Factors associated with perceived continuity of care among patients suffering from mental disorders

Claudie Loranger, DPs[1,2,3] and Marie-Josée Fleury, PhD[2,3]

[1]Research Centre, Centre intégré de santé et services sociaux de l'Outaouais, Gatineau, Québec

[2]Douglas Hospital Research Centre, Douglas Mental Health University Institute, Montréal, Québec

[3]Department of Psychiatry, McGill University, Montréal, Québec

Claudie Loranger, Centre de recherche, Centre intégré de santé et services sociaux de l'Outaouais, 20 rue Pharand, Gatineau (Québec), J9A 1K7 e-mail: claudie.loranger@ssss.gouv.qc.ca

Corresponding author: Marie-Josée Fleury**,** Douglas Hospital Research Centre, Douglas Mental Health University Institute, Department of Psychiatry, McGill University, 6875 LaSalle Blvd., Montreal, QC H4H 1R3, Canada e-mail: flemar@douglas.mcgill.ca

Compliance with Ethical standards

Conflict of interest

The authors declare that they have no conflict of interest.

Ethical approval

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

The study was approved by the ethics committee of the Douglas Hospital Research Centre.

Informed Consent

All patients had to sign a consent form before participation in the study.

Click here to view linked References

Factors associated with perceived continuity of care among patients suffering from mental disorders

Abstract

This cross-sectional study identified variables associated with continuity of care among 327 patients with mental disorders receiving services from a variety of professionals in different Quebec settings. Based on the Andersen's Behavioral Model, a linear regression analysis was performed. Attention deficit and mood disorders were negatively associated with continuity of care, while substance use disorders and quality of life revealed positive associations. Consulting a psychologist was linked to weaker continuity of care whereas visiting a drug rehabilitation center, social support, and satisfaction with services were positively related. Fostering social support, comprehensive and integrated care, and facilitating access to psychologists could lead to improved continuity of care.

Keywords: Continuity of care; mental health services; service use; mental disorders.

Factors associated with perceived continuity of care among patients suffering from mental disorders

Introduction

Patients who suffer from mental disorders (MDs) often receive services from a variety of professionals in different settings, from family physicians in clinics to social workers in community centers. In this context, continuity of care (CoC), broadly defined as the long-term delivery of care that is coordinated among services and is appropriate to a patient's current needs (Puntis, Rugkasa, Forrest, Mitchell, & Burns 2015), appears to be of great importance. Indeed, CoC is often endorsed as an essential feature of good quality care (Burns et al. 2009). The importance of promoting CoC is recognized by patients and service providers, as well as in government mental health policies. Various interventions, such as medication management programs or case management models, have been implemented to promote CoC (Alonso Suarez, Bravo-Ortiz, Fernandez-Liria, & Gonzalez-Juarez 2011; Maples et al. 2012; Marchinko & Clarke 2011). The concept of CoC has also received attention from multiple researchers since it was first defined by Bachrach in 1981. However, authors still consider CoC as poorly defined (Crawford, De Jonge, Freeman, & Weaver 2004; Digel Vandyk, Graham, VanDenKerkhof, Ross-White, & Harrison 2013; Joyce et al. 2010). Available models describe CoC as a complex multidimensional phenomenon; yet tend to regroup various factors that are often inconsistent. Moreover, a patient-focused understanding is not always apparent in models of CoC. According to Catty et al (2013), CoC includes seven factors (experience and relationship, regularity, meeting needs, consolidation, managed transitions, care coordination, and supported living), whereas Fontanella et al (2014) identified four dimensions (regularity of care, transitions, care coordination, and treatment engagement); McCallum et al (2015) proposed the following six dimensions: continuity of relationship with providers, continuity across services, continuity through transfer, continuity as regularity and intensity of care, continuity as responding to changing patient need, and successful linkage of the patient.

Sweeney et al (2016) have observed that traditional definitions exclude service user perspectives, arguing that this may have contributed to the poor conceptual clarity surrounding CoC. Some studies have found modest, positive correlations between patient-rated and observer-rated CoC based on clinical files, yet regression analyses reveal little shared variance between the two variables (Joyce et al. 2010). Thus, patient- and observer-rated CoC may contribute independently to outcomes (Joyce et al. 2010). The importance of patient perspectives is also evidenced in the significant associations between patient-rated CoC and outcomes; whereas objective measures have produced inconsistent results (Puntis et al. 2015). Another issue related to the difficulty of interpreting and comparing studies on CoC concerns measurement (Puntis et al. 2015). Objective CoC may be measured quantitatively with time from inpatient discharge to first outpatient contact with mental health services, the number of outpatient service contacts per patient, or the number of changes in care coordinator, for a specific time period (Puntis et al. 2015). In a recent systematic review, Uijen and colleagues (Uijen et al. 2012) identified 21 different instruments that measure continuity in healthcare. They concluded, based on an assessment of these instruments, that the Alberta Continuity of Services Scale for Mental Health (Joyce et al. 2010) (ACSS-MH) had the best measurement properties to assess CoC (Uijen et al. 2012). As well, Digel Vandyk et al (2013) identified four quantitative tools specific to mental healthcare that measure CoC from either patient or observer perspectives. These authors also recommended use of the ACSS-MH (the patient-rated scale) because it provides in their view the most comprehensive conceptualization of CoC (Digel Vandyk et al. 2013).

However, very few articles have been published to date using the self-rated ACSS-MH scale. Moreover, since the validation studies of the instrument with different clinical populations (Adair et al. 2005; Durbin, Goering, Streiner, & Pink 2004; Joyce et al. 2010), few researches have attempted to better understand perceived CoC with the help of the ACSS-MH. Having a personality disorder and being diagnosed with 3 or more psychiatric disorders were found to be associated with weaker perceptions of CoC (Durbin et al. 2004). By contrast, having a case manager, having a psychiatrist, met needs for income support, and met needs for housing support were associated with better CoC (Durbin et al. 2004). Another study identified better patient-rated CoC as associated with lower MD severity, better quality of life and no comorbid substance use disorder (SUD) in a sample of adults with severe MDs (Adair et al. 2005). Having a diagnosis of bipolar disorder or psychotic disorder was also associated with better CoC as compared with being diagnosed with depression (Adair et al. 2005). Lower CoC scores were linked to younger patients, lower quality of life, higher suicide potential, resistance to treatment, and greater problem severity (Joyce et al. 2010). Better CoC was also correlated with service satisfaction (Joyce et al. 2010). Studies using other self-report measures have allowed the identification of additional associations between CoC and patient or service use characteristics. One study using the Continuity of Care-User Measure (Rose et al. 2009) (CONTINU-UM), found that perceived CoC was significantly better in patients with greater quality of life (Catty, White, et al. 2013). Elsewhere, variables including better therapeutic alliances, having needs met, lower symptoms and better quality of life were identified as associated with high CoC based on the CONTINU-UM (Sweeney et al. 2012). Although many variables linked to CoC have been evaluated, the results are inconsistent and the studies in question need to be replicated. Moreover, the respective contributions to CoC among predisposing characteristics (gender, age, education), needs-related variables (diagnosis, severity and number of needs), and enabling variables (mental health professionals consulted, satisfaction with services) were not always accounted for in previous research.

The objective of this study was to test a comprehensive set of variables in order to identify associations with perceived CoC. Most studies that have identified potential associations with CoC have used objective measures of CoC, or instruments, that do not specifically assess the patient perspective. As previous studies using the ACSS-MH have focused primarily on socio-demographic and clinical variables, we included multiple service use variables in our analyses to better understand their links with patient perceptions of CoC.

Methods

Setting, sample and procedures

The study took place in four health service networks located in Quebec (Canada); three were in urban areas and one semi-urban. Networks included hospital departments of psychiatry or psychiatric hospitals; multidisciplinary outpatient mental health primary care teams (with psychologists, social workers and other psychosocial clinicians); addiction centers; and community-based services (day centers, crisis services, self-help groups, and supported employment resources). Service networks also included general practitioners and psychologists in private practice. Within the Quebec public healthcare system, most prescription drugs are provided free of charge, as are MH services excluding those provided by psychologists in private practice. Specialized MH services are offered in psychiatric or general hospitals, and primary care services in public local health service centers or medical clinics. Data collection was carried out between June 2013 and August 2014, at a time when implementation of the

Quebec Mental Health Reform was also underway (Fleury, Grenier, Vallee, Aube, & Farand 2017; Fleury, Grenier, Vallee, et al. 2016). The reform sought to strengthen community MH services by establishing primary care teams in local health networks. It also promoted evidence-based practices and encouraged collaboration between primary care and specialized services through the implementation of network integration strategies such as service agreements, liaison officers and shared training.

The multisite study protocol was approved by the ethics board of a mental health university institute. The study used a cross-sectional design. Participants were 18 - 70 years old and suffered from a broad variety of MDs including mood, anxiety, personality, attention deficit or schizophrenia spectrum disorders. Recruitment strategies included the distribution of flyers, and self-referral or referral by mental healthcare providers and housing staff, who were offered information sessions describing the project and asked to refer clients eligible for the study to the research team. Participants had to sign a consent form for research team members to access their medical records and contact their case managers. Consumers hospitalized for involuntary psychiatric treatment under judicial order, or affected by a severe intellectual disability, were excluded. Professional interviewers conducted two 90-minute interviews with each participant at one-week intervals.

Conceptual framework and measures

A comprehensive model of perceived CoC was developed in order to test potential associations (**Figure 1**). Variables were identified in previous studies that addressed patient perceptions of CoC, whether using the ACSS-MH or other standardized instruments. Other variables known to be associated with observer-rated CoC were added. The selected variables were regrouped into three categories based on Andersen's Behavioral Model (Andersen 1995).

The dependent variable, perceived CoC, was measured with the patient-rated scale of the ACSS-MH (Durbin et al. 2004). This instrument includes 43 items scored on five-point Likert scales. The ACSS-MH was tested with users of community and outpatient mental health programs, as well as with individuals with severe MDs, and was found to have adequate psychometric properties (Adair et al. 2005; Durbin et al. 2004; Joyce et al. 2010). The total score ranges from 43-215 with higher scores indicating greater perceived CoC (Joyce et al. 2010). Cronbach's alpha in the validation studies ranged from 0.78 to 0.92.

Independent variables were classified into three categories: predisposing factors, needs factors, and enabling factors. According to Andersen's model (Andersen 1995), predisposing factors include patient characteristics that existed before appearance of the illness; while needs factors consist of various reasons for service use, and enabling factors include practical aspects and facilitators of service use. Predisposing factors consist of age, gender, civil status, education, source of income, and type of housing.

Needs factors were regrouped according to evaluated needs and perceived needs. The evaluated needs in this study included the following diagnoses: schizophrenia, schizophrenia spectrum, adjustment, anxiety, mood, substance use and personality disorders; they were assessed according to DSM-IV (American Psychiatric Association 2013) criteria and obtained from medical records. Perceived needs (number and severity) were problems perceived directly by patients in the context of the interviews, and were measured with the Montreal Assessment of Needs Questionnaire (Tremblay, Bamvita, Grenier, & Fleury 2014) (MANQ). The MANQ is an instrument derived from the Camberwell Assessment of Needs (Slade et al. 1999), which evaluates a total of 26 needs in five categories: basic (e.g. food, daytime activities); health (e.g. alcohol use, drug use); functioning (e.g. self-care, money); social (e.g. company, intimate relationships); and services (e.g. benefits, involvement in treatment decisions).

Finally, enabling factors included quality of life; number of professionals consulted; help centers visited (e.g. alcohol/drug centers, crisis centers); having a family physician (yes/no); having a case manager (yes/no); frequency of contacts with case manager; satisfaction with services; help received (from relatives, from services); social support; and recovery. Quality of life was assessed with the Satisfaction with Life Domains Scale (Baker, Jodrey, & Intagliata 1992) (SLDS), a 20-item measure evaluated with seven-point Likert scales. The total score ranges from 20 to 140 with higher score indicating better quality of life. Cronbach's alpha reached 0.92 (Baker et al. 1992). The Service Utilization Questionnaire (SUQ), derived from the Canadian Community Health Survey Questionnaire (Gravel & Beland 2005), measured type, number and frequency of mental health services and professionals consulted. Patient satisfaction with services scores were also obtained with the SUQ. The satisfaction scores for each professional consulted (evaluated on a five-point Likert scale, and ranging from "very unsatisfied" to "very satisfied") were used to form a global score of satisfaction with mental health services. The MANQ was used again to assess help received from relatives and from services (with higher scores indicating more help received). The Social Provisions Scale (Caron 2013) (SPS) was used to measure social support. This 25-item questionnaire measures six dimensions (attachment, reassurance of worth, social integration, reliable alliance, guidance and nurturance) based on a 4-point scale. Cronbach's alpha was 0.92 (Caron 2013). Recovery was evaluated with the Recovery Assessment Scale (Giffort, Schmook, Woody, Vollendorf, & Gervain 1995) (RAS). This instrument has 41 items measured on five-point Likert-scales. Cronbach's alpha ranges from 0.76 to 0.97 (Giffort et al. 1995).

Analysis

The database was first screened for missing values or univariate outliers and corrected using the multiple imputations technique. Univariate analyses were performed to assess frequency distributions for categorical variables, while means and standard deviations were calculated for continuous variables. Bivariate analyses were conducted for associations between each respective independent variable and the dependent variable, with the Alpha value set at $p = 0.10$. A stepwise, multiple linear regression model (Alpha value at $p = 0.05$) was developed using variables found to be significantly correlated with the dependent variable. Total variance explained and goodness-of-fit were calculated. The analyses were run using SPSS (IBM Corp 2015).

Results

The sample consisted of 327 participants for a response rate of 84%. Analyses comparing respondents and non-respondents revealed no significant results for age or gender (Age: ANOVA t test: $F = 620$; $P = 0.453$; Gender: Pearson Chi-Square = 0.522; $P = 0.829$). **Table 1** presents the descriptive statistics (minimum, maximum, mean and frequency) for the independent variables. Patients were equally distributed in terms of gender; they ranged in age from 19 to 70 years (*M* = 48.4; *SD* = 11.7). Eighty-five percent of participants were single; 83% lived in autonomous housing; 47% had attended college or university; and 50% relied on welfare for income. The most prevalent diagnoses in the sample were mood disorders (44%), schizophrenia (30%), personality disorders (28%), and anxiety disorders (19%).

Patients in the sample had consulted as many as six different mental health professionals in the previous year (*M* = 3.3; *SD* = 1.1). Eighty-seven percent had a family physician and 51% identified a case manager (**Table 1**). The number of follow-ups with the case manager in the previous 12 months varied from 0 to 216 (*M* = 11.3; *SD* = 27.7). The ACSS-MH (dependent variable) scores for this sample ranged from 67-195 (*M* = 132.28; *SD* = 16.07) and were normally distributed (skewness: 0.05; kurtosis: 1.38).

Table 2 presents the variables associated with perceived CoC in bivariate analyses. The regression equation for the model built around these variables explained 26% of the variance (**Table 3**). SUD (p = 0.027) was positively associated with perceived CoC, while attention deficit (p = 0.008) and mood (p = 0.009) disorders presented negative associations. Quality of life ($p < 0.001$), visiting a drug rehabilitation center (p = 0.033), social support (p = 0.016), and satisfaction with services ($p < 0.001$) were positively associated with patient-rated CoC, whereas consulting a psychologist revealed a negative association (p = 0.032) (**Table 3**).

Discussion

The objective of this research was to test associations between a comprehensive set of variables and patient-rated CoC as measured with the ACSS-MH. Overall, the results revealed low levels of CoC. There were a total of eight significant variables in the model, regrouped under needs factors (three variables) and enabling factors (five variables); no significant results were found for the predisposing factors. These results are consistent with previous studies showing that needs factors and enabling factors are often associated with patient-rated CoC, while predisposing factors almost never reveal significant associations (Adair et al. 2005; Durbin et al. 2004; Joyce et al. 2010).

It is noteworthy that the ACSS-MH mean score in our sample was lower than in previous studies with similar clinical populations (Adair et al. 2005; Durbin et al. 2004). The characteristics of the sample do not appear to explain this difference at first glance, as previous studies also included patients suffering from different types of MD (including severe mental illness), and tended to recruit participants from multiple clinical settings. An alternative explanation may be that our study took place over the course of an important MH service reform, which may have impacted on patient perceptions of CoC. Although the Quebec Mental Health Reform aimed to improve CoC, continuity of services could have been negatively affected by the multiple organizational changes that were occurring during this period.

In the category of needs factors, three diagnoses of MDs were shown to be associated with perceived CoC. Among them, being diagnosed with a SUD was the only variable related to increased CoC.

This contrasts with the results of previous studies on the relationship between SUDs or dual diagnosis and CoC, which were mixed (McCallum et al. 2015). Our finding is surprising in a healthcare context where patients with dual diagnosis are viewed as too often falling “between the cracks” of different service systems (Kay-Lambkin, Baker, & Lewin 2004; Staiger et al. 2011), and further suggests that mental health services in Quebec were delivering relatively continuous care to people suffering from SUDs. Indeed, these results support the fact that SUDs are chronic conditions for most patients, which highlights the need for continuous, long-term treatment options with variable intensity (Fleury, Grenier, Bamvita, Perreault, & Caron 2016). The implication that services for SUDs have improved seems to be further supported by a recent evaluation of the Quebec Mental Health Reform suggesting that certain strategies were more adequately implemented for SUDs than for other MDs (Fleury et al. 2017).

On the other hand, patients diagnosed with attention deficit and mood disorders reported weaker CoC. Our results for mood disorders replicate findings from previous studies showing that patients suffering from depression viewed their CoC as significantly worse than those diagnosed with a psychotic disorder (Adair et al. 2005). Since depression is often considered a common MD, it is more likely to be treated by a primary care team. However, it is important to note that depression is highly recurrent (American Psychiatric Association 2013; Kessler & Walters 1998; Kessler, Zhao, Blazer, & Swartz 1997), making it a chronic condition for most patients, and necessiting continuous care. Yet, consultations in primary care are usually time-limited (Kisely & Campbell 2007; Thielke, Vannoy, & Unutzer 2007), and provided by a limited number of clinicians with relatively less expertise (Thiebaut, Farand, & Fleury 2014), which could contribute to lower CoC. Primary care services for MDs are not yet consolidated in Quebec. Given the high prevalence of mood disorders in the mental health population, this finding points to a problem that requires more consideration. Services have historically focused their resources on increasing CoC for patients with severe MDs; whereas services for patients with more common MDs are minimal and their need for continuous care seems to be undermined. Compared with services for patients with psychotic disorders, continuous services for people suffering from other MDs have also been understudied (Catty, Cowan, et al. 2013). Our results for attention deficit disorder need to be interpreted with caution, given the small proportion of participants diagnosed with this condition in the sample. Nevertheless, the relationship between attention deficit disorder and poorer perceptions CoC is in line with previous studies. Adults diagnosed with attention deficit disorder during childhood or adolescence often experience reduced levels of support after leaving pediatric services (National Institute for Health and Care Excellence 2008; Reale & Bonati 2015), resulting in a sense of discontinuity. It is also important to point out that the transition from youth to adult services for patients with MDs in general, is not sufficiently well-structured to promote continuity and is often considered problematic (M. Davis 2003; Mandarino 2014; Manteuffel, Stephens, Sondheimer, & Fisher 2008; Polgar, Cabassa, & Morrissey 2016).

The variable most strongly associated with perceived CoC in our study was quality of life (enabling factor). This result is in line with previous studies (Adair et al. 2005; Catty, White, et al. 2013; Joyce et al. 2010; Sweeney et al. 2012), and brings some consistency to our understanding of CoC, given that increased quality of life is considered an outcome of better CoC (Puntis et al. 2015). This finding thus highlights the need to sustain efforts to promote continuity in mental healthcare. Findings regarding the use of drug rehabilitation centers were consistent with the previous results concerning SUDs, further suggesting that organizations had put in place adequate measures to improve CoC for those patients.

Our results also illustrate the important contribution of social support for the recovery of people with MDs. In Quebec (Ministère de la Santé et des Services sociaux 2005) as in Australia (Commonwealth of Australia 2009) and the United Kingdom (Department of Health 2011), recent government policies have advocated for increased social support among people suffering from MDs. It has long been known that feeling supported is associated with increased quality of life for people with MDs (Caron, Lecomte, Stip, & Renaud 2005) and can contribute to their recovery (L. Davis & Brekke 2014; Ritsner, Arbitman, Lisker, & Ponizovsky 2012). Research shows that help provided by relatives can adequately complement services from institutions to respond to needs of people with severe MDs (Fleury, Grenier, Caron, & Lesage 2008). Moreover, the quality of the relationship with a service provider can also affect CoC (J. Jones 2000; Newman, O'Reilly, Lee, & Kennedy 2015). Thus, our findings reiterate the importance of fostering different forms of social support to improve patients’ perception of continuity in mental healthcare. Finally, as suggested in previous studies (Adair et al. 2005; I. R. Jones et al. 2009; Joyce et al. 2010), promoting CoC also seems central as it is associated with satisfaction with services.

However, the finding that consulting a psychologist is associated with less CoC is more worrisome; as this result may be partially explained by an underutilization of psychologists in multidisciplinary mental health teams (Moulding et al. 2009). It is estimated that 80% of consultations with Canadian psychologists are realized in the private, rather than public, system (Romanow & Marchildon 2003). Moreover, the main reason why general practitioners are often reluctant to refer their patients to psychological services concerns the associated costs, which also limit access among low-income uninsured people (Grenier, Chomienne, Gaboury, Ritchie, & Hogg 2008). On the other hand, in situations where general practitioners and psychologists are members of the same clinical teams, and thus able to collaborate, the result is usually high satisfaction on the part of professionals and patients alike (Chomienne et al. 2010).

Limitations

Limitations in this study also need to be considered. First, as a cross-sectional study, causal inferences about the findings cannot be made. Second, not all variables potentially associated with perceived CoC could be measured. For example, a measure of therapeutic alliance may have been useful, since the relationship between patient and mental health provider may influence CoC (Poremski et al. 2016). Finally, as our results were gathered from patients in four Quebec healthcare networks, they are not necessarily generalizable to other healthcare systems.

Conclusion

Our study is unique as the first known study to assess a comprehensive set of variables in association with patient perceptions of CoC, as measured with the very robust ACSS-MH scale. The overall weak perceptions of CoC emanating from our sample underline the need to develop continuous service trajectories for patients with MDs. Stronger CoC was most highly correlated with better quality of life. Thus, it seems even more important to improve CoC, since quality of life is viewed as central to the wellbeing of patients with MDs as well as their integration into communities. Continuity problems associated with the treatment of mood disorders also raise concerns about the consolidation of primary care in treating MDs. Facilitating access to psychologists and, promoting their integration into multidisciplinary teams should be considered as key strategies for improving CoC. Future improvements to ensure greater

CoC should emphasize shared care, which implies better collaboration between primary care and specialized mental health care. Other well-documented practices for improving CoC, such as case management, intensive case management and assertive community treatment should be better deployed and implemented. Moreover, efforts should be made to foster social support, as relatives and peers can help improve CoC in multiple ways, such as job and school integration or in accessing support groups. Finally, patient satisfaction should be monitored more closely, in relation to CoC, as perhaps the best reflection of improved service performance.

Acknowledgements. we gratefully acknowledge the support of *Fonds de la recherche en santé du Québec* (FRSQ). We would also like to thank the co-investigators and patients who participated in this research

Compliance with Ethical standards

Conflict of interest

The authors declare that they have no conflict of interest.

Ethical approval

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

The study was approved by the ethics committee of the Douglas Hospital Research Centre.

Informed Consent

All patients had to sign a consent form before participation in the study.

References

Adair, C. E., McDougall, G. M., Mitton, C. R., Joyce, A. S., Wild, T. C., Costigan, N., et al. (2005). Continuity of care and health outcomes among persons with severe mental illness. *Psychiatric Services*, *56*(9), 1061-1069.

Alonso Suarez, M., Bravo-Ortiz, M. F., Fernandez-Liria, A., & Gonzalez-Juarez, C. (2011). Effectiveness of continuity-of-care programs to reduce time in hospital in persons with schizophrenia. *Epidemiology and Psychiatrc Sciences*, *20*(1), 65-72.

American Psychiatric Association. (2013). *Diagnostic and Statistical Manual of Mental Disorders (Fifth ed.)*. Arlington, Va: Americal Psychiatric Publishing.

Andersen, R. M. (1995). Revisiting the behavioral model and access to medical care: does it matter? *Journal of Health and Social Behavior, 36*(1), 1-10.

Baker, F., Jodrey, D., & Intagliata, J. (1992). Social support and quality of life of community support clients. *Community Mental Health Journal, 28*(5), 397-411.

Burns, T., Catty, J., White, S., Clement, S., Ellis, G., Jones, I. R., et al. (2009). Continuity of care in mental health: understanding and measuring a complex phenomenon. *Pychological Medicine, 39*(2), 313-323.

Caron, J. (2013). [A validation of the Social Provisions Scale: the SPS-10 items]. *Santé mentale au Québec*, *38*(1), 297-318.

Caron, J., Lecomte, Y., Stip, E., & Renaud, S. (2005). Predictors of Quality of Life in Schizophrenia. *Community Mental Health Journal, 41*(4), 399-417.

Catty, J., Cowan, N., Poole, Z., Clement, S., Ellis, G., Geyer, C., et al. (2013). Continuity of care for people with non-psychotic disorders. *International Journal of Social Psychatry, 59*(1), 18-27.

Catty, J., White, S., Clement, S., Cowan, N., Geyer, C., Harvey, K., et al. (2013). Continuity of care for people with psychotic illness: its relationship to clinical and social functioning. *International Journal of Social Psychiatry, 59*(1), 5-17.

Chomienne, M. H., Grenier, J., Gaboury, I., Hogg, W., Ritchie, P., & Farmova-Haynes, E. (2010). Family doctors and psychologists working together : doctor's and patients' perspective. *Journal of Evaluation in Clinical Practice, 17*(2), 282-287.

Commonwealth of Australia. (2009). *Fourth National Mental Health Plan- An agenda for collaborative government action in mental health 2009-2004*: Commonwealth of Australia.

Crawford, M. J., De Jonge, E., Freeman, G. K., & Weaver, T. (2004). Providing continuity of care for people with severe mental illness. A narrative review. *Social Psychiatry and Psychiatric Epidemiology, 39*, 265-272.

Davis, L., & Brekke, J. (2014). Social support and functional outcome in severe mental illness: the mediating role of proactive coping. *Psychiatry Research, 215*(1), 39-45.

Davis, M. (2003). Addressing the needs of youth in transition to adulthood. *Administration and Policy in Mental Health, 30*(6), 495-509.

Department of Health. (2011). *No health without mental health: A cross-government mental health outcomes strategy of all ages*. England: National Health Service.

Digel Vandyk, A., Graham, I. D., VanDenKerkhof, E. G., Ross-White, A., & Harrison, M. B. (2013). Towards a conceptual consensus of continuity in mental healthcare:

focused literature search and theory analysis. *International Journal of Evidence-Based Healthcare, 11*(2), 94-109.

Durbin, J., Goering, P., Streiner, D. L., & Pink, G. (2004). Continuity of care: validation of a new self-report measure for individuals using mental health services. *Journal of Behavioral Health Services & Research, 31*(3), 279-296.

Fleury, M. J., Grenier, G., Bamvita, J. M., Perreault, M., & Caron, J. (2016). Variables Associated With Perceived Unmet Need for Mental Health Care in a Canadian Epidemiologic Catchment Area. *Psychiatric Services, 67*(1), 78-85.

Fleury, M. J., Grenier, G., Caron, J., & Lesage, A. (2008). Patients' Report of Help Provided by Relatives and Services to Meet Their Needs. *Community Mental Health Journal, 44*(4), 271-281.

Fleury, M. J., Grenier, G., Vallee, C., Aube, D., & Farand, L. (2017). Implementation of Integrated Service Networks under the Quebec Mental Health Reform: Facilitators and Barriers associated with Different Territorial Profiles. *International Journal of Integrated Care, 17*(1), 3.

Fleury, M. J., Grenier, G., Vallee, C., Aube, D., Farand, L., Bamvita, J. M., et al. (2016). Implementation of the Quebec mental health reform (2005-2015). *BMC Health Serv Res, 16*(1), 586.

Fontanella, C. A., Guada, J., Phillips, G., Ranbom, L., & Fortney, J. C. (2014). Individual and contextual-level factors associated with continuity of care for adults with schizophrenia. *Administration and Policy in Mental Health, 41*(5), 572-587.

Giffort, D., Schmook, A., Woody, C., Vollendorf, C., & Gervain, M. (1995). *Construction of a Scale to Measure Consumer Recovery*. Springfield, IL: Illinois Office of Mental Health

Gravel, R., & Beland, Y. (2005). The Canadian Community Health Survey: mental health and well-being. *Canadian Journal of Psychiatry, 50*(10), 573-579.

Grenier, J., Chomienne, M. H., Gaboury, I., Ritchie, P., & Hogg, W. (2008). Collaboration between family physicians and psychologists: what do family physicians know about psychologists' work? *Canadian Family Physician, 54*(2), 232-233.

IBM Corp. (2015). *IBM SPSS Statistics for Windows, Version 24.0*. Armonk NY: IBM Corp.

Jones, I. R., Ahmed, N., Catty, J., McLaren, S., Rose, D., Wykes, T., et al. (2009). Illness careers and continuity of care in mental health services: a qualitative study of service users and carers. *Social Science & Medicine, 69*(4), 632-639.

Jones, J. (2000). Mental health care reforms in Britain and Italy since 1950: a cross-national comparative study. *Health Place, 6*(3), 171-187.

Joyce, A. S., Adair, C. E., Wild, T. C., McDougall, G. M., Gordon, A., Costigan, N., et al. (2010). Continuity of care: validation of a self-report measure to assess client perceptions of mental health service delivery. *Community Mental Health Journal, 46*(2), 192-208.

Kay-Lambkin, F. J., Baker, A. L., & Lewin, T. J. (2004). The 'co-morbidity roundabout': a framework to guide assessment and intervention strategies and engineer change among people with co-morbid problems. *Drug & Alcohol Review, 23*(4), 407-423.

Kessler, R. C., & Walters, E. E. (1998). Epidemiology of DSM-III-R major depression and minor depression among adolescents and young adults in the National Comorbidity Survey. *7*(1), 3-14.

Kessler, R. C., Zhao, S., Blazer, D. G., & Swartz, M. (1997). Prevalence, correlates, and course of minor depression and major depression in the National Comorbidity Survey. *45*(1-2), 19-30.

Kisely, S., & Campbell, L. A. (2007). Taking consultation-liaison psychiatry into primary care. *Int J Psychiatry Med, 37*(4), 383-391.

Mandarino, K. (2014). Transitional-Age Youths: Barriers to Accessing Adult Mental Health Services and the Changing Definition of Adolescence. *Journal of Human Behavior in the Social Environment, 24*(4), 462-474.

Manteuffel, B., Stephens, R. L., Sondheimer, D. L., & Fisher, S. K. (2008). Characteristics, service experiences, and outcomes of transition-aged youth in systems of care: programmatic and policy implications. *Journal of Behavioral Health Services & Research, 35*(4), 469-487.

Maples, N. J., Copeland, L. A., Zeber, J. E., Li, X., Moore, T. A., Dassori, A., et al. (2012). Can medication management coordinators help improve continuity of care after psychiatric hospitalization? *Psychiatric Services, 63*(6), 554-560.

Marchinko, S., & Clarke, D. (2011). The Wellness Planner: empowerment, quality of life, and continuity of care in mental illness. *Archives of Psychiatric Nursing, 25*(4), 284-293.

McCallum, S., Mikocka-Walus, A., Turnbull, D., & Andrews, J. M. (2015). Continuity of Care in Dual Diagnosis Treatment: Definitions, Applications, and Implications. *Journal of Dual Diagonis*, *11*(3-4), 217-232.

Ministère de la Santé et des Services sociaux. (2005). *Plan d'action en santé mentale 2005-2010 - La force des liens*. Québec: Ministère de la Santé et des Services sociaux

Moulding, R., Grenier, J., Blashki, G., Ritchie, P., Pirkis, J., & Chomienne, M. H. (2009). Integrating psychologists into the Canadian health care system: the example of Australia. *Canadian journal of public health, 100*(2), 145-147.

National Institute for Health and Care Excellence. (2008). *Attention deficit hyperactivity disorder: diagnosis and management*: nice.org.uk/guidance/cg72 Accessed September 2008

Newman, D., O'Reilly, P., Lee, S. H., & Kennedy, C. (2015). Mental health service users' experiences of mental health care: an integrative literature review. *Journal of Psychiatric and Mental Health Nursing, 22*(3), 171-182.

Polgar, M. F., Cabassa, L. J., & Morrissey, J. P. (2016). How Community Organizations Promote Continuity of Care for Young People with Mental Health Problems. *Journal of Behavioral Health Services & Research, 43*(2), 200-213.

Poremski, D., Harris, D. W., Kahan, D., Pauly, D., Leszcz, M., O'Campo, P., et al. (2016). Improving continuity of care for frequent users of emergency departments: service user and provider perspectives. *General Hospital Psychiatry, 40*, 55-59.

Puntis, S., Rugkasa, J., Forrest, A., Mitchell, A., & Burns, T. (2015). Associations between continuity of care and patient outcomes in mental health care: a systematic review. *Psychiatric Services*, *66*(4), 354-363.

Reale, L., & Bonati, M. (2015). Mental disorders and transition to adult mental health services: A scoping review. *European Psychiatry, 30*(8), 932-942.

Ritsner, M. S., Arbitman, M., Lisker, A., & Ponizovsky, A. M. (2012). Ten-year quality of life outcomes among patients with schizophrenia and schizoaffective disorder II. Predictive value of psychosocial factors. *Quality of life Research, 21*(6), 1075-1084.

Romanow, R. J., & Marchildon, G. P. (2003). Psychological services and the future of health care in Canada. *Canadian Psychology, 44*, 284-295.

Rose, D., Sweeney, A., Leese, M., Clement, S., Jones, I. R., Burns, T., et al. (2009). Developing a user-generated measure of continuity of care: brief report. *Acta Psychiatrica Scandinavica, 119*(4), 320-324.

Slade, M., Thronicroft, G., Dunn, G., Holloway, F., Wykes, T., Strathdee, G., et al. (1999). *CAN Camberwell Assessment of Need*. London: Gaskell.

Staiger, P. K., Thomas, A. C., Ricciarelli, L. A., Mccabe, M. P., Cross, W., & Young, G. A. (2011). Improving services for individuals with a dual diagnosis: A qualitative study reporting on the views of service users. *Addict Res Theory, 19*(1), 47-55.

Sweeney, A., Davies, J., McLaren, S., Whittock, M., Lemma, F., Belling, R., et al. (2016). Defining continuity of care from the perspectives of mental health service users and professionals: an exploratory, comparative study. *Health Expectations, 19*(4), 973-987.

Sweeney, A., Rose, D., Clement, S., Jichi, F., Jones, I. R., Burns, T., et al. (2012). Understanding service user-defined continuity of care and its relationship to health and social measures: a cross-sectional study. *BMC Health Serv Res, 12*, 145.

Thiebaut, G. C., Farand, L., & Fleury, M. J. (2014). [Policies and mental health action plans in OECD: lessons for Quebec?]. *Santé mentale au Québec, 39*(1), 65-84.

Thielke, S., Vannoy, S., & Unutzer, J. (2007). Integrating mental health and primary care. *Prim Care, 34*(3), 571-592, vii

Tremblay, J., Bamvita, J. M., Grenier, G., & Fleury, M. J. (2014). Utility of the Montreal assessment of need questionnaire for community mental health planning. *Journal of Nervous and Mental Disease, 202*(9), 677-687.

Uijen, A. A., Heinst, C. W., Schellevis, F. G., van den Bosch, W. J., van de Laar, F. A., Terwee, C. B., et al. (2012). Measurement properties of questionnaires measuring continuity of care: a systematic review. *Plos One, 7*(7), e42256.

Figure 1. Conceptual framework of variables tested for association with perceived continuity of care among patients with mental disorders

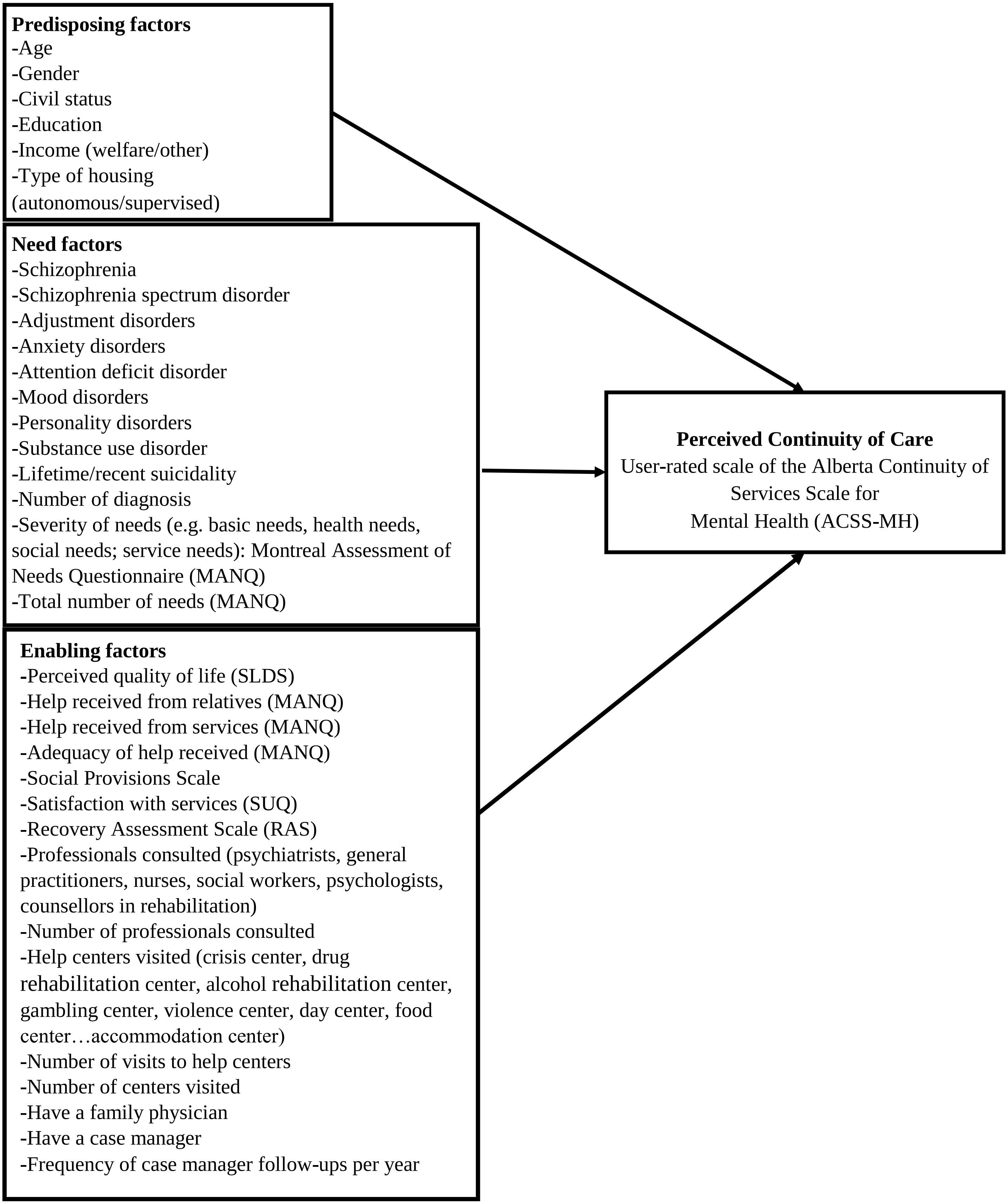

Table 1. Descriptive statistics for the sample (N=327)

	Minimum	Maximum	n/M	%/SD
Predisposing factors				
Age	19.0	70.0	48.4	11.7
Gender (Female)			164	50.2
Civil status (Single)			277	84.7
Education (College or university)			153	46.8
Income (Welfare)			164	50.2
Housing (Autonomous)			272	83.2
Need factors				
Diagnosis				
Schizophrenia disorder			97	29.7
Adjustment disorder			30	9.2
Anxiety disorder			62	19.0
Attention deficit disorder			16	4.9
Mood disorder			144	44.0
Personality disorder			93	28.4
Substance use disorder			71	21.7
Number of diagnosis	0.0	4.0	1.7	0.9
History of suicidality			154	47.1
Number of needs-MANQ[a]	0.0	21.0	8.5	4.4
Severity of needs-MANQ[a]	0.0	143.0	48.6	31.7
Enabling factors				
Hospitalisation (at least once)			73	22.3
Number of visits to help centers	0.0	3.0	0.13	0.4
Community centers visited	0.0	7.0	1.4	1.2
Crisis center			18	5.5
Women help center			7	2.1
Drug rehabilitation center			10	3.1
Alcohol rehabilitation center			12	3.7
Violence help center			2	0.6
Day center			81	24.8
Self-help group center			75	22.9
Have case manager			165	50.5
Case manager follow-ups	0.0	216.0	11.3	27.7
Have family physician			284	86.9
Number of visits to MH professionals	0.0	1046.0	94.6	157.4
Number of MH professionals consulted	0.0	6.0	3.3	1.1
Psychiatrist			248	75.8
General practitioner			111	33.9
Nurse			223	68.2
Social worker			169	51.7
Psychologist			79	24.2
Addictions counselor			21	6.4
Help from relatives-MANQ[b]	0.0	111.0	23.3	23.8
Help from services-MANQ[b]	0.0	140.0	27.5	22.6
Adequacy of help received-MANQ[c]	0.0	282.0	70.5	53.2
Satisfaction with services-SUQ[d]	0.1	3.9	1.6	0.6
Social support-SPS[e]	46.0	85.0	64.1	4.2
Quality of life-SLDS[f]	38.0	139.0	96.6	18.8
Recovery-RAS[g]	41.0	205.0	161.1	20.4

Note. M = Mean; SD = Standard deviation; MANQ = Montreal Assessment of Needs Questionnaire; SUQ = Service Utilization Questionnaire; SPS = Social Provisions Scale SLDS = Satisfaction with Life Domains Scale; RAS = Recovery Assessment Scale

A. 26 items (0 to 10 for each variable); Min = 0; Max = 260; Higher = greater severity

B. 26 items (0 to 10 for each variable); Min = 0; Max = 260; Higher = more help from relatives or services

C. 26 items (0 to 10 for each variable); quantity: 0 to 10 for each variable; quality: 0 to 10 for each variable. Min = 0; Max for both = 520; Higher = greater adequacy of help in terms of quantity and quality
D. 1 item (0 to 5); Min = 0; Max = 5; Higher = more satisfied
E. 25 items (1 to 4 for each variable); Min = 25; Max = 100; Higher = more social support
F. 20 items (1 to 7 for each variable); Min = 20; Max = 140; Higher = better quality of life
G. 41 items (1 to 5 for each variable); Min = 41; Max = 205; Higher = greater perceived recovery

Table 2. Bivariate analyses with continuity of care (CoC)

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Predisposing factors					
Age	-0.061	0.073	-0.045	-0.838	0.402
Gender	3.002	1.747	0.094	1.718	0.087
Education	-0.596	1.641	-0.019	-0.363	0.717
Needs factors					
Schizophrenia	-0.280	2.225	-0.008	-0.126	0.900
Adjustment disorder	-4.286	2.883	-0.077	-1.487	0.138
Anxiety disorder	-1.065	2.053	-0.026	-0.519	0.604
Attention deficit disorder	-10.186	3.869	-0.137	-2.632	0.009
Mood disorder	-2.829	1.869	-0.088	-1.513	0.131
Substance use disorder	3.228	2.086	0.083	1.547	0.123
Number of needs-MANQ	-0.769	0.416	-0.212	-1.851	0.065
Severity of needs-MANQ	0.083	0.060	0.164	1.389	0.166
Enabling factors					
Drug rehabilitation center	10.176	6.853	0.109	1.485	0.139
Alcohol rehabilitation center	-1.712	6.913	-0.020	-0.248	0.805
Accommodation center	2.286	3.557	0.033	0.643	0.521
Number visits help center	-0.665	2.833	-0.017	-0.235	0.815
Social worker consulted	1.109	1.717	0.035	0.646	0.519
Psychologist consulted	-4.084	2.031	-0.109	-2.011	0.045
Alcohol/drug counsellor consulted	0.274	4.354	0.004	0.063	0.950
Case manager follow-up per year	0.047	0.030	0.080	1.563	0.119
Satisfaction with services	4.316	1.547	0.173	2.790	0.006
Social support-SPS	0.335	0.193	0.088	1.737	0.083
Recovery-RAS	0.077	0.045	0.098	1.717	0.087
Quality of life-SLDS	0.229	0.058	0.268	3.974	0.000

Note. MANQ = Montreal Assessment of Needs Questionnaire; SPS = Social Provisions Scale; RAS = Recovery Assessment Scale; SLDS = Satisfaction with Life Domains Scale

Table 3. Variables associated with continuity of care (CoC): multiple linear regression model

Model	Standardized Coefficients	t	Sig.	95.0% CI for B		Collinearity Statistics	
	Beta			LB	UB	Tolerance	VIF
(Constant)		5.404	0.000	43.859	94.072		
Needs factors							
Attention deficit disorder	-0.133	-2.677	0.008	-17.141	-2.618	0.943	1.061
Mood disorder	-0.129	-2.635	0.009	-7.297	-1.059	0.965	1.036
Substance use disorder	0.111	2.220	0.027	0.489	8.112	0.937	1.067
Enabling factors							
Quality of life	0.355	7.237	0.000	0.221	0.386	0.967	1.034
Drug rehabilitation center	0.109	2.138	0.033	0.808	19.451	0.898	1.113
Psychologist consulted	-0.110	-2.151	0.032	-7.923	-0.353	0.881	1.134
Satisfaction with services	0.181	3.531	0.000	1.996	7.019	0.887	1.127
Social support	0.117	2.414	0.016	0.083	0.812	0.980	1.021

Note. $R^2 = 0.262$; R^2adjusted = 0.243; ANOVA: $F = 14.098$, $p < 0.001$