience challenges in multiple areas of life that negatively impact health. Findings indicate

Table 4. Logistic regressions predicting high probability of diagnosis on GAIN-SS subscreeners from social determinants of health domains

	Wald χ^2	Exp b	95% CI for
	Internalizing Subscale - Past Year		
Finances	4.996*	3.020	1.146-7.961
Living Situation	0.094	1.202	0.370-3.898
Food Security	3.247	0.348	0.110-1.097
Treatment Access	4.192*	5.382	1.075-26.954
Constant	0.035		
	Model χ^2 (6) = 41.419, p <.001, Nagelkerke R^2 = .35		
	Externalizing Subscale – Past Year		
Finances	4.984*	2.394	1.112-5.152
Living Situation	1.481	1.757	.709-4.357
Food Security	0.040	1.106	.413-2.957
Treatment Access	0.028	0.921	.353-2.407
Constant	8.159		
	Model χ^2 (6) = 14.250, p =.027, Nagelkerke R^2 = .12		
	Substance Use Subscale – Past Year		
Finances	4.558*	3.338	1.104-10.097
Living Situation	1.180	2.366	.500-11.189
Food Security	0.244	1.487	.308-7.183
Treatment Access	0.186	1.414	.293-6.819
Constant	0.156		
	Model χ^2 (6) =9.474, p =.149, Nagelkerke R^2 = .11		
	Crime and Violence Subscale – Past Year		
Finances	0.137	1.182	.487-2.870
Living Situation	6.799*	3.133	1.328-7.393
Food Security	0.668	0.623	.200-1.937
Treatment Access	0.260	1.295	.490-3.494
Constant	4.710		
	Model χ^2 (6) = 19.459, p =.003, Nagelkerke R^2 = .17		

Note. Control variables are age and sex (Male/Female) (omitted from table); B = the unstandardized logistic regression coefficient; df = 1 for all Wald statistics; CI = 95% confidence interval; GAIN-SS = Global Appraisal of Individual Needs – Short Screener; SDH = Social Determinants of Health; * p < .05.

Table 5. Pearson correlations between perception of the degree of each social determinant of health and GAIN-SS subscreeners

	Finances	Living Situation	Food	Treatment Access	Internalizing	Externalizing	Substance Use
Living situation	.29*						
Food	.23*	.26*					
Treatment access	.24*	.26*	.32*				
Internalizing	.30*	.17*	.01	.06			
Externalizing	.24*	.17*	.04	.08	.30*		
Substance use	.27*	.12	.04	.02	.38*	.45*	
Crime/violence	.07	.23*	-.02	.06	.03	.46*	.32*

* p < 0.05

increased risk for MHA concerns among youth experiencing more social adversity and appear to align with a cumulative stressors model from the child psychopathology literature, i.e., effects of stress may be cumulative over a youth's lifetime (Repetti, Taylor, & Seeman, 2002). Employing a transactional perspective that examines the bidirectional effects or interplay between a youth's daily life conditions and personal strengths and vulnerabilities may be helpful to more fully understand these likely complex relations.

The inter-related impact of social determinants on mental health has implications not only for interventions, but also for services in general, and policy initiatives. Notably, given the importance of the SDH concerns with regard to symptomatology and treatment engagement and the multiplicity of SDH concerns endorsed by many youth, youth seeking services should be screened for SDH (Chung et al., 2016). Research has shown that screening for SDH can have impact on clinical decision making and population health strategies, but is still infrequently used (National Academies of Sciences, Engineering, & Medicine, 2017; Sills et al., 2016; Torres et al., 2017). Youth facing social adversity can be supported with services in the form of community-based programs, e.g., mentoring programs to promote positive youth development (DuBois, Holloway, Valentine, & Cooper, 2002; Lassi, Salam, Das, Wazny, & Bhutta, 2015; Matjasko et al., 2012). In addition, for young people who are unable to access services, providing a diversity of mental health services in schools can help fulfil their unmet need (Britton et al., 2014; Katz et al., 2013; Oberg, Colianni, & King-Schultz, 2016; Silverstone et al., 2015). Furthermore, MHA service settings should provide integrated service pathways that can address the full range of concerns with which youth are presenting, including SDH issues (Henderson et al., 2017). Interventions aimed at improving SDH also need to be implemented at the policy level, for example policies aimed to improve housing and neighborhoods to promote mental health of youth and policies to increase family income (Bramesfeld, Platt, & Schwartz, 2006; Vostanis, 2012).

Limitations of the study include its inability to determine the directionality of the effects; i.e., problems with SDH may exacerbate MHA difficulties and vice versa. The participants included in the study were treatment-seeking youth in an addictions and concurrent disorder service; a majority (88%) therefore met the criteria for a possible substance use disorder on the associated screener. The sample may therefore reflect different results as compared to generalized population. Longitudinal research is needed to determine whether improvements in one area lead to improvements in another or if both need to be specifically targeted. There may be other domains of SDH relevant to youth mental health and substance use not captured in the present study; future research should be conducted evaluating a broader range of SDH using well validated measures. The use of self-report data and sample size are additional limitations.

In light of these findings, we echo calls for routinely assessing typically overlooked SDH domains in health care settings (Nuruzzaman, Broadwin, Kourouma, & Olson, 2015). Results suggest the importance of extending this recommendation to youth MHA treatment settings by incorporating assessment of the SDH and their impact on treatment engagement into best practices. Addressing SDH problems in treatment contexts is consistent with a holistic approach to youth health that integrates services beyond mental health and substance use interventions to meet youth's comprehensive needs. Integration of services from other sectors, such as housing and social programs, may improve youth's overall outcomes, whereas failing to recognize problems with basic needs early in the treatment process may have negative implications for treatment response. Furthermore, directly addressing youth's own concerns about how the SDH problems might interfere with treatment could help to improve treatment retention and engagement during this critical developmental stage. By working collaboratively with youth to address these traditionally overlooked SDH concerns at the outset of treatment, MHA professionals may be able to improve the likelihood that youth will have a successful treatment experience.

Acknowledgements/Conflicts of Interest:

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