Evaluating a Rural Mobile Crisis Service for Children and Youth

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ABSTRACT

Mobile crisis services for children and youth have been available in Ontario since 2000 yet little descriptive information about such services exists. In this evaluation, crisis workers gathered demographic information and details about the nature of the crisis from youth ages 12 to 17 and parents/guardians of children from birth to 17 years of age during a crisis intervention. Approximately two weeks post-intervention, participants responded to a quantitative questionnaire administered via telephone that measured levels of upset, awareness, coping, and confidence. This paper adds to the literature by describing the types of calls received, characteristics of service users, and outcomes for youth and families. The findings suggest this type of service may be valuable in serving youth, and that more rigorous examination is required by mobile crisis services for youth to demonstrate the true contribution.

Keywords: crisis; children's mental health services; mobile crisis service; program evaluation; rural mental health

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RÉSUMÉ

Depuis 2000, des services de crise mobiles destinés aux enfants et aux jeunes sont disponibles en Ontario. Il existe toutefois peu de renseignements descriptifs sur ces services. Dans le cadre de la présente évaluation, des intervenants en situation de crise ont recueilli, lors d'interventions, des données démographiques et divers renseignements sur la nature des crises subies auprès de jeunes gens de 12 à 17 ans et de parents/tuteurs d'enfants de moins de 17 ans. Approximativement deux semaines après l'intervention, les participants étaient invités à répondre à un questionnaire téléphonique quantitatif conçu pour évaluer les niveaux de perturbation, de sensibilisation, d'adaptation et de confiance. Le présent article vise à enrichir la littérature existante en décrivant la nature des appels reçus, les caractéristiques particulières des utilisateurs des services et les dénouements espérés pour les jeunes et leurs familles. Les résultats suggèrent que les services de ce type peuvent être d'une grande valeur pour les jeunes. Une analyse plus approfondie de la part des services de crise mobiles destinés aux jeunes s'avère toutefois nécessaire pour démontrer la véritable contribution apportée par ce genre de services.

Mots clés : crise; services de santé mentale pour les enfants; service de crise mobile; évaluation des programmes; santé mentale en milieu rural

Before they reach adulthood, children and youth (hereafter referred to as youth) can experience a variety of mental health crises. These range from engaging in physically or verbally aggressive behaviour to experiencing depression, anxiety, self-injury, or suicidal ideation (Martin, 2005; Stewart & Hirdes, 2015; Vanderploeg, Lu, Marshall, & Stevens, 2016). Kalafat and colleagues (2007) describe a crisis as an "upset state precipitated by events with which individuals felt unable to cope" (p. 324).

When a crisis occurs, youth and their families turn to the mental healthcare system for support (Vanderploeg et al., 2016). Crisis services are "designed to influence the course or outcome of a current crisis so that more adaptive behaviour will be [made] available for future coping" (Bleach & Claiborn, 1974, p. 387). They can provide immediate assessment, intervention, follow-up care and future planning (Christy, Kutash, & Stiles, 2006; Vanderploeg et al., 2016). Crisis services aim to prevent hospitalization, address presenting crises, reduce distress, and facilitate the navigation of the mental healthcare system (Christy et al., 2006; Shannahan & Fields, 2016; Vanderploeg et al., 2016).

Crisis services cover a broad spectrum of supports. They can include "runaway shelters or therapeutic foster care, or walk-in crisis intervention services" (Burns, Hoagwood, & Mrazek, 1999 as cited in Christy et al., 2006, p. 578). They also include mobile crisis services.

Generally speaking, mobile crisis services offer prompt support (Kalafat et al., 2007; Shannahan & Fields, 2016) in dealing with crises before they become more difficult to manage (Bleach & Claiborn, 1974). Rather than sending youth to a hospital or for psychiatric treatment, support can be offered in any setting (Martin, 2005; Shannahan & Fields, 2016; Vanderploeg et al., 2016).

Mobile crisis services differ in their methods of service (see Shannahan & Fields, 2016 for examples). Some are stand-alone programs while others are embedded services, like 911 services staffed by police officers and crisis service professionals (Scott, 2000). Supports may be offered via 24/7 telephone lines and/or face-to-face (Kalafat et al., 2007; Shannahan & Fields, 2016). Most are provided by trained crisis

professionals who accept calls on any issue (Shannahan & Fields, 2016). Crisis professionals respond to calls that range in intensity and severity (Rosenbaum & Calhoun, 1977). Support is tailored to the caller and the nature of the crisis (Shannahan & Fields, 2016). Callers may be given "advice, information and referrals" (Rosenbaum & Calhoun, 1977, p. 325; Vanderploeg et al., 2016) to other community services (Shannahan & Fields, 2016) and mental health professionals (Meehan & Broom, 2007). Sometimes services include short-term treatment within a youth or family's existing plan of care.

Variations in service delivery, while helpful for clients, can challenge evaluation efforts relative to mobile crisis services. The result is that there is limited knowledge about their effectiveness (Martin, 2005). This is particularly true of services for children and youth (Martin, 2005). Many existing studies concentrate on reducing hospitalization (see Guo, Beigel, Johnsen, & Dyches, 2001; Martin, 2005) rather than more general outcomes. More extensive evaluation is needed (see Bonynge, Lee, & Thurber, 2005; Ferris, Shulman, & Williams, 2001; Geller, Fisher, & McDermeit, 1995) to understand the nature, frequency and outcomes of mobile crisis services from the perspectives of youth and their families (Christy, Kutash, & Stiles, 2006; Shannahan & Fields, 2016; Vanderploeg et al., 2016).

Additionally, most available scholarship has focused on mobile crisis services offered in urban rather than rural areas (Bonynge et al., 2005). Scholars suggest that the service setting can influence caller needs as well as the nature of the service itself (Bonynge et al., 2005). It is also recommended that the utilization of other local services be considered (Vogel-Stone, 1999).

The purpose of this paper is to fill several gaps in knowledge by reporting the findings from the evaluation of one mobile crisis service. First, it provides information on general outcomes of one rural mobile crisis service from the perspectives of youth and families. Second, it provides insight into the frequency of mobile crisis service usage as well as the nature, or types of calls received. Finally, it offers information about other services youth and families utilized.

Quantitative methods were used to gather formative evaluation data on the Child and Youth Crisis Service (CYCS), a mobile crisis service offered by a children's mental health unit within a large multi-service agency in rural Ontario serving Haldimand and Norfolk counties. The CYCS provides direct and immediate harm/risk reduction to children and youth up to age 18 and their families for self-defined crises via telephone 24 hours a day, 7 days a week. This evaluation was conducted in order to determine who was accessing the service, whether the target audience was being reached, and to explore the nature of calls made. Caller characteristics as well as outcomes and levels of client satisfaction were also explored. This article adds to the limited Canadian literature on rural mobile crisis services from the perspectives of children and youth as well as their families.

METHODS

Design

This cross-sectional program evaluation used quantitative methods to gather formative data on a mobile crisis service offered by a children's mental health unit within a large multi-service agency. Cross-sectional designs are an appropriate way to gather meaningful data from a variety of participants (Myers & Hansen, 2002), especially when it is difficult to maintain contact over time (Larsen, Attkisson, Hargreaves, & Nguyen,

1979). Participants' recalled their service experiences (Myers & Hansen, 2002) after receiving the full "service package" (Larsen et al., 1979, p. 198). Participants received the full service package if the intervention lasted at least 30 minutes in duration and/or included face-to-face contact where additional information was offered (e.g., options were discussed, plans and strategies developed, advice and support given, etc.).

Participants

Eligibility was restricted based on the type of call made to the CYCS as well as to certain callers. First, calls lasting at least 30 minutes and/or where callers had received face-to-face contact from a crisis worker were eligible. This is because any call lasting 30 minutes or longer, or where there was face-to-face contact with a crisis worker, met the criteria for a "crisis intervention" because it constituted a higher risk/need call. During shorter calls (i.e., lasting less than 30 minutes), callers were provided information only and did not receive a crisis intervention. These calls were considered lower risk (e.g., parenting concerns).

Second, eligibility was also restricted to mitigate recall bias. It was anticipated higher risk/need clients (those placing calls longer than 30 minutes) would have more accurate recall and reflection on the service and be more likely to produce the outcomes we were attempting to measure. The nature of their crisis was more severe, and they were provided with more extensive supports (e.g., safety plans and strategies developed, etc.).

Finally, eligibility was restricted to callers who were youth age 12 to 17 as well as parents/guardians of children and youth from birth to 17 years who accessed the mobile crisis service from October 2010 to June 2011. This age range for youth was selected for several reasons: to ensure youth had the necessary developmental capacity to comprehend the nature of the research, the evaluation questions being asked, and the autonomy to decide whether or not to participate (Fernandez, 2008). Furthermore, previous anecdotal evidence collected by the agency conducting the evaluation suggested the majority of child and youth callers receiving the full service package were within this age range.

At the time of this study, provincial funders required the agency to track the number of calls made to the CYCS, not callers served. This meant several callers (youth, parents/guardians) could have been served during one call. Additionally, any number of people could have placed a call (e.g., a teacher, doctor). Our unit of sampling analysis for this study were callers who were youth age 12 to 17 as well as parents/guardians of children and youth from birth to 17 years.

Given the exploratory nature of this study, we based our sample size estimate on the (1) number of anticipated potential eligible callers to the CYCS during the data collection period, and (2) expected response rate. During the nine months prior to the data collection (January 1 to October 1, 2010), 320 calls were made to the CYCS. Approximately 30% (n = 96 calls) would have met the inclusion criteria for this study (had a youth age 12 to 17 as well as parents/guardians of children and youth from birth to 17 years involved in non-anonymous, non-information seeking intervention lasting more than 30 minutes in duration). There were approximately 1.7 eligible callers per call, translating this number into 163 callers.

Given growing/increasing call volume trends across several years, we anticipated a slightly higher volume of calls during the 9-month data collection period (October 1, 2010 to June 30, 2011). We expected approximately 350 calls to the CYCS with 178 callers meeting eligibility for this study.

There were two samples in this study: one for descriptive data (demographic and crisis data) and one for exploratory data (questionnaires). For the descriptive data, we selected a sample size of 100 callers because of the amount of work involved in extracting and analyzing data from call records. For readability, we refer to this sample in later sections of the paper as the "larger sample frame."

For the exploratory data, we considered our eligibility rate from January 1 to October 1, 2010 (30%) and assumed approximately 30% of approached participants would agree to participate in the questionnaire. Based on this, we estimated we should have been able to get a sample of 53 participants (parents/guardians and youth) drawn from the eligible calls.

Child and Youth Crisis Service

The CYCS team consisted of two supervisors and six crisis workers; the latter provided the telephone and face-to-face/mobile interventions. One supervisor held a master's of social work (MSW) degree and was a registered social worker (RSW), and the other was a child and youth worker (CYW). Both had more than 20 years of experience in social services and had worked in crisis positions before working for the CYCS. The six crisis workers were CYWs and some also held bachelor's degrees. All had to have a minimum of three years' experience to be eligible to be part of the CYCS team. All supervisors and crisis workers were trained to conduct systematic suicide risk assessments through the Applied Suicide Intervention Skills Training (ASIST) model researched and created by LivingWorks (2016).

All calls include an initial screening and triage interview where the nature and severity of the crisis is determined and demographic information is gathered. Intervention is offered over the phone and a face-to-face contact is offered if more intensive intervention is needed. Many calls are considered by crisis workers to be lower risk. Fewer calls (approximately 30% per year) are considered higher risk (e.g., for self-harming behaviour) and are deemed to require a more comprehensive service strategy and face-to-face intervention.

Every intervention includes a plan developed to discuss safety, next steps, and the recommendation of other supports so that youth and/or their families can manage similar situations in the future. These plans are created collaboratively between crisis workers, clients, their families, sometimes sources of family support as well as with internal stakeholders (e.g., other clinical services offered at the same agency) and external service agencies (e.g., the local Children's Aid Society, school boards, hospitals). For more details regarding the CYCS, please see http://www.hnreach.on.ca/crisis-service-for-children-youth-families/.

The supervision of crisis workers completing a crisis intervention is immediate: they consult the supervisors on each situation by phone as a plan for each client is being developed and their risk assessment is being completed.

Procedure

For this evaluation, a project team was selected to establish, design and conduct the evaluation. The project team comprised CYCS supervisors, a psychologist, a research consultant, and the director of Child, Family and Adult Intervention Services. Along with the project team, program staff, and an external reference group made up of key community partners/stakeholders (e.g., Children's Aid, the hospital) were involved in the evaluation.

First, the project team, program staff, and the reference group developed a program logic model and selected formative outcomes to be evaluated. The outcomes described in the logic model were established using several strategies: reviewing the expected outcomes in the available literature on mobile crisis services, reviewing existing program documents detailing the CYCS's undergirding theories of change (e.g., the ASIST model), and reviewing anecdotal evidence previously collected on CYCS program outcomes. This process resulted in establishing the constructs to be measured in this evaluation.

Subsequently, literature on mobile crisis services was reviewed by the project team to establish the specific questions to ask relative to the constructs to be measured and to facilitate the development of data collection instruments.

Data were collected from October 1, 2010 to June 4, 2011. Eligible CYCS callers were invited to participate by their assigned crisis worker immediately following an intervention. During the recruitment process, verbal consent to participate was obtained by the crisis worker. Contact information and availability within a two-week period was also documented. This time period was chosen for two reasons: participants would still be able to recall their service experience, and they would have had time to implement some of the intervention strategies provided.

Most *(n* = 59) of the potential participants were contacted within two weeks of the intervention (on average, 1.4 weeks). The remainder were contacted more than two weeks-post intervention due to resource issues, potential participants requesting later interview dates (e.g., they were going to be out of town), etc. The longest time taken to complete data collection was 7.4 weeks because contact with the participant was difficult. Potential participants were contacted by the evaluation consultant or a staff member trained in data collection procedures who was not involved in providing crisis services. Data were gathered by telephone due to geographical and time constraints (Berg, 2007). More details about the procedure are available in the evaluation report (see Braganza, Sheehan, & Young, 2011).

Measures

Demographic data. Demographic information from the sample of 100 eligible participants was collected including address, self-defined crisis information, referral source, support received from other social service agencies as well as age and gender for youth. This data informed the agency whether service utilization differed due to age, gender, referral source or between the two counties served by the agency.

Crisis data. The types of calls were assessed by crisis workers and divided into six pre-established categories depending on the nature of the crisis (Youthdale Treatment Centres, 2000): suicide risk; self harm; community risk; family crisis; mental health; and "other." Calls were categorized based on the level of risk to the caller using a three-point scale consisting of high, moderate, and low (Youthdale Treatment Centres, 2000). These categorizations are detailed in Table 1.

Parent/guardian and child/youth crisis service evaluation questionnaires. Two survey instruments, one for parents/guardians and one for youth, were developed by the project team. The instruments were designed to measure the constructs selected by the project team and an external reference group following the logic modelling exercise.

Table 1

Categorizations of the Nature of the Crisis and Risk Level

Categorizations of the Nature of the Crisis	Operational Definition
Suicide risk	Thoughts of suicide
Self harm	Self mutilation, drug/alcohol abuse, unsafe sexual activity or life-threatening eating patterns
Community risk	Involvement with the police, risk of harm to others, out-of-control behaviour at school, running away, or fire setting
Family crisis	Any abuse, violence within the home, experience of trauma, placement with alternate guardians or change in composition of family, work, or financial status, adjustment to chronic illness, social difficulties, out-of-control behaviour at home, and a guardian experiencing mental, physical, or emotional stressors
Mental health	Symptoms suggesting mental health concerns, diagnosis or a history (and/or present) overuse of medication
Other	Any other reason not already described
Categorization of Risk Level	**Operational Definition**
High	Imminent risk of harming self or others and/or whose immediate needs for safe containment exceeds the resources of the crisis service and its community partners
Moderate	Not at imminent risk but who might benefit greatly from a crisis intervention
Low	Concerns are such that crisis intervention is not absolutely or immediately required

The constructs, which the project team labelled Level of Upset, Awareness, Coping, and Confidence, were measured using dichotomous (yes and no), Likert format and open-ended questions. The Likert format questions used a 5-point choice system (1 being "not at all" and 5 being "very much"). Some examples of the questionnaire items are:

In relation to the problem you described, how upset were you before you talked with the Crisis Worker?

1	2	3	4	5
Not at all	Only a little	Somewhat	Quite a bit	Very much

Did the worker(s) help you recognize your own strengths?

1	2	3	4	5
Not at all	Only a little	Somewhat	Quite a bit	Very much

Did the Crisis Worker suggest any other agency or program?

Yes No

Level of Upset was assessed before, during, and after the situation, as well as at the time of the evaluation. Participants also answered four questions to assess whether they experienced higher levels of *awareness*

of the crisis situation (e.g., what contributed to it), improved ability to *cope* with the problems discussed during the intervention, and increased *confidence* to deal with future crises. For instance, the Confidence construct asked about callers' confidence in their ability to deal with similar and different crisis situations and about their own skills and abilities in dealing with future crises should they occur. Additional categorical questions determined the caller's relationship to the youth, whether they contacted other agencies or the CYCS before the initial intervention, whether callers were offered a face-to-face intervention, how callers learned of the CYCS, whether other programs were suggested, and whether they had contacted these programs. Additionally, participants were asked to explain why they called the CYCS, how they attempted to resolve the problem leading up to the call, and what, if anything, they were doing differently since calling the CYCS. Their responses were categorized into themes by two independent project team raters.

Client Satisfaction Questionnaire. The Client Satisfaction Questionnaire version 8 (CSQ-8; Larsen et al., 1979) consists of eight questions measured on a four-point Likert scale ranging from 1 (poor) to 4 (excellent), with no neutral options. The highest possible score on this questionnaire is a summed total of 32 indicating high satisfaction. Further, Larsen and colleagues (1979) categorized responses into three levels of satisfaction: scores between 8 and 20 indicate low levels of satisfaction, scores between 21 and 26 indicate medium levels of satisfaction and scores between 27 and 32 indicate high levels of satisfaction. This questionnaire has previously demonstrated internal consistency and construct validity (Larsen et al., 1979) and has been successfully used with various populations including adults and adolescents (Garland & Besinger, 1996). The project team added two questions to the CSQ-8 asking participants to rate their perception of their worker's understanding and support. These two questions were measured in the same way as the original eight CSQ-8 questions (e.g., on a four-point Likert scale ranging from one to four).

Ethics

This program evaluation represents a quality improvement initiative which is exempt under the Tri-Council Policy Statement (Canadian Institutes of Health Research, Natural Sciences and Engineering Research Council of Canada, & Social Sciences and Humanities Research Council of Canada, 2014). Ethical procedures were followed to ensure minimal risk to participants, and safeguards were put in place for confidentiality and privacy of information. Following call-only interventions, crisis workers collected contact information from interested potential participants in order to send an information letter (or email). This letter outlined the nature of the evaluation, confidentiality, voluntariness, how the information would be used, and their right of refusal.

During face-to-face interventions, this letter was reviewed with potential participants by the crisis worker assigned to the call, written consent was obtained, and a copy was given to the participants. This letter was reviewed a second time by interviewers once participants were contacted by telephone to complete the survey. Verbal consent was documented.

Statistical Analyses

Demographic and crisis data from the larger sample frame of 100 qualified participants as well as exploratory data from the questionnaires and CSQ-8 was coded and entered into a database created using

SPSS version 19 for Windows. Demographic information, the nature of the call and level of risk was collected. This information was also compared to data from other agencies as well as Statistics Canada (2007a; 2007b) census data using chi-square goodness of fit tests.

Several analyses were conducted on the survey data. Level of Upset was calculated using a paired sample t-test. A Pearson product-correlation was conducted to determine whether the three variables were correlated.

The survey was developed to measure the three constructs (Awareness, Coping, and Confidence). Correlation analyses were computed for the construct totals. Reliability analyses for the three constructs independently as well as together were calculated using Cronbach's Alpha. Finally, paired sample t-tests were conducted on the total scores of the three constructs to examine whether the differences between two variables were statistically significant.

Mean scores for each question on the CSQ-8 were calculated and reliability analyses were calculated using Cronbach's Alpha.

RESULTS

During the data collection period, 232 calls were made to the CYCS. Of these, 76 were anonymous, information seeking, or made by an ineligible caller (e.g., doctor, teacher) and were excluded from the sample. This left 156 eligible calls from which 100 eligible participants were drawn.

The first section presents the descriptive findings from the larger sample frame (n = 100). These findings include the characteristics of clients who used the CYCS during the period of study, and the nature and reason for their call. The remainder of the findings are client-reported data for those who agreed to participate in the exploratory evaluation (n = 76) on the nature of the call according to participants, the utilization of other services, services effectiveness, and client satisfaction.

Results from the Larger Sample Frame

Client characteristics. As Figure 1 demonstrates, the analysis of the larger sample frame data revealed that crisis calls were distributed between the two catchment counties at a ratio almost identical to the population (from birth to age 19) when compared to the 2006 Statistics Canada (2007a; 2007b) Census data.

Forty-one percent of calls were made about male children, and 59% about female children. The findings differed significantly ($\chi 2 = 4.00$, $p < .05$) from census gender data (Statistics Canada, 2007a, 2007b) where 51% of the population were male and 49% were female.

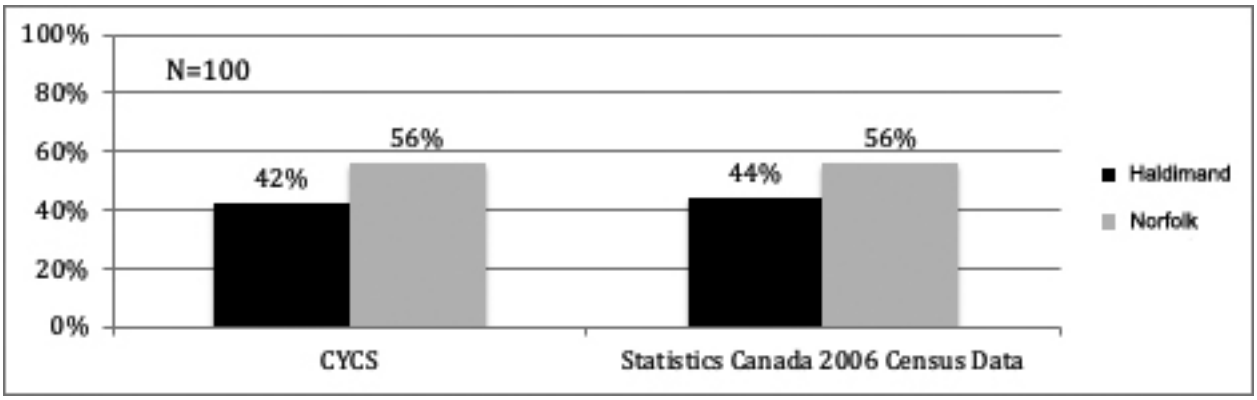
In relation to age, the data suggested that 50% of parents/guardians who called the CYCS were struggling to deal with the crises of youth between the ages of 12 and 15. Another 23% of parents were struggling with youth between 16 and 17. These parents also, however, sought help for their other children between birth and six years of age (6%), and between seven and 11 years of age (21%).

Nature of the call. The frequency scores reported in Figure 2 show participants most often called CYCS about suicidal risk**.**

Regarding the level of risk, 4% of the calls were rated as High, 75% as Moderate, and 21% as Low risk.

Figure 1

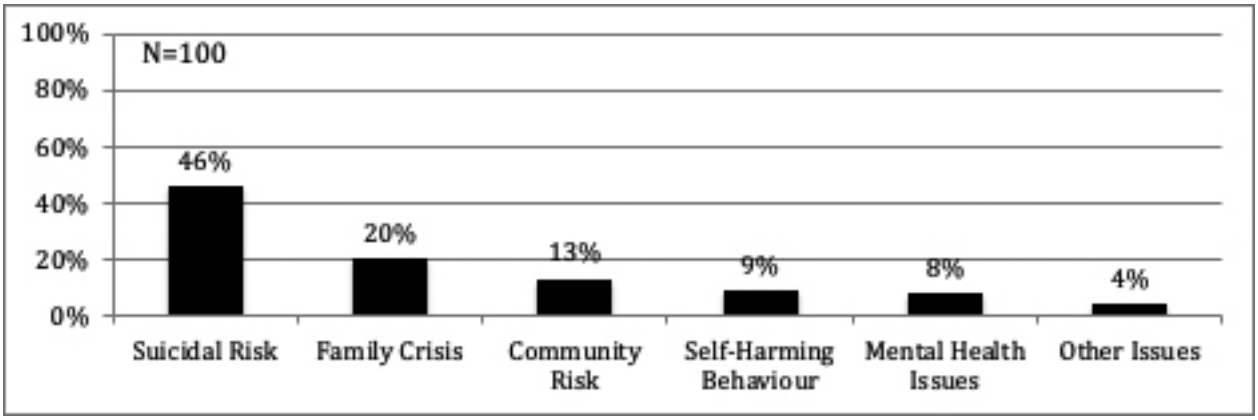
Percentage of Child and Youth Crisis Service Callers Compared to Population Data for Two Catchment Areas



Note. The numbers do not add up to 100% as one youth respondent (2%) was a visitor to the area and not a resident from either county. Haldimand refers to Haldimand County; Norfolk is Norfolk County.

Figure 2

Frequencies for each type of call placed to the Child and Youth Crisis Service



Results from the Crisis Service Evaluation Questionnaire

Participant characteristics. A total of 84 parents/guardians and 72 youth met eligibility criteria to complete the questionnaire. When they were contacted, several no longer wished to participate, could not be reached, did not have time, or had unusable responses. This resulted in a total of 76 participants including 57 parents/guardians and 19 youth. This represented a response rate of 68% for parents/guardians and 26% for youth. Most (n = 59, 78%) callers who had agreed to participate in the evaluation were telephoned within two weeks of the CYCS intervention to gather the data post-intervention.

Reasons for the call. Thirty-three percent of parent/guardians participating in the evaluation called the CYCS about suicidal ideation or self harm, 23% about parent/child conflict or behaviour/emotional issues (e.g., temper tantrums, anxiety), 16% about issues or behaviours at school, and 5% for some other reason (classified as "other") such as grief, concern about a friend, and the like. The remaining 23% were not easily categorized due to the vagueness of the description (e.g., child in "crisis," child's well-being, behaviour). Thirty-two percent of youth called about suicidal thoughts, behaviours or self harm; 26% about school issues; 16% about emotional thoughts or behaviours such as anxiety, crying, depression; and 11%, about conflict with their parents. The remaining 16% were not easily categorized due to vagueness in the description (e.g., had a "breakdown," things got "out of hand," having a "hard time").

Alternative service utilization. Participants were asked whether they had contacted any other services or agencies *before* calling the CYCS. Thirty-two percent of parents/guardians said they had. Additionally, 22% said they had called more than one. Specifically, 25% called the Children's Aid Society; 21%, their doctor; 17%, their own or their child's therapist; 17%, school personnel; 13%, the hospital; 4%, a family member; and 4%, the police. Most participants claimed the services they contacted referred them to the CYCS. Two youth said they had contacted someone else first. One spoke with their school counsellor, the other stated their mother called the police who spoke with the youth.

Participants were also asked how they learned about the CYCS. Most (40%) claimed they did not learn about the CYCS from anyone. The remaining participants claimed they were told about the service by a doctor and/or hospital (21%), a school (19%), the Children's Aid Society (16%) or the police (4%). Thirty-two percent of the youth learned about the CYCS from school personnel, 16% from hospital staff and the Children's Aid Society, 10% from the police, 10% from a REACH service provider, and 16% did not remember.

Referral information. When asked whether they were given information about other agencies and services in the community that could support them through the crisis, 36 parents/guardians and 10 youth claimed they had been given information. In addition, 39% of parents/guardians and 40% of youth said they had followed up with the recommended agencies/services.

Service effectiveness. In order to assess the effectiveness of the CYCS, participants were asked about their level of upset before and after calling in addition to their level of awareness about the issues causing the crisis, their ability to cope as well as their confidence in dealing with the present and future crises.

Levels of upset. Participants were asked about their level of upset before the call to the CYCS (T1), after speaking to the crisis worker (T2), and at the time of the evaluation (T3) on a 5-point scale. As Table 2 indicates, the results suggest that the level of upset felt by the parent/guardian was significantly reduced after

Table 2

Level of Upset at Three Time Points Using a Paired Samples *t*-Test

Participants	Time Point	*t*	r Coefficient for Significantly Correlated Variables
Parents/Guardians, *n* = 57	Between T_1 and T_2	13.42**	.46**
	Between T_2 and T_3	4.87**	.41**
	Between T_1 and T_3	15.61**	.47**
Youth, *n* = 19	Between T_1 and T_2	5.27**	
	Between T_2 and T_3	2.69*	
	Between T_1 and T_3	9.87**	.52*

*$p < .05$, **$p < .01$, by paired samples *t*-test

speaking with a crisis worker, and continued to lessen. These results also indicate that the level of upset felt by the youth was significantly reduced after speaking with a crisis worker, and continued to lessen, although the relationship between these variables was not linear (i.e., a high score at T1 was not related to a high score at T2, nor was a high score at T2 related to a high score at T3).

For parents/guardians, a paired samples t-test indicated significant differences between T1 and T2, between T2 and T3, and between T1 and T3. Correlations among these three variables were also significant.

Youth were also asked these questions. A paired samples t-test indicated significant differences between T1 and T2, between T2 and T3, and between T1 and T3. However, not all correlations among these three variables were significant. Only T1 and T3 were significantly correlated.

Awareness, coping and confidence. The findings show that in general, all participants including both parents/guardians and youth had high levels of awareness, coping, and confidence after calling the CYCS. Responses to the questionnaires for parents/guardians and youth were analyzed for their internal consistency and more specifically, to determine whether all questions were measuring the intended constructs. Caution should be used in interpreting the youth data given the small sample size. The internal consistency for the three constructs was moderate or high, with Cronbach's Alphas for each construct shown in Table 3. The reliability was high after combining the questions across the three constructs.

The findings presented in Table 4 show that for youth, no significant differences were found with respect to age, county of residence, reason for the call, or level of risk. There was a significant difference with respect to gender, however, on the parents' Confidence score: parents/guardians calling about a female showed less confidence than when calling about a male ($t = 3.25$ $p < .005$).

Satisfaction. Regardless of the nature of the call or type of service offered, the participants, on average, demonstrated high levels of satisfaction as evidenced by the mean satisfaction scores on the CSQ-8

Table 3

Reliability Indices for Awareness, Coping and Confidence Constructs

Participants	Awareness	Coping	Confidence	All Constructs
Parents/ guardians, n = 57	0.70	0.75	0.83	0.84
Youth, n = 19	0.82	0.74	0.80	0.86

Table 4

Mean (Standard Deviation) for Awareness, Coping and Confidence after Calling the Child and Youth Crisis Service

Participants	Awareness Mean (s.d.)	Coping Mean (s.d.)	Confidence Mean (s.d.)
Parents/ guardians *n* = 57	14.54 (3.32)	14.27 (3.29)	16.35 (2.82)
Youth *n* = 19	15.32 (3.80)	13.26 (3.51)	15.11 (3.57)

Table 5

Mean (Standard Deviation) Satisfaction Scores and Reliability Analysis on the CSQ-8 after Calling the Child and Youth Crisis Service

Participants	Satisfaction Scores CSQ-8 Mean (s.d.)	Cronbach's Alpha
Parents/guardians, *n* = 57	28.98 (2.96)	0.86
Youth, *n* = 19	29.42 (5.66)	0.79

Note. Scores are the sum across 8 items on a 4-point rating scale with higher scores showing greater satisfaction.

that are presented in Table 5. The internal consistency for the CSQ-8 was high for parents/guardians and moderate for youth.

Two additional questions were added to the CSQ-8 by the project team. These asked participants to rate their perception of their worker's understanding and support. The mean satisfaction scores on the CSQ-8 including these two additional questions are presented in Table 6. The internal consistency was high for parents/guardians and youth.

Table 6

Mean (Standard Deviation) Satisfaction Scores and Reliability Analysis on the CSQ-8 with Additional Questions about Perception of the Worker after Calling the Child and Youth Crisis Service

Participants	Satisfaction Scores CSQ-8 Mean (s.d.)	Cronbach's Alpha
Parents/guardians, *n* = 57	36.27 (3.95)	0.89
Youth, *n* = 19	36.84 (4.52)	0.86

Note. Scores are the sum across 10 items on a 4-point rating scale with higher scores showing greater satisfaction.

DISCUSSION AND IMPLICATIONS

In the current evaluation, youth and parents/guardians stated the CYCS was effective in providing short and longer-term crisis support. After calling, findings from the questionnaires show participants experienced reduced levels of upset that continued to diminish in the weeks after the call. This extends previous research conducted by Kalafat and colleagues (2007) who found mobile crisis services are effective in reducing distress. Consistent with previous research (see Vogel-Stone, 1999), all participants in this study had higher levels of awareness of the crisis situation, improved ability to cope as well as increased confidence to deal with current and future crises. The findings from this study suggests mobile crisis services show promise in offering youth and their families timely mental health support. Relatedly, many participants sought support from the CYCS before other services. In other studies, scholars suggest mobile crisis services may avert the use of more expensive or traumatic service options like encounters with the police or hospitalization (Shannahan & Fields, 2016). Given the findings in this study, it is recommended future research make comparisons between mobile crisis interventions and other services in order that more rigorous conclusions can be made about their usefulness and effectiveness.

This study also adds information about what issues most frequently prompt crisis service calls. The findings suggest callers sought support for family crises, behavioural, emotional or mental health issues, and self-harming behaviours; however, calls about suicide risk were the most common. Youth are among the populations at highest risk for suicide (Canadian Mental Health Association, 2017). The findings extend previous research by suggesting mobile crisis services can address suicide risk for children and youth, not just adults (Gould, Kalafat, Munfakh, & Kleinman, 2007). Professionals might consider ensuring that staff is trained in addressing youth suicide since this is a common issue.

Perhaps even more importantly, these findings illustrate the types of crises that might be expected from youth and parents/guardians. Such knowledge can offer important insights on where to direct limited resources, staff, and training. Given the range of crises prompting calls for service, however, the findings also support the recommendations of scholars (see Shannahan & Fields, 2016) that mobile crisis service professionals be trained and prepared to assist with many issues.

These findings show that regardless of the nature of the crisis, participants were satisfied with the service. This is particularly important because previous research suggests that positive experiences of social services will increase future help-seeking behaviour in youth (Gulliver, Griffiths, & Christensen, 2010).

The results of this study are consistent with previous research showing referrals to other services are important (Martin, 2005; Meehan & Broom, 2007). Some scholars have argued that being given referral information can itself reduce the distress associated with crisis (Meehan & Broom, 2007; Rosenbaum & Calhoun, 1977). Referring clients to other programs and services is also a valuable way for agencies to manage resources and rely on other supports to provide the services they cannot offer. Finally, referrals can support seamless, sustained care (Vanderploeg et al., 2016).

With this said, a number of participants claimed they were referred to the CYCS by other agencies. When asked which ones, participants named the Children's Aid Society, doctors, therapists, school personnel, the hospital, family members, and the police. These findings highlight possible points of entry into the mental healthcare system beyond mobile crisis services.

Scholars argue it is important to know about what other services clients utilize (Larson, 1996; Shannahan & Fields, 2016; Vogel-Stone, 1999). Such information can support collaborative efforts between service agencies (Shannahan & Fields, 2016). The fact that the Children's Aid Society was contacted most frequently by participants in this evaluation suggests this may be one of the most important partnerships for mobile crisis services serving youth.

The findings contrast the work done by Gulliver and colleagues (2010) who showed youth are reluctant to contact formal services for mental health support and would rather reach out to family or friends. Their findings suggest this is especially true in rural communities where the stigma surrounding mental health can be higher than in urban communities (Gulliver et al., 2010). In the current study, youth and parents/guardians in crisis were clearly not afraid to call a mobile crisis service before turning to another source of support. Calls to the CYCS were made equally across both counties showing the service was well used by rural residents.

Finally, this study addresses a gap in the literature identified by Bonynge and colleagues (2005) who contend more knowledge is needed about the characteristics of mobile crisis service callers, including age and gender. This study revealed calls were more often made about female youth which is consistent with previous research (see Larson, 1996; Vogel-Stone, 1999). Future research might explore why this is the case as well as the implications for mobile crisis service implementation. These findings also pointed to a gap in service provision for the CYCS: more could be done to reach male youth. The findings may help providers of mobile crisis services consider how they may extend their service "marketing" to young males in their community. These youth, for instance, are more likely than females to complete suicide if they attempt it as well as use more lethal means (i.e., suffocation; Bennett et al., 2015).

The current study revealed that 50% of calls made to the CYCS were regarding youth between the ages of 12 and 15. This is consistent with previous research. Larson (1996) found youth who contacted the mobile crisis service were mostly between the ages of 13 and 16, although that evaluation was limited to youth (and their families) over the age of 12. Although the data is extraneous, the current study shows the fewest calls (6%) were made about children six years and younger. It is possible that early adolescence is a

time when crises become serious enough to warrant help seeking. Crisis service professionals might consider increasing their crisis training for youth in early adolescence.

While this study points to positive outcomes for youth, the results should be interpreted with some caution. First, the actual sample size for this study, especially of youth, was small. Second, only those meeting certain criteria were included. This means it is not possible to generalize any of the findings to those calls not serious enough to warrant a face-to-face or longer telephone intervention. Future evaluations could include participants whose calls are deemed less serious in nature. Relatedly, only participants who used the CYCS and agreed to participate were included in this evaluation. This group may have differed in some way from those who withdrew from the service, did not want to participate in the evaluation, or initially agreed and then later refused. Finally, there are also limitations related to the measures used. Specifically, the surveys created for the CYCS evaluation were not validated. Some additional analyses were conducted to assess their reliability, and the findings suggest the reliability is high enough to warrant their continued use. In future evaluations, researchers might consider validating these tools or using an already validated tool to assess mobile crisis service efficacy recognizing that to date, we have been unable to locate any validated tools that measure the constructs of interest in this study.

CONCLUSION

This study adds to the paucity of Canadian evaluation literature on mobile crisis services for children and youth in several ways. It focuses on the quality and outcomes of mobile crisis services using self-report data from youth and parent/guardian participants. Additionally, where previous research studied effectiveness by measuring hospitalization rates (see Martin, 2005), this study gathered experiential data from youth and parents/guardians related to service utilization, outcomes, and levels of satisfaction. It also extends what little is known about mobile crisis services offered in rural contexts by describing the characteristics of clients as well as the nature and severity of their crises. Children's mental health is "the 'orphan's orphan' of Canada's healthcare system" (Kirby and Keon, 2006 as cited in Stewart & Hirdes, 2015, p. 154) yet according to youth as well as parents and guardians in this evaluation, mobile crisis services may provide a valuable source of support for emotional and mental health crises occurring in the home, in relationships, at school and in the community. The current study justifies additional research on mobile crisis services for children and youth as well as offers direction for service providers providing such services. We suggest mobile crisis service has an important place in the continuum of service related to children and youth mental health.

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