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Why Wait? The Effects of Waiting Time on Subsequent Help-Seeking Among Families Looking for Children's Mental Health Services

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A thesis submitted in partial fulfillment of the requirements for the degree in Master of Science

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Abstract

The influence of wait-list duration for child and adolescent mental health services on families seeking help elsewhere was examined. Survival analyses, modelling time from being initially placed on a wait-list to when a family contacted a new agency, were conducted separately for families that did not receive help prior to contacting a new agency (n=159) and those that received help (n=114). Survival analyses examined effects of wait-time along with predisposing (e.g., age), need (e.g., child psychopathology), and enabling (e.g., number of agencies) factors on time to contact a new agency. Almost half of families contacted a new agency after having been wait-listed. Of those that had not yet received help, 25% contacted a new agency within one month of being wait-listed. Parents with previous treatment experience and families living in areas with 10 or more agencies waited less time to contact a new agency. Implications for service delivery in the children's mental health system are discussed.

Keywords: Wait-list, help-seeking, service utilization, survival analysis, child, adolescent, mental health, services, Ontario

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Introduction

It is estimated that 14% of children[1] (approximately 1.1 million) in Canada experience mental health disorders that cause significant distress and impairment at home, at school, and/or in the community (Waddell, Offord, Shepherd, Hua, & McEwan, 2002). The prevalence of children's mental health disorders far exceeds specialized treatment capacity and over 80% of these children go without these services (Offord, Boyle, Fleming, Blum, & Grant, 1989; Waddell et al., 2002). Demands on Child and Adolescent Mental Health Services (CAMHS) lead to longer wait lists. This exacerbates problems for children and families because timely access to services is considered critical for successful treatment of children with mental health problems (Kowalewski, McLennan, & McGrath, 2011; Srebnik, Cauce, & Baydar, 1996; Waddell, McEwan, Shepherd, Offord, & Hua, 2005; Zwaanswijk, Van der, Verhaak, Bensing, Verhulst, 2005). It has been suggested that placement on a wait-list may increase families' help-seeking efforts, which consequently increases costs for both the system and families (Reid et al., 2011). Development of a more efficient CAMHS system might be facilitated by a better understanding of how families access and become involved with more than one agency for their child's psychosocial problems.

The purpose of the current study was to examine how waiting times for CAMHS influence families to seek help elsewhere. The literature provides a number of reasons for examining this issue. First, the literature on the impact of waiting for mental health services at an individual and systems level is reviewed. Second, theoretical models of help-seeking are presented to aid in understanding parents' efforts in navigating the CAMHS system.

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[1] Children is used to refer to all persons aged 0-18 years old.

Finally, empirical studies using these models to predict children's mental health service use are reviewed to frame the choice of variables in the current study.

Impacts of Waiting Lists in Mental Health

Delays in treatment and lengthy waiting times are amongst the most frequently endorsed barriers reported by families seeking help in the children's mental health system (Tarico, Low, Trupin, & Forsyth-Stephens, 1989; Waddell et al., 2005). Waiting time for children to receive help in Ontario across CAMHS agencies in 2006 ranged between 1.5 and 5.5 months (Children's Mental Health Ontario, 2006). A recent study investigated wait times at 379 CAMHS agencies across Canada (Kowalewski et al., 2011). Substantial wait times existed at many agencies; although wait times were much shorter (i.e., average of 30 days) for children with high clinical priority levels (Kowaleski et al., 2011). This suggested that triage does occur within the CAMHS in Canada. However, other studies reveal children with severe or persistent symptoms are not necessarily most likely to receive assistance (e.g., Saunders, Resnick, Hoberman, & Blum, 1994; Smith & Hadorn, 2002). No standards have been set for acceptable wait times for mental health services in spite of the fact that delayed treatment can reasonably be expected to negatively impact on a child's well-being (Brown, Parker, & Godding, 2002).

Children on wait-lists experience more problems as the waiting period lengthens, including decreased motivation for treatment and poorer adjustment (Brown et al., 2002; Srebnik et al., 1996). Long wait times may result in protracted emotional distress, as well as social dysfunction at home, at school, and in the community (Brown et al., 2002). Long wait times impact treatment engagement by exacerbating initial session non-attendance (Folkins, Hersch, & Dahlen, 1980; Gallucci, Swartz, & Hackerman, 2005; Grunebaum et al., 1996; Lefebvre, Sommerauer, Cohen, Waldron, & Perry, 1983), which has been shown to be as

high as 68% for CAMHS (McKay, McCadam, & Gonzales, 1996; McKay, Pennington, Lynn, & McCadam, 2001; Piacentini et al., 1995). Thus, the longer families have to wait between a referral and their first appointment, the more likely they are to miss their appointment (Carpenter, Morrow, Del Gaudio, & Ritzler, 1981; Foreman & Hanna, 2000; Kourany, Garber, & Tornusiciolo, 1990; MacDonald, Brown, & Ellis, 2000; Rawlinson & Williams, 2000; Sherman, Barnum, Buhman-Wiggs, & Nyberg, 2009; Williams, Latta, & Conversano, 2008). Long wait times lower families' motivation to get help or to engage treatments that require greater effort, likely leading to decreased effectiveness of the treatment (Angold, Costello, Burns, Erkanli, & Farmer, 2000; Brown et al., 2002). Furthermore, long wait times are a significant cause for complaint for those who do eventually attend (Subotsky & Berelowitz, 1990). Stallard and Sayers (1998) reported lengthy delays might result in clients becoming "dispirited", leaving them feeling dissatisfied with the service they eventually receive.

At the systems level, high 'no show' rates lead to reduced efficiency in CAMHS. Failures to keep initial appointments waste valuable clinic resources and clinician time and contribute to longer wait times, which may deter families from following through with needed services (Sherman et al., 2009; Lowman et al., 1984; Carpenter et al., 1981). In this regard, the work of Foreman and Hanna (2000) suggests a window of "acceptable" waiting might exist. They found families who waited less than 4 weeks or more than 30 weeks were less likely to attend initial treatment appointments. By using survival analysis to examine the time between when a family was referred and when they returned an intake questionnaire package (a parental behaviour that was highly correlated with an intention to attend), Foreman and Hanna (2000) found 10% of referral loss (i.e., non-attendance at the initial appointment) took place in the first 4 weeks. The authors suggested a cut-off point for

waiting at 30 weeks (based upon visual inspection of the survival curve), after which the drop-out rate increased dramatically. This pattern suggests some families may be intolerant of not receiving immediate attention (i.e., as measured as referral loss within one month), while other families' were more patient but by 30 weeks they may have simply given up (Foreman & Hanna, 2000). These results suggest that mental health services might prioritize improving families' acceptance of waiting longer than four weeks while ensuring initial appointments occur within 30 weeks.

Many studies investigating access to CAMHS focus on a single endpoint: whether or not the child's family attended the initial appointment (Farmer, Stangl, Burns, Costello, & Angold, 1999; Foreman & Hanna, 2000; Stiffman et al., 2000). However, this outcome does not capture families' experiences while waiting or their efforts to obtain services, both of which are factors relevant to understanding the complex help-seeking process. Parents become anxious about progress through a waiting list when there is a lack of information about when they can expect an initial appointment (Herlihy, Bennett, & Killick, 1998). Queuing theory, a mathematical approach to the analysis of waiting lines in healthcare settings, provides a theoretical basis for the "psychological cost to waiting" (Osuna, 1985). Queuing theory posits that anxiety, uncertainty, and lack of information are all contributing factors to making the wait feel longer (Durrande-Moreau, 1999; Osuna, 1985). The psychological cost of waiting is relevant for families faced with a complex and burdensome help-seeking process for CAMHS and may be one reason why families engage in simultaneous involvement (e.g., receiving services at one agency while on the wait-list for services at a second agency) with more than one mental health agency (Reid et al., 2011). Thus, queuing theory suggests the longer families have to wait for services, the more likely they will look for alternatives. No studies have examined how waiting influences seeking

help at multiple agencies. Unlike medical health services, in which there is a single or centralized wait-list for specialist services (e.g., family physician suspects a patient has cancer and refers for imaging and follow-up by an oncologist), parents may seek CAMHS from multiple agencies. The only limitation for publicly-funded CAMHS is typically that families must reside in the catchment area of the agency (in Ontario, this is often done by county). Thus, families may be on wait lists at multiple agencies within the same catchment area making it extremely difficult to accurately determine the current demand for services, leading to an inefficient and fragmented CAMHS system.

Subsequent Help-Seeking for CAMHS

As above, families looking for CAMHS have been shown to contact multiple agencies to try to obtain help (Reid et al., 2011; Shanley et al., 2008) but unlike specialized medical health services, there is no mechanism to control or coordinate access to CAMHS. Consequently, families may seek help across several mental health professions (e.g., private psychologist, social worker or counselor) or agencies while waiting (Shanley, Reid, & Evans, 2008; Reid et al., 2011). Reid et al. (2011) investigated the experiences and efforts of parents in Ontario seeking help for their children using retrospective parental reports of help-seeking efforts and found 44% of parents (n =133) contacted more than one agency during the previous year. Not surprisingly, families that had simultaneously engaged multiple agencies had been seeking help for longer periods. These findings suggested the longer a family waits for services the more likely they will have contacted other agencies or professionals, a behaviour that leads to an inflated demand on services.

Ironically, families who seek help across many agencies contribute to the length of wait-lists by placing their names on multiple wait-lists and, in some cases, by actually receiving services across multiple agencies. For example, Shanley et al. (2008) found over

two-thirds of parents reported having received treatment during the past year prior to contacting the children's mental health centre from which they were recruited. In other words, over two-thirds of parents had already received treatment and were seeking additional treatment. As well, families that contacted multiple agencies sought help for the same type of problem(s) and wanted the same service(s) across agencies. This finding suggested families were "shopping" for services upon encountering the average six-month wait-lists at public agencies (Shanley et al., 2008). Furthermore, parents did not necessarily stop seeking help once they began receiving treatment. As one parent stated, ''I didn't talk to any other places while I was on the waiting list for the psychologist because I was sure that the psychologist could help. He didn't help one bit, now I talk to more than one place at a time or I never get anywhere'' (p. 3; Shanley et al., 2008).

Shanley et al. (2008) also found parents did not always accept the help offered to them and refused over one quarter of the treatments offered to them due to reasons other than logistical barriers. Notably, while the majority of parents that initially did not want treatments still accepted treatment that was offered (Shanley et al., 2008), and this may reflect their receptivity to be persuaded to try treatments they did not initially want, it is also suggestive that these parents became so frustrated they were willing to take whatever help was offered. The implications of a 'multiple listing' approach by parents (Shanley et al., 2008; Reid et al., 2011) remains unclear and further research is needed to examine the link between being placed on a wait-list and families' strategies to optimize help-seeking. What has not been studied is how length of waiting time influences the time at which parents contact a new mental health agency.

Theoretical Models of Help-Seeking

Understanding help-seeking, the steps families navigate amongst various services to eventually receive treatment, should help close the gap between children waiting for and receiving mental health services (Zwaanswijk, Verhaak, Bensing, Van Der Ende, & Verhulst, 2003). Most of the empirical research on seeking mental health services has used classic models of help-seeking (e.g., Gurin, Verof, & Feld, 1960; Aday & Anderson, 1974) as the basis for investigations into individual attitudes and behaviours concerning mental health service use. The fundamental steps of such models include recognizing the mental health problem, deciding to seek help, and selecting a specific source of help. The Socio-Behavioural Model (SBM) of health services use (Aday & Anderson, 1974; Andersen, 1995; Andersen & Newman, 1973), a commonly used model that was first proposed to explain the use of general medical care services, has been applied to the mental health system (Costello, Pescosolido, Angold, & Burns, 1998; Logan & King, 2001; Rogler & Cortes, 1993; Stiffman, Pescosolido, & Cabassa, 2004). The SBM posits three main influences on whether a person seeks help. The first influence, *need for services*, can be measured through clinical status or subjective perceptions of one's own (mental) health. *Predisposing characteristics* are demographic factors (e.g., age) or other individual characteristics (e.g., marital status) that affect a person's willingness to seek services. Finally, *enabling factors* are situational variables such as family resources (e.g., previous experience) and community characteristics (e.g., number of available agencies) that act to facilitate or inhibit help-seeking (Logan & King, 2001).

The SBM has been adapted to assess help-seeking and mental health service use for children and adolescents (e.g., Costello et al., 1998; Rogler & Cortes, 1993; Srebnik et al., 1996). For example, Costello and colleagues (1998) developed a comprehensive model for

understanding children's access to mental health care based on Pescosolido's Network-Episode Model (NEM; Pesosolido, 1992; Costello et al., 1998). In contrast to the adult models, the Revised NEM (Costello et al., 1998) acknowledges the importance of parents and family members in their role as 'gateway providers' to accessing CAMHS (Costello et al., 1998; Rawlinson & Williams, 2000; Stiffman et al., 2000, 2004). Recognition of a child's psychosocial difficulties and mental health service engagement by a parent is the most common route to specialist CAMHS (Rawlinson & Williams, 2000). For this reason, these more ecological models (see Bronfenbrenner, 1986) incorporate consideration of key individuals involved in responding to a child's mental health issue and provide a useful framework for understanding families' help-seeking behaviours.

Logan and King's (2001) parent-mediated pathway to mental health services for adolescents outlines the following steps: a) gaining awareness of their youth's distress, b) recognizing the problem as psychological, c) considering possible courses of action, d) developing an intention to seek mental health services, e) making an active attempt to seek services, and f) obtaining mental health services. Logan and King (2001) effectively modelled the pathway to CAMHS as a series of levels or decisions, rather than a single planned choice (Costello et al., 1998; Stiffman, 2004; Zwaanswijk et al., 2005). Their model emphasized succession along the help-seeking pathway. In reality, families are often forced to 'back track' along the pathway when they encounter barriers (e.g., lengthy wait-lists). While classic models of help-seeking suggest linear pathways, recent studies show parents actually follow a more disorganized pathway to obtain services (Shanley et al., 2008; Reid et al., 2011) and engage simultaneously at multiple nodes of the help-seeking 'web' both across and within agencies. While sorting out the complexities of accessing CAMHS is a challenge,

theoretical models were successfully used to organize predictors of help-seeking examined in the current study.

Predictors of Help-Seeking

Ecologically-based models of help-seeking for CAMHS propose multiple influences affect each step parents take to obtain mental health services for their child (Shanley et al., 2008). Various factors have been related to parents seeking and obtaining services for their children (Logan & King, 2001; Anderson et al, 1995; Srebnik et al, 1996). Parental recognition of children's psychological problems and their decision to seek help is influenced by the needs of the child and the "needs" of the parent(s) (e.g., resources and flexibility to modify their domestic or employment schedules) (Owens et al., 2002; Stiffman et al., 2000, 2001). The current study focused on a subset of the 76 variables in the Revised NEM (Costello et al., 1998), under the three categories from the SBM (Anderson & Aday, 1975), and as selected from the literature on predicting children's mental health utilization. While no variable consistently predicts service use across all previous studies, each of the factors selected in the current study have been shown to exert significant influence on patterns of service utilization in children's mental health.

Predisposing factors. The help-seeking literature reports boys, older children, and children from single parent families are more likely to receive services (Griffin, Cicchetti, & Leaf, 1993; Farmer et al., 1999; Lavigne et al., 1998; Kataoka, Zhang, & Wells, 2002; Zwaanswijk et al., 2003). Accordingly, child sex, age, and single parent status were selected as predisposing factors in the current study. It should be noted, however, that the relationship between service engagement and child age remains unclear: some studies have found an inverse relationship between child age and rates of engagement (Griffin et al., 1993; Wise, Cuffe, & Fischer, 2001), while others have reported a positive relationship (Roghmann,

Haroutun, Babigian, Goldberg, Zastowny, 1982; Wu et al., 1999). While criteria used to discriminate younger from older children are inconsistent, many studies (e.g., Mowbray, Lewandowski, Bybee, & Oyserman, 2004) have relied on the median child age to examine the effects of age on service utilization and this approach was adopted for the current study.

Need factors. Higher levels of problem or symptom severity have been consistently associated with higher mental health service use in community-based samples of children and adolescents (Burns et al., 1995; Farmer et al., 1999; Farmer, Burns, Angold, & Costello, 1997; Sayal, 2004; Verhulst & Van der Ende, 1997; Zahner et al., 1997). As such, the current study examined child impairment along with internalizing and externalizing problems.

Enabling factors. The SBM has been revised over time to include influences from the external "environment", which broadly refers to aspects of the larger social systems in which parents and children are embedded, as well as the goals and policies of health-care systems (Anderson, 1995; Logan & King, 2001). Enabling factors can be considered at both the family and systems level.

Family factors. Higher parental burden, or the perceived impact of a child's problems on the family, has been found to predict increased use of CAMHS (Angold et al., 1998; Farmer et al., 1999; Owens et al., 2002). Farmer et al. (1999) characterized family impact as a key enabling factor. In Zwaanswijk et al.'s (2003) review of the literature on help-seeking for children with mental health problems, perceived parental burden was found to be a more consistent predictor of parental problem recognition and help-seeking than the mere presence of child symptoms and level of psychopathology (Angold et al., 1998; Farmer, Burns, Angold, & Costello, 1997; Farmer et al., 1999; Logan & King, 2001; Wu et al., 1999,

2001). Thus, the current study examined the perceived impact of a child's problems on the family as a predictor of subsequent help-seeking behaviour.

The importance of parents' knowledge and understanding of the service system when obtaining services for children has been demonstrated (Bushy, 1994; Carlton & Deane, 2000; Cunningham & Freiman, 1996; Owens et al., 2002; Sayal et al., 2010; Tarico et al., 1989; Zahner, Pawelkiewicz, DeFrancesco, & Adnopoz, 1992). Research has shown previous parental experience with the mental health system predicts increased service use and help-seeking for CAMHS (Cunningham & Freiman, 1996; Farmer et al., 1999; Mowbray et al., 2004; Wu et al., 1999; Owen et al., 2002). Some authors have reasoned that parents that know "what it [is] like [to access mental health services]" (Starr, Campbell, & Herrick, 2002; p.301) are more informed and therefore have more positive expectations. Parents that have used services in the past may be better able to navigate the service system and increase their child's access to mental health care (Kerkorian, McKay, & Bannon, 2006; Owens et al., 2002). The assessment of parents' knowledge and understanding of the CAMHS would be complex and appropriate measures currently do not exist. For these reasons, parent treatment history was examined as a predictor of subsequent help-seeking. Parent treatment history can be seen as a proxy for their knowledge and understanding of the service system.

System factors. Investigations of waiting times in the medical health services demonstrate shorter wait-list durations are associated with greater availability of hospital resources such as staff and funding (Sobolev & Kuramoto, 2008). In a similar vein, studies of access to mental health care have examined system capacity (i.e., resources influencing availability of resources) as a function of the number of professionals in an area (Blais, Breton, Fournier, St-Georges, & Berthiaume, 2003) or the availability of professionals in an area (Nelson & Park, 2006). Research suggests that even when need is identified and parents

decide their child should receive services, actual or perceived lack of available mental health services may present barriers to receiving help (Rawlinson & Williams, 2000). In the present study, the number of agencies in the city/region in which families resided was examined as an enabling factor. Enabling factors associated with access to care (e.g., availability of services) are important because, unlike predisposing factors which are either unchangeable (e.g., child sex) or difficult to change (e.g., family income), they may be more amenable to change at the system level (Aday & Anderson, 1974; Reid et al., 2011).

Current Study

The current study examined the effect of waiting times on subsequent help-seeking for CAMHS in the province of Ontario, Canada. Unlike previous studies, the current study (based on a larger project by Reid et al., 2011) included telephone contacts (i.e., the standard first contact with a CAMHS agency) to more fully capture "help-seeking" as opposed to only services (e.g., treatment) received.

The impact of waiting time on parents' decision to seek help elsewhere was examined by using survival analyses, which modelled the time from being initially placed on a wait-list to the time when a family contacted a new agency for help. The statistical methods used in this study are an innovative application of survival analysis, commonly used in the medical literature to compare differences in time to a negative outcome (e.g., death, re-hospitalization) between two groups (e.g., treatment and control). Survival analysis has only recently been used in children's mental health research to examine the time to a variety of outcomes including: time to incarceration for children with serious emotional disturbances (Goldston et al., 2002), time to first (ever) mental health service use in a community sample of youth (Erath et al., 2009; Laitinen-Krispikn, Van der Ende, Wierdsma, & Verhulst, 1999), and time to treatment drop-out or termination (Harpaz-Rotem, Leslie, & Rosenheck, 2004).

While only one other study (Foreman & Hanna, 2000) has examined the impact of waiting time using survival analysis, the outcome was attendance at an initial treatment appointment for CAMHS. Comparatively, the current study is the first to examine the impact of waiting for services on parents' help-seeking efforts.

Other studies have investigated placement on a waitlist and wait time as factors that differentiate families' help-seeking and agency involvement patterns within a time frame of up to 13 months maximum (Reid et al., 2011; Shanley et al., 2008). However, neither of these two studies examined how varying lengths of time on a wait-list influences time to contact a new agency. In addition, the current analyses examined parental help-seeking process over a longer follow-up period than any previous studies, up to a maximum 24 months. The use of survival analyses overcomes limitations of previous studies of families' help-seeking patterns over time in that it manages varying durations of follow-up times, which cannot be adequately modelled using standard statistical procedures.

Study Objectives

The current study aimed to address two broad issues related to access to mental health care for children, age 4- to 17-years old:

1. Does time on a wait-list for families impact the time to contact a new agency for CAMHS?
2. What is the effect of *predisposing* (i.e., child age, sex, single parent status), *need* (i.e., child psychopathology), and *enabling/system-level factors* (i.e., parent treatment history, perceived burden of child's illness, number of agencies in area) on the length of time parents wait before they contact a new agency for help with their child's mental health problems?

Hypotheses

1. The longer a family is wait-listed for CAMHS, the more likely they will be to look for help elsewhere by contacting a new agency.
2. The length of time for wait-listed families to contact an additional agency for help will be shorter for the following (a) *predisposing factors*: boys, older children (i.e., greater than 11 years) and single-parent families; (b) *need factors*: children with higher externalizing or internalizing problems and high functional impairment (i.e., T score $\geq$ 65); (c) *enabling or system-level factors*: previous parental experience with the mental health system, higher perceived burden of child's illness on family, and more mental health agencies available for CAMHS in their area.

Method

Secondary analyses of data collected from a prospective, correlational study of families' experiences in seeking help for their children's psychosocial problems were conducted (Reid et al., 2011). The current study also incorporated data from follow-up interviews that have not previously been reported. The methodology of the primary study will be reviewed prior to presenting details specific to the current study.

Recruitment

Families were recruited from 16 children mental health agencies across Ontario and accredited by Children's Mental Health Ontario or a similar accreditation body (e.g., Canadian Council on Healthcare Services Accreditation). Intake workers asked families that contacted the agency if they wanted to be part of the research study immediately after the standard intake procedures were completed. Participants were recruited over an 18-month period, and each agency recruited participants for approximately 4 months. Parents with a 4- to 17- year old child, who were legal guardians of the child, were included. Families were excluded if: (1) they did not have a telephone, (2) parent was in a shelter or hospitalized, (3) child had a developmental delay or physical disability, (4) parent did not speak English, or (5) parent did not contact the agency themselves (e.g., third party referral, adolescent self-referral).

After the standard agency intake interview, staff asked parents if they would allow the release of their contact information to the researchers; depending on agency procedures, parents also completed a measure of child and family adjustment, the Brief Child and Family Phone Interview (BCFPI) (Boyle et al., 2009; Cunningham et al., 2008). A letter of information and consent form were mailed to interested parents. One week later, parents were contacted by telephone and an interview was scheduled. Parents were contacted

multiple times before being dropped from the study. Specifically, parents were contacted four times within a 2-week period at various times (i.e., morning, afternoon, evening, weekends), and at least 10 attempts were made over a minimum of 4 and maximum of 6 weeks. Further, if a parent rescheduled an interview five times or was not present for five scheduled interviews, the parent was dropped from the study. It required an average of five (SD = 3.2) telephone calls to recruit parents who agreed to participate. The average time between parents contacting the agency and the interview date was 43 days (median = 34; SD = 29). Parents were mailed a gift certificate for participating. The study was approved by the Research Ethics Board at The University of Western Ontario.

Procedures and Measures

The Brief Child and Family Phone Interview (BCFPI). Parents completed a measure of the child's psychosocial adjustment using BCFPI, a 30-minute standardized telephone interview with 81 force-choice questions used as the mandated intake measure by all children's mental health agencies in Ontario. The BCFPI is based on the Ontario Child Health Study scales – Revised version (OCHS-R; Boyle et al., 2009). The BCFPI has good internal consistency and test-retest reliability; factor analyses provide support for the construct validity of the measure (Cunningham, Boyle, Hong, Pettingill, & Bohaychuk, 2009). Norms and reliability were derived from community and clinic data from the OCHS. Correlations between the BCFPI subscales and the OCHS-R full-length scales range from 0.78 to 0.96. The current study used three composite scales which were based on nine analytically derived factor subscales: a) externalizing (i.e., regulation of attention and activity; cooperation; conduct), b) internalizing (i.e., separation from parents, managing anxiety and managing mood), and c) child functioning/impairment (i.e., social participation,

quality of child's social relationships, school participation, and achievement). For the current study, T-scores were computed using age and sex-based population norms.

Help-seeking and service utilization. A Computer-Assisted Telephone Interview was used to ask parents about their experiences in seeking help for their child's psychosocial problems during the previous year. Parents were asked about all contacts with a psychiatrist, mental health clinic, a private psychologist, social worker or counsellor, using the health care utilization schedule from the Ontario Child Health Study-Revised (Boyle et al., 1987). They were also asked about specific mental health agencies within their community using a methodology that resulted in improved recognition of agencies contacted (Reid & Brown, 2008).

For each agency contacted, parents were asked the date of their first contact, what services (if any) they had received, and how long they had waited before receiving help. Parents were not asked how long they waited for a *specific* service (i.e., assessment, treatment). Instead, they were asked how long they had waited at the agency to receive help and in this way, reported wait times reflected parents' perception of when 'help' was first obtained. Families placed on a wait-list (i.e., reported not having had received any services) were asked what services they were currently waiting for (e.g., initial assessment, individual counseling). Questions regarding each agency/professional that a parent contacted were based on existing measures of mental health service use [e.g., Child and Adolescent Services Assessment (CASA; Ascher, Farmer, Burns, & Angold, 1996); Service Assessment for Children and Adolescents (SACA; Stiffman et al., 2000)]. Responses for open-ended questions were coded into categories based on existing measures and a previous study (Shanley et al., 2008).

If parents were not able to recall the exact month they first contacted an agency, they were asked if they remembered the time of year. The seasons were coded as follows: winter (December), spring (April), summer (June), fall (September). If parents did not remember the exact day they contacted an agency, interviewers probed for the beginning, middle, or end or the month, which were coded as day 1, 15, or 30 respectively. If the parent was unable to give an estimation of the time of month, the default was to code the day as the first of the month.

Demographics. Parents provided demographic data on their child (e.g., age, sex), themselves (e.g., education, race) and their family (e.g., family income). Parents also were asked if they or their partner had ever been treated for behavioral, emotional or drug or alcohol problems, or had treatment for marital problems.

Staff Training

Interviewers participated in two day-long sessions to review the procedures for conducting the parent interview. A detailed coding manual provided instruction on coding parent responses. Every other month, interviewers coded a recorded interview in order to assess inter-rater reliability for all items involving coding (i.e., numeric ratings on standardized questionnaires were excluded). Percent exact agreement for each interviewer was assessed for each question compared to coding by the original interviewer. Average agreement across items was always greater than 86% for each interview with almost all interviewers having over 90% agreement. All staff completed a standardized training protocol for the BCFPI, which included instruction from the principal author, C.E. Cunningham, and a validation interview.

Follow-up Interviews

Follow-up interviews were conducted at 6- and 12-months after the initial interviews with parents. The 6- and 12-month follow-up interviews were completed using the same procedure as the baseline interview, except that only the time since the prior interview was discussed. Parents that completed the 6-month interview were asked about agencies they reported having contacted at baseline, as well as any new agencies they had contacted within the previous 6 months; similarly for the 12-month follow-up. Parents that completed the 12-, but not the 6-month interview, were asked to report on the previous 12 months (similarly, a recall period of 12-month was also possible for the initial interviews depending on how long parents had been looking for help prior to the baseline interview).

The Current Study

Participants

The final sample for the present study consisted of 273 of the 300 families who participated in the original project. Inclusion/exclusion criteria for the present study occurred at two levels. First at the agency level, agencies contacted by families greater than 13 months prior to the baseline interview were excluded and the next most recent agency contacted by the family was used to define the agency at which the parent was seeking help; this ensured families were seeking help for the most recent episode of care. Second at the family level, families were excluded if they had not contacted an agency within 13 months of the baseline interview (N= 20) or had not been placed on a wait-list at the first agency they had contacted (N=7). Families that had not been wait-listed at the first agency they had contacted were in the early stages of the help-seeking process and had either received a referral only or an initial assessment over the telephone. Figure 1 provides a break down showing parents completion across the three interviews.

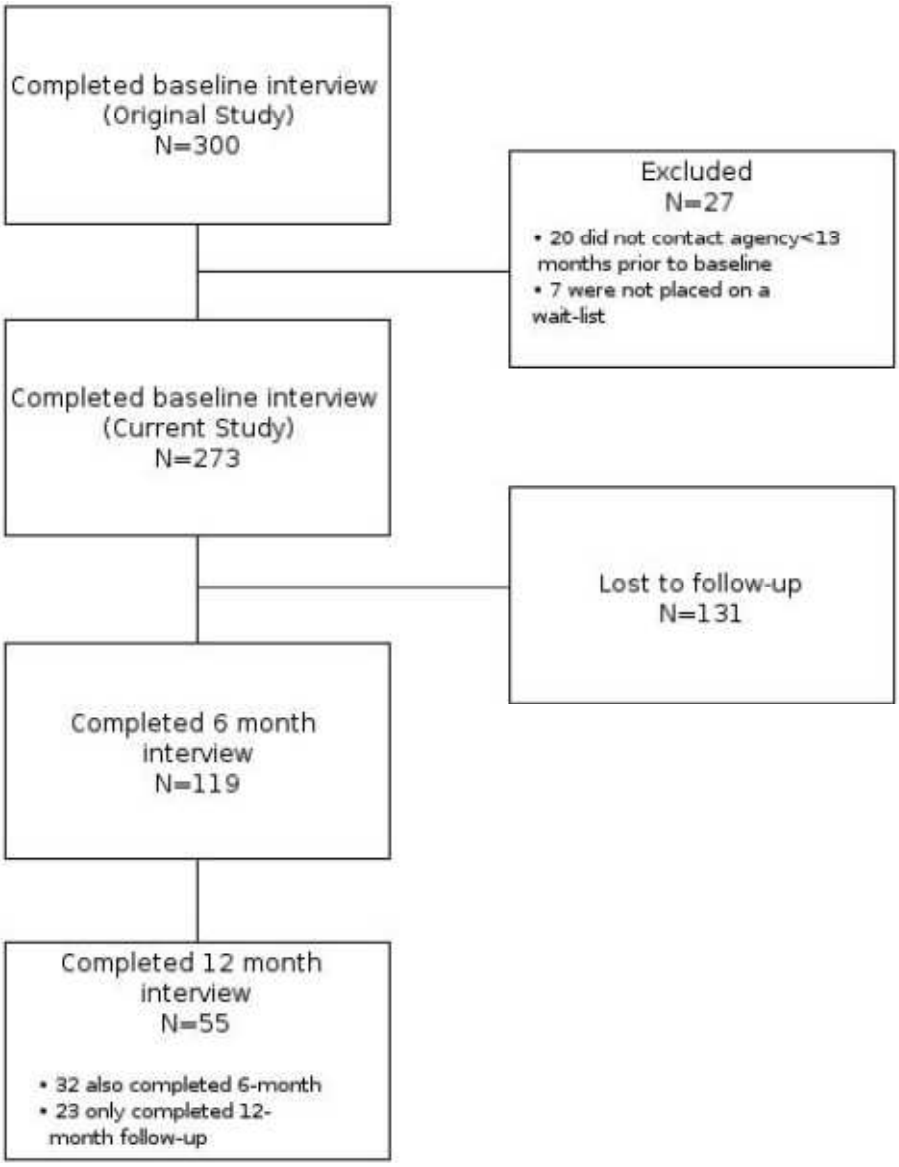

Figure 1. Flowchart of the number of participants that completed the baseline, 6-month, and 12-month interviews.

The vast majority of parents interviewed were female (91%) and the child's birth mother (82%). Most parents were Caucasian (95%); 5% were a visible minority (e.g., South Asian, Black). The current sample was under-represented compared to the Ontario population (19%) in terms of visible minority groups, (Statistics Canada, 2002)[2]. The sample was similar in terms of marital status, family income, and parent educational attainment to data from Children's Mental Health Ontario (CMHO) (Reid et al., 2006). Mean family income was comparable to the CMHO sample (Reid et al., 2006). Parental educational attainment: high school diploma (21%), some postsecondary (49%), and university degree (11%); compares well to the 45% of the CMHO population with some post-secondary education.

Parents in the current study were seeking help for their children, which included 176 boys (64%) with a mean age of 10.5 years (SD = 3.37). Compared to children referred to all agencies in Ontario, the current sample was younger and had a higher percentage of boys (see Table 1). The sample was similar in terms of child internalizing, externalizing & functional impairment to data from Children's Mental Health Ontario (CMHO) (Reid et al., 2006).

Results from the primary study (Reid et al., 2011), from which this study was based, found that parents were in contact with an average of four agencies in the year prior to the study interview. The current study examined the duration between the first (or earliest) agency contacted by parents and the subsequent agency they contacted for help, if parents contacted more than one agency.

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[2] Parents' race was not available from the Children's Mental Health Ontario (CMHO) data.

Table 1.

Comparison of Sample Characteristics with Children's Mental Health Ontario (CMHO) Sample

Demographic Characteristics	Study Sample (N=273)	CMHO Sample
Parents/families		
Marital Status		
Married/Common-law	58%	59%
Single parent	42%	41%
Income		
< $40,000	46%	55%
$40,000 - $60,000	19%	19%
> $60,000	35%	26%
Educational attainment		
Less than high school	19%	20%
High school graduate	21%	24%
At least some college or university	49%	45%
University graduate	11%	11%
Children		
Age (*M* ± *SD* in years)	10.5 yrs ± 3.4	11.5 yrs ± 3.7
Sex (% boys)	64%	56%
Age distribution		
4 – 8 years	34%	31%
9 – 12 years	35%	35%
13 – 17 years	31%	34%
Child Adjustment (*M* ± *SD*)[a]		
Externalizing problem	69 ± 12.4	69 ± 13.3
Internalizing problem	65± 13.4	64 ± 14.5
Child functional impairment	70 ± 14.0	69 ± 14.3
Internalizing or externalizing *and* functional impairment	56%	N/A

[a] *T*-scores based on population norms.
N/A = Not applicable as data from CMHO were not computed in this fashion.

Outcome Variable

Subsequent Help-Seeking

Parents were asked to report the date of first contact for all agencies they were involved with at each interview. The time in days from when families were wait-listed at the first agency they contacted to when they contacted a new agency was the primary outcome for the current study.

Predictor Variables and Coding

All predictor variables were measured at the baseline interview. Variables and coding for analyses are presented below. Variables were dichotomized for ease of interpretation in survival analyses (Cleves, Gould, Gutierrez, & Marchenko, 2010). Established clinical cut-offs were used to dichotomize variables when possible.

Predisposing Variables

Demographics. Child's sex was coded as male (1) or female (0); age was coded as older than 11 years of age (1; the median) or 11 years of age or younger (0). Parents' marital status was recoded as: single (i.e., never married, separated, divorced, or widowed) (1) or married/common-law (0).

Need Variables

Children's adjustment. Three scales from the BCFPI (Boyle et al., 2009; Cunningham et al., 2009) were used: (a) externalizing problems, (b) internalizing problems, and (c) functional impairment. Scores on these scales were combined and coded as: clinically-significant problems externalizing (or internalizing) T-score ≥ 65 (93^{rd} percentile) *and* functional impairment ≥ 65 versus (1) problems and/or impairment below clinical cutoffs (0). By combining level of psychopathology with functional impairment, the groups more closely approximate diagnostic criteria (i.e., symptomatology) for clinically significant

problems; that is, the Diagnostic and Statistical Manual of Mental Disorders requires both a minimum number of symptoms and functional impairment to meet criteria for a diagnosis (DSM-IV-TR; American Psychiatric Association, 2000).

Enabling Variables

Impact of child's illness. Impact on the family, or perceived parental burden, was measured using the Child and Adolescent Impact Assessment (CAIA) scale from the BCFPI (Boyle et al., 2009; Cunningham et al., 2009), which assessed the extent to which the child's problems affected the family's external social supports and was a source of conflict within the family. Impact on the family was coded as follows: clinically significant impact of child's illness on family, T-score $\geq$ 65 (93rd percentile; 1) and below clinical cut offs for impact on family, T-score < 65 (0).

Parent treatment history. Parents were asked if they or their partner had ever been treated for behavioural, emotional, drug or alcohol problems, or for marital problems. Treatment for self, partner, and/or marriage was coded as follows: any history of previous treatment (1) or no previous treatment (0).

Number of agencies in area. The number of agencies within each community from which parents were recruited was computed based on a prior sub-study and existing databases (The Provincial Centre of Excellence for Child and Youth Mental Health at CHEO, 2006) using a criteria of within 50 km for all parents except those in two northern communities for which a 185 km radius was used, given the sparse population distribution in this region. None of the communities studied had a centralized intake system to co-ordinate referrals across regions. The median number of agencies in the communities from which families were recruited was 10. Families were dichotomized into having 10 or more agencies in the area (1) or fewer than 10 agencies (0).

Data Analyses

A brief overview of the rationale for using survival analysis and a description of its unique statistical features are presented. A summary of analyses conducted in the current study is presented in Table 2. All analyses were conducted using Stata 11.0 for Windows (StataCorp, College Station, TX).

Rationale for Using Survival Analysis Methods

Survival analysis is a collection of statistical procedures for analyzing data when the outcome variable of interest is time until an event occurs (Hosmer, Lemeshow, & May, 2008)[3]. In the current study, survival analysis was used to examine the time until families contacted a new agency after having been wait-listed at the first agency they contacted. Accordingly, a family's 'survival time' was the time between initially contacting an agency for help and subsequently contacting a new agency (i.e., the outcome). The current study resulted in a maximum of approximately 24 months (731 days) of data considering: (a) first contact could have occurred up to 13 months prior to the baseline interview, and (b) the 12-month follow-up could have occurred up to 15 months after baseline due to scheduling issues. This maximum period in which families were observed is hereafter referred to as the study period.

Survival analysis has two unique features that are specifically suited to the study questions and data structure. First, not all families reported contacting a new second agency during the time period captured by the interview, nor would it be expected that all families would contact more than one agency even if the follow-up period had been longer (e.g., some families may be content to wait until services are available at the first agency contacted).

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[3] The term 'survival analysis' will be used hereafter to refer to procedures regarding analysis of time-to-event data (e.g., Kaplan-Meier procedure).

Second, some families were lost to follow-up (i.e., only completed the baseline interview). Third, families had variable lengths of maximum follow-up because they contacted their first agency on different dates and not all families completed the 6- and 12-month follow-up interviews. While such incompleteness of data makes conventional statistical methods inappropriate (Hosmer et al., 2008; Collett, 1994), survival analysis was designed specifically for such time-to-event data, where participants may not experience the event of interest (Singer & Willett, 2003).

Data Transformations

Data for survival analysis has three requirements (Cox & Oakes, 1984): 1) a clear definition of the time origin (Time 0), 2) a scale for measuring the passage of time (e.g., days), and 3) a clear definition of the endpoint of interest.

1) **Time origin**. The time origin for each family was defined as the date they first contacted an agency within 13 months prior to the baseline interview. During the baseline interview, all families were asked when they first contacted an agency (i.e., telephone call regarding the current presenting problem or the most recent "episode" of care). Date of first agency contact was coded as Day 0 for all parents. Figures 2 and 3 illustrate how the data were collected in calendar time and transformed for analyses.

2) **Time scale.** Time to the event was computed in days.

3) **Event.** Contacting a new agency was denoted as the *event* in the current study. The event was coded as follows: families that did not contact a new agency (0) and families that contacted a new agency (1). If a family contacted more than one agency on the same day, their survival time was coded as Day 1 because the outcome/event must occur after the time origin in survival analyses.

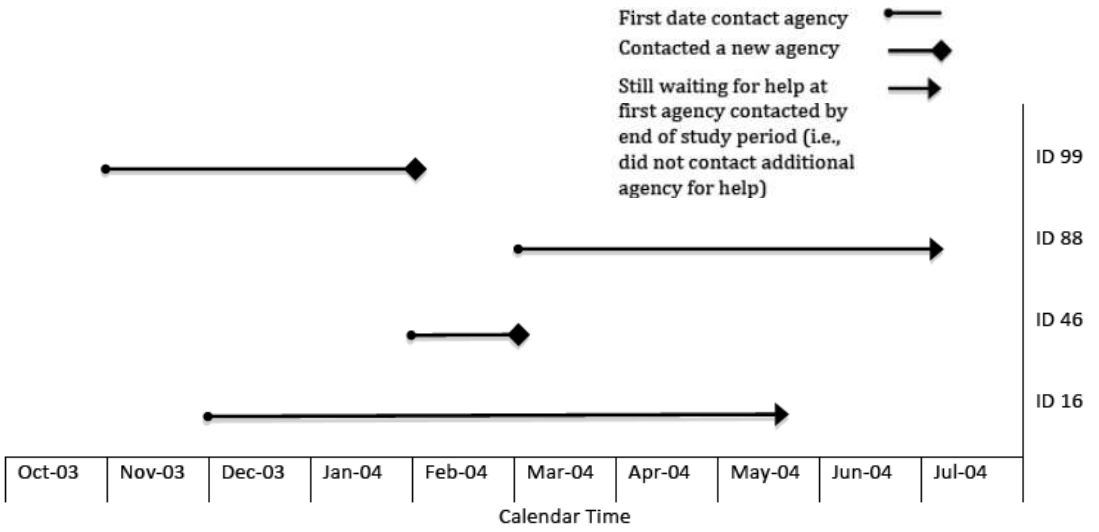

Figure 2. Data on calendar time scale.
The duration of waiting is presented for four participants. The circle represents when a family first contacted an agency. The solid line represents how long families were waiting for help at this agency. The diamond indicates that a family contacted a new agency for help, while the arrow indicates a family has not contacted an additional agency. ID 99 reported first contact with an agency occurred on November 1, 2003; s/he then contacted a new agency on February 1, 2004. For ID 88, the family contacted their first agency on March 1, 2004 and was still waiting at that agency and had not contacted a new agency by their last follow-up date on July 8, 2004. ID 46 reported first contacting an agency on Feb 1, 2004 and subsequently contacted a new agency on March 1, 2004. Finally, ID 16 reported first contact with an agency on December 1, 2003 and had not contacted a new agency by their last follow-up date on May 25, 2004.

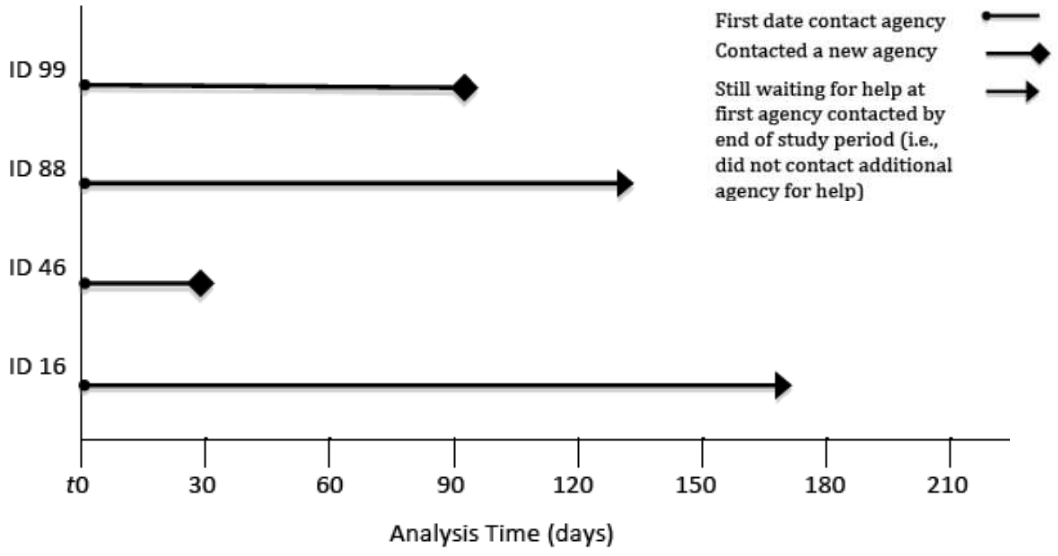

Figure 3. Data transformed on analysis time scale.
The data from Figure 2 are plotted on the analysis time scale in days with Time 0 reflecting the day of contact with the first agency.

Censored Observations

Censoring in survival analysis refers to incomplete information on a subject's survival time. Censoring occurred in the current study when: 1) families did not contact a new agency by the end of the study period or 2) families were lost to follow-up (e.g., only completed the baseline interview). For families that did not report they contacted a new agency, it is possible they may have contacted a new agency after the study period and the same would hold for families who did not complete the 6- and/or 12-month follow-up interviews. In these cases, data were *"censored"* at the date of their last follow-up interview. Incomplete observations of survival times caused by the ending of the study or lost to follow-up are called 'right-censored' observations. Right-censoring is dealt with in survival analysis where it is assumed that, because the event did not occur for the censored observation, survival time is longer than the recorded time (Cleves et al., 2010; Hosmer et al., 2008). Whereas families that contacted a new agency contributed to the number at risk until the date they contacted a new agency, families that were censored contributed to the number at risk until they were lost to follow-up. For example, the survival times for ID 88 and 16 (Figure 3) were right censored and did not contribute to the overall survival probabilities beyond 129 days and 176 days, respectively. Censoring allows for all the information available on each family to be included and used in calculating the event probabilities (Cleves et al., 2010).

Overview of Survival Analyses Procedures

Survival analysis was performed using the Kaplan-Meier procedure (Kaplan & Meier, 1958), the recommended nonparametric method of analyzing time-to-event data (e.g.. Collett, 1994; Hosmer, Lemeshow, & May, 2008). In analyzing survival data, two time-dependent functions are: the *survival* function and the *hazard* function (Bewick, Cheek, & Ball, 2004; Singer & Willett, 1993). While both summarize the same time-to-event data, the

hazard function can be considered as giving the opposite side of the information given by the survival function. The hazard function focuses on failing (i.e., the event occurring), whereas the survivor function focuses on not failing (surviving) over time. In the current study, the event or failure was contacting another agency and the survival function was used to describe the probability that families would continue to wait at the first agency contacted (i.e., did not contact a new agency).

The survivor function [denoted as $S(t)$], is defined as $S(t) = P(T > t) = 1 - F(t)$, where $F(t)$ is the cumulative distribution function of T (i.e., random time variable). The survivor function is equal to 1 at $t = 0$ and decreases toward 0 as t approaches infinity (Kleinbaum, 1996). Figure 4 illustrates a graphical representation of the theoretical survival function $S(t)$. When using actual data, the survival function graphs are step-functions rather than smooth curves. The survivor function is fundamental to a survival analysis, because obtaining survival probabilities for different values of t provides crucial summary information from survival data. Because the study period is never infinite in length, it is possible that not everyone studied experiences the event. Thus, the estimated survivor function, $S(t)$, may not achieve zero by the end of the study (as depicted in Figure 4).

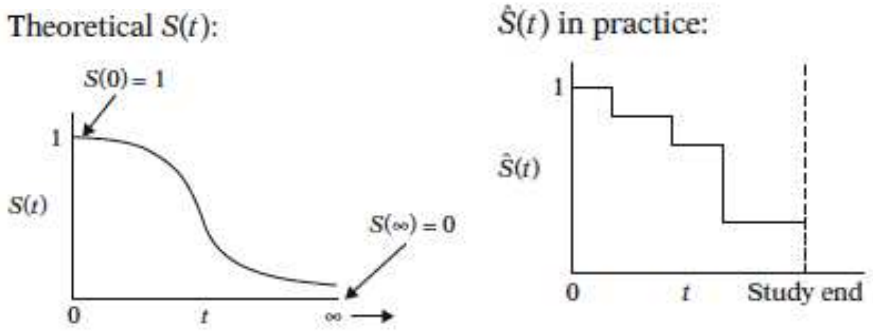

Figure 4. Graphical illustrations of the survivor function in theory and in practice.

The Kaplan-Meier estimator of the survival function (Kaplan & Meier, 1958), also called the product limit (PL) estimator, provides an estimate of survivor distribution, S(*t*), or the proportion of those waiting that had not contacted a new agency past time *t.* The PL estimator at any point in time is obtained by multiplying a sequence of conditional survival probability estimators. Each conditional probability estimator is obtained from the observed number at risk of the event occurring and the observed number of events. The Kaplan-Meier estimate at any time *t* is given by:

$$\hat{S}(t) = \prod_{j|t_j \le t} \left(\frac{n_j - d_j}{n_j} \right)$$

where n_j is the number of individuals at risk at time t_j and d_j is the number of failures at time t_j. The product is the overall observed failure time less than or equal to *t*. The estimator allows each subject to contribute information to calculations as long as they are known to be at risk (Cleves et al., 2010).

Life table analyses use the PL estimator to compute the proportion of those waiting that contacted a new agency within each time interval (i.e., one day) among those remaining in the study (i.e., have not contacted a new agency).

Objective 1: Examining the Effect of Wait Time on Time to Contact a New Agency

The Kaplan-Meier procedure was used to examine the effect of waiting time on time to contact a new agency (Study Objective 1). However, some families reported that they had received help (i.e., came off the wait-list) during the study period. Figure 5 illustrates two distinct 'help-status' groups: 1) *continuously waiting*, which included families that had not yet received help and were still waiting when they contacted a new agency (e.g. participant ID 99) or were still waiting for help at the time of the last follow-up assessment (e.g. participant ID 88); and 2) *help received*, which included families that had received help prior

to contacting a new agency (e.g. participant ID 38) or at the time of the last follow-up assessment (e.g., participant ID 16). The time-to-event data for families that received help (i.e. had stopped waiting and were offered services prior to contacting a new agency) was: 1) the time waited to receive help plus 2) the time (post-help) to contact a new agency.

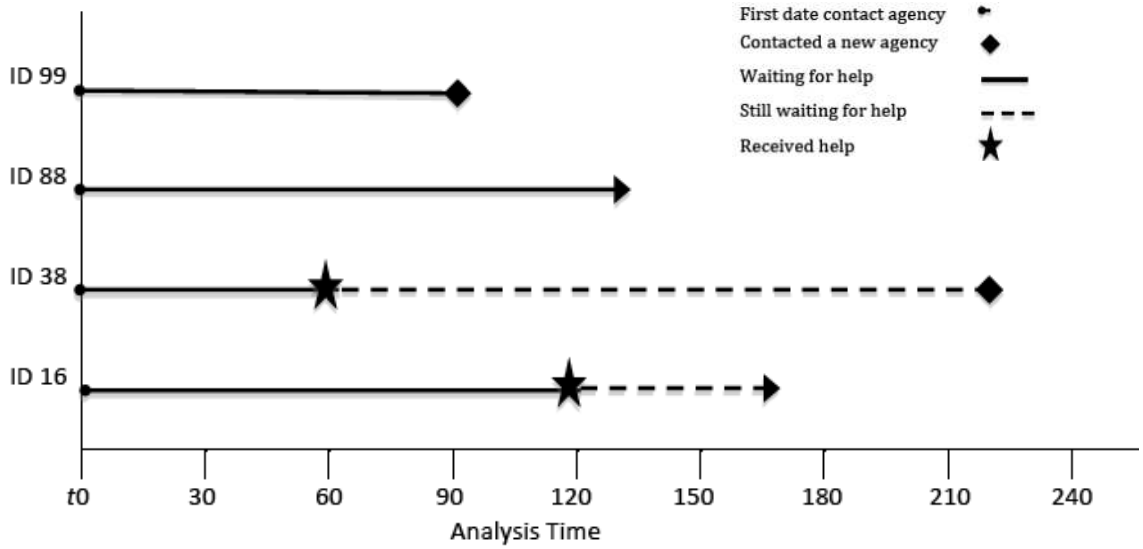

Figure 5. Comparing time-to-event data between Continuously Waiting families and Received Help families.
ID 99 did not receive help from the first agency contacted and contacted a new agency after waiting 92 days. While ID 88 also did not receive help from the first agency contacted, the parent did not contact a new agency and were still waiting for services at the last point for which information was available (i.e., 129 days after contact with the first agency). Comparatively, ID 38 and ID 16 did receive help from the first agency they contacted. ID 38 waited 60 days to receive help, but then contacted a new agency about 6 months later anyway. ID 16 waited 120 days for help but did not contact a new agency at the last point at for which information was available (i.e., 176 days).

The current study analyzed families in these two groups separately because: a) the time-to-event data across groups were not comparable, and b) families in each group were assumed to have fundamentally different reasons for engaging subsequent help-seeking. To elaborate, the time to contact another agency by families that received help may be shaped by their experiences of help-received at the first agency contacted and the length of time they waited initially to receive that help. Comparatively, the behavior of families that had not

received help prior to contacting a new agency more directly reflect how wait time effects subsequent help-seeking. The following analyses were conducted for each help-status group:

Group 1: Continuously Waiting. For families that had not yet received help and were currently waiting at the time they contacted a new agency or at the time of their last follow-up assessment, Kaplan-Meier estimates and life table analyses were used to examine the proportion of families that contacted a new agency at each daily interval (Cleves et al., 2010; Hosmer et al., 2008). This analysis examined the direct effect of wait time for families that never came off the wait-list on time to contact a new agency for help.

Group 2: Help Received. As a preliminary analysis with this group, an extended Cox regression involving a time-varying covariate was computed to examine the effect of receiving help (at any given time *t*) on time to contact a new agency and the risk or 'hazard' for contacting a new agency. A description of the extended Cox regression and the results for this analysis are described in Appendix A. Briefly, the "risk" (i.e., likelihood) of contacting a new agency did not change depending on whether families' received help or not during the study period. This analysis supported the decision to examine the effect of wait time separately for families that received help.

For families that received help prior to contacting a new agency or at the time of the last follow-up assessment, the time between receiving help and contacting a new agency, or the date of last follow-up was coded to represent a family's survival time. In essence, the "clock" was restarted at the point at which families received help at the first agency they contacted. The length of time these families initially waited to receive help was examined as a predictor variable on time to contact a new agency in a Cox regression analysis. Given that length of time families waited to receive help was not normally distributed, a sensitivity analysis was used to ascertain when families that received help were significantly more likely

to contact a new agency given their time on the wait-list. Kaplan-Meier log-rank tests were computed to examine bivariate associations between families that waited for various durations (e.g., less than 1 month vs. greater than 1 month) prior to receiving help on time to contact a new agency. Results of these analyses are presented in Appendix B.

Objective 2: Examining the Effect of Predictors on Time to Contact a New Agency

To address the second study objective, the effects of individual predictor variables (i.e., predisposing, need, enabling factors) of mental health service utilization on time to contact a new agency were analyzed using univariate and multivariate Cox regression analyses. Separate analyses were required for families in the two help-status groups (i.e., Continuously Waiting, Help Received).

The Cox regression model has been the most widely used procedure for examining predictor variables in survival analyses (Hosmer et al., 2008) as it takes into account censoring and differences in duration of follow-up. The equation for the Cox model demonstrates how it is possible to characterize the hazard function, not only as a function of time but also as a function of several explanatory variables simultaneously. Given a set of *p* covariates or explanatory variables, $\mathbf{x}_i = (x_{1i}, x_{2i}, \ldots, x_{pi})$, whose effect on contacting a new agency is to be assessed, the hazard function for a given individual i is modeled by:

$$H_i(t, \mathbf{x}_i) = h_0(t)\exp(\mathbf{b}^T\mathbf{x}_i)$$

The hazard is the product of the baseline hazard $h_0(t)$ and an exponential linear function of the *p* covariates, $\mathbf{b}^T\mathbf{x}_i = b_1x_1 + b_2x_2 + \ldots + b_px_{pi}$. The baseline hazard is similar to the intercept in multiple regression, except that it varies with time. Thus, the Cox regression model is different from standard logistic regression because of the added information on length of time to the event.

The Cox regression model derives: (a) a hazard coefficient, which estimates the effect of a covariate on the time to contacting a new agency and (b) the exponent of the coefficient, referred to as the hazard ratio (HR) or relative risk, is interpreted as the ratio of the relative hazard (i.e., contacting a new agency) among those endorsing the predictor variable to the relative hazard among those without it.

The hazard ratio compares the risk of contacting a new agency between one group (e.g., parents with treatment history) and a comparison group (e.g., parents without treatment history). When the HR is equal to 1, the covariate has no effect on time to event occurrence. That is, there is no difference between groups in their prevailing rate of event occurrence. When the HR is greater than 1, those who have the characteristic are likely to have a shorter time overall to the event. In the current study, this would mean the "risk" or likelihood of contacting a new agency is presently higher for those families with a certain characteristic (e.g., parents with treatment history). An HR less than 1 would mean families with a certain characteristic have a lower prevailing hazard of contacting a new agency, and on average have a longer time to event occurrence.

The relationship between predictor variables and time to contact a new agency was initially examined with crude or unadjusted ratios using univariate Cox regressions. The multivariate Cox regression analysis can be used to explore and adjust for the effects of several explanatory variables simultaneously on time-to-event data (Hosmer, et al., 2008; Cleves et al., 2010). Thus, hazard ratios were also computed for each predictor variable adjusted for all other predictors. An alpha level of $p < .05$ was used to test for statistical significance of predictor variables.

Table 2.

Summary of Data Analyses Used by Study Objective

Research question	Sample	Analysis
Objective 1: Does wait time impact time to contact a new agency?		
1a. Does length of waiting time impact time to contact a new agency?	Continuously Waiting (N=159)	Kaplan-Meier survival curve and life table analyses examining proportions of sample contacting new agency at various wait times.
1b. Does length of waiting time prior to receiving help impact time to contact a new agency?	Received Help (N=114)	Examine the effect of various durations of wait time on contacting a new agency in a sensitivity analysis using Kaplan-Meier log rank test. Examine wait time (dichotomized at cut-off) as a predictor in a Cox regression.
Objective 2: Do predictors of help-seeking influence time to contact a new agency?		
2a. Do predictors of help-seeking influence time to contact a new agency while currently waiting for services?	Continuously Waiting (N=159)	Cox regression analyses examining predictors on time to contact a new agency.
2b. Do predictors of help-seeking influence time to contact a new agency after a family has received help?	Received Help (N=114)	Cox regression analyses examining predictors on time to contact a new agency.

Testing Assumptions for Survival Analysis

Proportional hazards. The Cox regression model assumes that the hazard ratio is constant over time. That is, the hazard ratio for each predictor variable is a comparative measure of the risk of contacting a new agency over the entire study period. It is assumed that anything which affects the hazard does so by the same ratio at all times. The 'proportional hazards assumption' would be violated if the hazard of a specific predictor variable on time to contact a new agency did not stay constant over time. The proportional hazards assumption was checked using two methods. First, interactions of each predictor variable with time were added to the Cox model, as recommended by Hosmer, Lemeshow, and May (2008). These specific interaction terms, known in survival analysis as 'time-dependent covariates', were assessed for statistical significance on assessing time to contact a

new agency. The assumption of proportional hazards was also affirmed using a test of the null hypothesis of zero slope (Grambsch & Therneau, 1994). This test is equivalent to testing that the log hazard-ratio function is constant over time.

Non-informative censoring. The probability that a censored observation was independent of survival time was also examined. In the present study this meant that censorship of families (i.e., lost to follow-up or did not contact new agency by end of study period) was unrelated to the cause of contacting a new agency, such that the censored families represent a sample from the same distribution as others. The assumption of non-informative censoring was satisfied given that the process by which families were lost to follow-up was random at the subject level and unrelated to event occurrence.

Results

Descriptive statistics. The mean length of the study period for the sample (i.e., the time at which parents contacted their first agency to their final date of follow-up interview for the study), was 232 days (7.7 months; SD = 169.9, Maximum= 731). Of the 273 families in the current study, 46% (n=125) contacted a new agency for help.

In the study sample, 58% (n=159) of families did not receive help prior to contacting a new agency or by the date of their last follow-up (Continuously Waiting group), while 42% (n=114) came off the wait-list and reported having received help at the first agency they contacted prior to contacting a new agency or by the date of their last follow-up (Received Help group).

Descriptive statistics on background and predictor variables, separated by help-status group, are presented in Appendix D. An inter-correlation matrix between continuous predictor variables (e.g., internalizing impairment) for the entire sample is presented in Appendix E.

The Effect of Wait Time on Time to Contact a New Agency

Continuously Waiting. Of the 159 families that did not receive help prior to contacting a new agency or before the last date of their follow-up period, 47% (n= 75) contacted a new agency (the event). Table 3 shows the proportion of families that did contact a new agency across wait times based on the life table analyses. Complete life tables with survival probabilities and cumulative hazard rates (i.e., the rate of contacting a new agency per day) for help-status groups are shown in Appendix C. Based on the Kaplan-Meier survival curves and life table analyses, half of the families that were continuously waiting during the study period contacted a new agency after waiting 7.5 months. Figure 6 has a sharp decline in families 'surviving' or not looking elsewhere for help within the first month of being wait-listed. A gradual decline in families staying at the first agency they contacted (i.e., not looking elsewhere for help) was found after about one month of waiting. As hypothesized, the probability of contacting a new agency increased as the waiting period lengthened.

Table 3.

Proportion of Continuously Waiting Families that Contacted a New Agency

Proportion of sample that contacted a new agency[a]	Wait time prior to contacting a new agency (95% CI)
10%	2 days (1 – 18)
25%	32 days (30 – 73)
50%	225 days (150 – 259)

Note: N = 159. CI = confidence interval.

[a] These percentiles of survival time represent proportions of the sample that experienced the event (i.e., contacted a new agency). The median survival time refers to when 50% of the sample contacted a new agency.

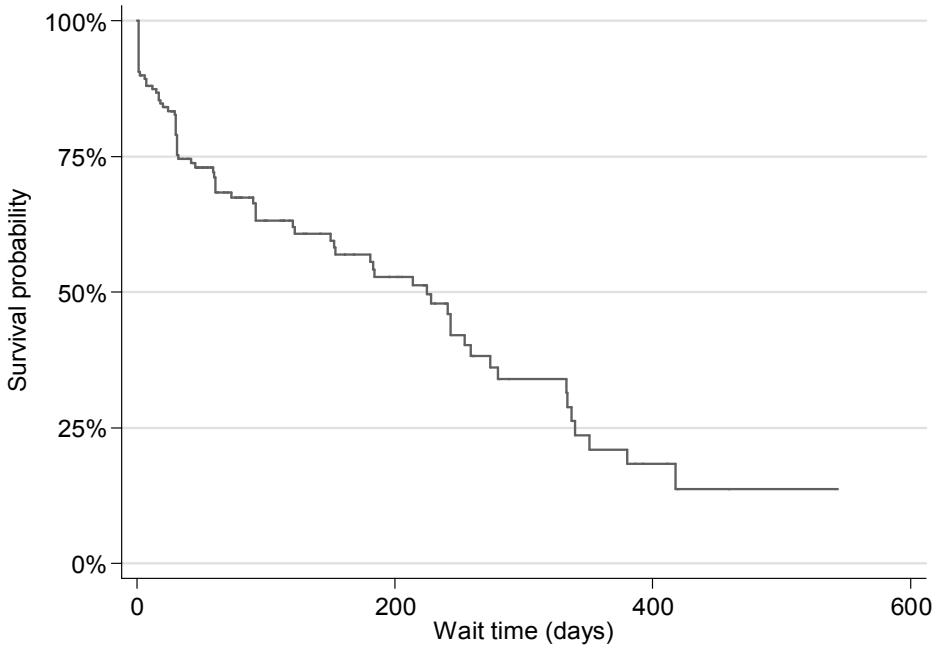

Figure 6. The Kaplan-Meier survival curve shows the probability for Continuously Waiting families of not contacting a new agency as a function of waiting time in days. Families that were Continuously Waiting during the study period had not received help prior to contacting a new agency and/or by the last date of their follow-up. The survival function shows the median wait time to contact a new agency, when $S(t) = 0.50$, was 225 days (7.5 months).

Received Help. Of 114 families that received help, 44% (N=50) contacted a new agency. The time at which families' received help was set as the origin (Time 0) for the survival data. The length of time these families waited to receive help was highly skewed (Median = 21 days, SD = 72, Maximum = 432).

In order to examine the effects of waiting on time to contact a new agency, waiting prior to receiving help was dichotomized and data from two groups with short versus long waiting times were examined separately. There was a significant difference in time to contacting a new agency between families that had a short wait (2 months or less) and a long wait (longer than 2 months; logrank, $\chi^2(1) = 5.23$, $p = .02$; see Appendix B for sensitivity analysis). The Kaplan-Meier survival curves in Figure 7 show the time from receiving help to contacting a new agency for these two groups. (Recall that unlike families continuously

waiting (Figure 6), the survival curve for families have received help (Figure 7) does not represent waiting time, as t=0 was set to when families first received help). The Cox regression, with waiting time as a sole predictor, revealed that families that waited 2 months or less to receive help were significantly more likely to contact a new agency sooner after receiving help than families that waited more than 2 months (HR = 2.60; 95% CI = 1.10-6.11; p = .048). Table 4 is the life table analyses of the proportion of families, based on a wait time cut-off at 2-months that contacted a new agency at various times since receiving help.

Table 4.

Proportion of Received Help Families That Contacted a New Agency

Proportion of sub-group that contacted a new agency	Length of time prior to contacting a new agency (95% CI)	
	Waited ≤ 2 months for help[a]	Waited > 2 months for help[b]
10%	10 days (1-35)	54 days (1-186)
25%	53 days (25-163)	186 days (45-177)
50%	228 days (177-286)	[c]

Note: N=114. CI = confidence interval.
[a]*n* = 88. [b]*n* = 26. [c] Remainder of this sub-group did not contact a new agency.

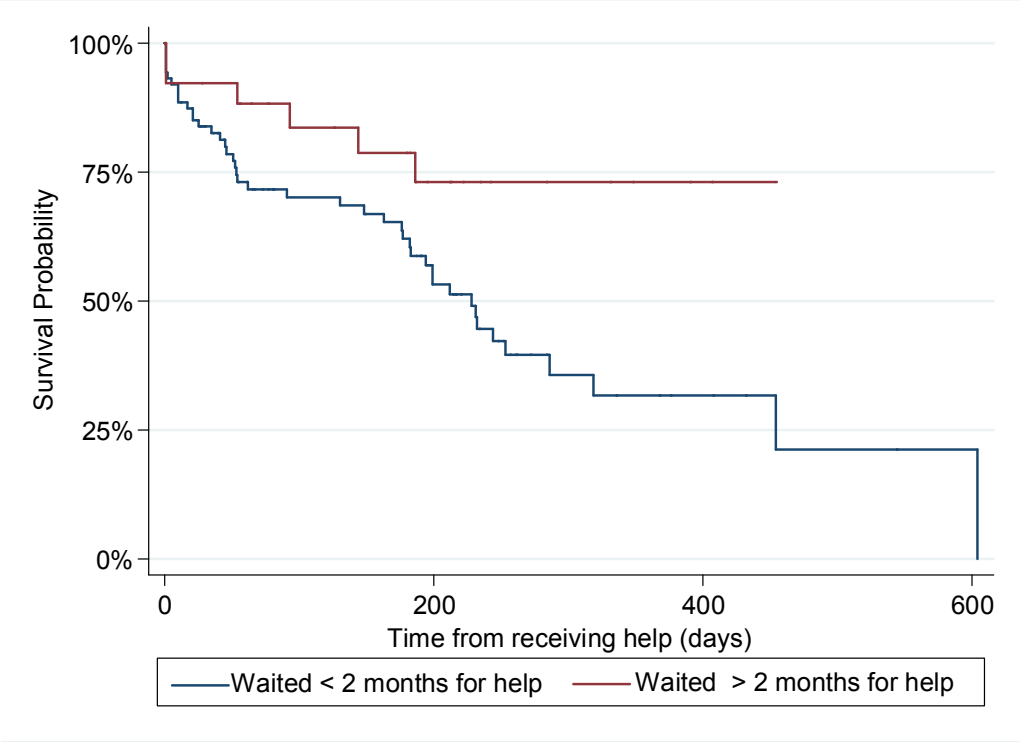

Figure 7. The Kaplan-Meier survival curve shows the probability for Received Help families of not contacting a new agency from the time at which they received help to the time they contacted a new agency or were lost to follow-up.

The Effect of Predictors on Time to Contact a New Agency

Continuously Waiting. Table 5 presents the results of the multivariate Cox regression analyses, including the crude and adjusted hazard ratios (95% confidence intervals), examining the effects of each predictor variable on time to contact a new agency. Two predictors were statistically significant: parents' treatment history and the number of agencies in the area. Parents with previous treatment experience and families living in areas with 10 or more agencies waited less time to contact a new agency. The other predisposing, need and enabling factors were not statistically significant. In the model controlling for all predictor variables (i.e., adjusted hazard ratio), families living in an area with 10 or more agencies were 63% more likely to contact a new agency than families with less than 10

agencies in their area; parents with a previous treatment experience were 76% more likely to contact a new agency than parents with no treatment history.

Received Help. The multivariate Cox regression analyses for families that received help during the study period did not reveal any significant associations ($p > .05$) between predisposing, need, or enabling predictor variables and time to contact a new agency (Table 6).

Testing Assumptions for Survival Analysis

In testing the assumption of proportional hazards, the interaction between time and child sex was found to be significant. This may have occurred due to the disproportionate number of male to female children. There were no changes to the other predictor variables when child sex was stratified in the analysis.

Table 5.

Crude and adjusted hazard ratios for contacting a new agency for families that were continuously waiting

Predictor Variables at Baseline	Contacted a new agency[a] *n* (%)	Did not contact a new agency[b] *n* (%)	Hazard Ratio	
			Crude (95% CI)	Adjusted (95% CI)
Predisposing Factors				
Child's age				
Ages 12 to 17[c]	30 (40.0)	30 (35.7)	1.29 (0.81-2.07)	1.38 (0.84-2.27)
Child's sex				
Male[d]	50 (66.7)	54 (64.3)	1.17 (0.72-1.90)	1.36 (0.82-2.26)
Single parent status				
Single parent[e]	23 (30.7)	38 (45.2)	0.91 (0.55-1.49)	0.90 (0.54-1.51)
Need Factors				
Child psychopathology				
High impairment[f]	41 (54.7)	41 (48.8)	1.11 (0.70-1.77)	1.05 (0.61-1.80)
Enabling/System Factors				
Parent treatment history				
Treatment history[g]	49 (65.3)	41 (48.8)	1.68 (1.04-2.71)*	1.76 (1.05-2.95)*
Impact of child's illness				
High impact[h]	56 (74.7)	58 (69.0)	0.99 (0.59-1.68)	0.75 (0.40-1.37)
Number of agencies				
≥ 10 agencies[i]	36 (48.0)	29 (34.5)	1.64 (1.03-2.59)*	1.63 (1.01-2.63)*

Note: N = 159. CI = confidence interval.
*$p < .05$
[a] $n = 75$. [b] $n = 84$.
Comparison groups were:
[c] Children age 4 to 11
[d] Female
[e] Married/common-law
[f] Low impairment
[g] No treatment history
[h] Low impact
[i] < 10 agencies

Table 6.

Crude and adjusted hazard ratios for contacting a new agency for families that received help

Predictor Variables at Baseline	Contacted a new agency[a] *n* (%)	Did not contact a new agency[b] *n* (%)	HR	
			Crude (95% CI)	Adjusted (95% CI)
Predisposing Factors				
Child's age				
Ages 12 to 17[c]	28 (56.0)	30 (46.9)	1.29 (0.73-2.27)	1.09 (0.61-1.97)
Child's gender				
Male[d]	29 (58.0)	43 (67.2)	1.40 (0.79-2.49)	1.20 (0.66-2.18)
Single parent status				
Single parent[e]	23 (46.0)	30 (46.9)	0.91 (0.63-1.93)	1.17 (0.64-2.16)
Need Factors				
Child psychopathology				
High impairment[f]	35 (70.0)	36 (56.2)	1.50 (0.81-2.76)	1.37 (0.68-2.79)
Enabling/System Factors				
Parent treatment history				
Treatment history[g]	31 (62.0)	35 (54.7)	0.99 (0.56-1.77)	0.82 (0.45-1.49)
Impact of child's illness				
High impact[h]	39 (78.0)	41 (64.1)	0.99 (0.59-1.68)	1.15 (0.50-2.65)
Number of agencies				
≥ 10 agencies[i]	24 (48.0)	20 (31.2)	1.81 (1.03-3.19)*	1.66 (0.93-2.96)
Wait time to receive help				
≤ 2 months wait[j]	44 (88.0)	44 (68.7)	2.60 (1.10-6.11)*	2.45 (1.01-5.94)*

Note: N =114; CI = confidence interval.
*$p < .05$ [a]n =50 . [b]n = 64 .
Comparison groups were:
[c] Children age 4 to 11
[d] Female
[e] Married/common-law
[f] Low impairment
[g] No treatment history
[h] Low impact
[i] < 10 agencies
[j] > 2 months wait prior to receiving help

Discussion

Almost half of families contacted a new agency for help after having been placed on a wait-list at the first agency they had contacted. The percentage of families contacting a new agency was similar regardless of whether they received help (44%; Received Help group) or not (47%; Continuously Waiting group). These outcomes are consistent with models of help-seeking such as the network-based model of access to children's mental health services (Costello et al., 1998) and the gateway provider model (Stiffman et al., 2004). However, the results do not support linear progressions of help-seeking, wherein parents first recognize a problem and then contact organizations in a sequential manner to receive help (Rogler & Cortes, 1993; Logan & King, 2001). Parents that contacted an additional agency for help while simultaneously waiting for services at the first agency contacted demonstrate a complex and varied help-seeking pathway. These results support previous studies that found families in contact with multiple mental health agencies within the same time period (Shanley et al., 2008; Reid et al., 2011). Parents in the current study did not stop 'help-seeking' once they received help and appeared to be at multiple stages of the linear help-seeking process across agencies. The mechanisms for engaging in subsequent help-seeking were speculated to be fundamentally different for families that never came off the wait-list and those that received help. For this reason, the effect of waiting time on time to contact a new agency was examined separately for families that received help during the study period and families that were continuously waiting at the first agency contacted.

Subsequent Help-Seeking for Families Continuously Waiting

A quarter of families that did not receive help during the study period contacted a new agency within one month of being wait-listed. This finding is the first to suggest a relationship between length of waiting time and time to contact a new agency in the CAMHS

help-seeking literature. Previous studies have associated duration and intensity of parents' help-seeking for CAMHS (Reid & Brown, 2008; Shanley et al., 2008), as well as long wait times and non-attendance at initial treatment appointments (Lefevbre et al., 1983; Foreman & Hanna, 2000). Shanley et al. (2008) speculated families that were involved with CAMHS for longer sought more services due to long waiting times. Lefevbre et al. (1983) showed that for over 50% of non-attenders, long waiting time was the single most important causative factor. The current study suggests a waiting time threshold for parents on a wait-list, which may be as short as one month for those that have not yet received help.

The length of time parents waited before contacting a new agency was significantly influenced by enabling variables such as parents' experiences with mental health treatment and the number of agencies in the area. At the family level, parents with previous treatment history were found to wait significantly less time than those without treatment history before they contacted a new agency for help. Despite being wait-listed for services and not yet having received help for their child, these parents' experiences with mental health services seemed to drive a 'faster' help-seeking process with less tolerance for waiting. This finding underscores the parental role as "agent" for children in access to the mental health system (Costello et al., 1998; Logan & King, 2001). Research suggests parents with treatment history have more ready access to services for their children because of their familiarity with accessing the mental health system (Mowbray et al. 2004; Wu et al., 2001). Although having had prior service experience increases one's intent to obtain necessary professional help in future (Deane, Skogstad, & Williams, 1999), findings indicate that positive assessments of previous contact with a mental health professional are linked to greater intentions to seek help in the future. Future research could explore parents' help-seeking in relation to the quality of the help they received for their own mental health problems. Nock and Kazdin

(2001) found parents with high expectations for child therapy perceived fewer barriers to treatment. Thus, parents with their own treatment history may have developed more positive attitudes about the effectiveness of mental health treatment in general and may be both more persistent to get help for their child and less likely to wait before contacting multiple agencies for help.

The burden of the child's illness on the family and the level of child psychopathology did not significantly predict time to contact a new agency in the current study. This is contrary to the findings of previous children's mental health service utilization studies that identified a clear association between the presence or diagnosis of a child mental health disorder or impaired functioning and a greater likelihood of service engagement (Meredith et al., 2009; Mitchell & Gaskin, 2005; Williams & Kerfoot, 2005). While elevated child psychopathology and family burden could be seen as factors important in *initiating* help-seeking by parents that want relief from the burden of their child's problems, once the decision to seek help has been made, these factors may not influence the persistence of help-seeking. This is the first study to examine how parents' perceptions of burden of their child's illness affect length of waiting time to contact a new agency. Future studies should involve careful consideration of conceptualizing how these factors operate in terms of help-seeking.

At the system-level, families with more child-serving mental health agencies in the area waited significantly less time before contacting a new agency for help. It may be that the greater number of agencies in an area can cause parents on a wait-list to continue help-seeking because they are more aware of alternative services in their community. In contrast to parental treatment history, which can be seen as a perceptual barrier for families lacking experience with the mental health system (McKay et al., 2001), the number of agencies in a community is a logistical barrier. While there can be no doubt families benefit from options

presented by greater availability and accessibility of service, this can be off-set when families seeking timely services occupy multiple wait-lists across agencies. Not surprisingly, William and Kerfoot (2005) observed "the fault lines show up most where inter-agency collaboration is important" (pp. 220). The lack of centralized CAMHS management in Ontario confounds implementation of service protocols and standard waiting procedures when the scene is set for fragmentation (Reid et al., 2008; Williams & Kerfoot, 2005). If CAMHS intake is not coordinated amongst agencies, it is reasonable to expect that parents in resource-rich communities will continue to persist in finding appropriate services for their child.

Subsequent Help-Seeking for Families that Received Help

Almost half (44%) of families that had already received help during the study sought additional help. Time to contact a new agency was significantly shorter amongst families that had received help sooner (i.e., waited less than 2 months for help), compared to those who had waited longer. No other predictor variables were found to significantly explain the time from receipt of help to contact a new agency.

The finding that waiting time to receive help was a significant predictor of contacting a new agency suggests parental help-seeking behavior is shaped by previous experiences accessing CAMHS. Studies have indicated that attitude to, and beliefs about, mental illness and treatment services are predictive of contact with mental health services (e.g., Leaf et al., 1985; Meltzer et al., 2000; Wells, Robins, Bushnell, Jarosz, & Oakley-Browne, 1994). Starr et al. (2002) found parents that had received help for their child had informed opinions about gaining access to the system, and therefore had more positive expectations (Starr, Campbell, & Herrick, 2002). In the current study, parents that experienced a shorter wait for services likely expect this at multiple agencies contacted. There is limited knowledge about the relationship between previous experiences with mental health services as well as about

attitudes and expectations regarding future service utilization. Most investigations on these topics have focused on the association between prior service experiences and the intentions of adults to seek treatment again. As a result, they have failed to capture the distinct characteristics of the mental health help-seeking and service utilization processes of children and adolescents (Brown et al., 2002). The consistent finding that prior experiences with mental health services are linked to intentions to seek services again (Carlton & Deane, 2000; Deane & Todd, 1996) implies that knowledge about the relationship informs decisions to engage and accept treatment by those who have sought services in the past as well as for the provision of services to an area in general.

Alternatively, families that received help within 2 months of waiting may have become so frustrated that they were willing to take whatever help was offered. 'Frustration-motivated' sustained help-seeking is consistent with the finding that some parents accept treatments they do not initially want (Shanley et al., 2008; Reid et al., 2011). Shanley et al. (2008) found that 21% of the time parents accepted what was offered despite their own disagreement with the treatment. Engagement and compliance may be compromised for parents that accept a treatment regime they do not want; they are less likely to comply and more likely to drop-out (Kazdin, Holland, & Crowley, 1997). Research suggests parents' perceptions of barriers are the most salient predictors of their adherence to psychologists' recommendations for children (MacNaughton & Rodrigue, 2001). Thus, parents' subsequent help-seeking may be driven by their dissatisfaction with the help they initially received or by the number of barriers perceived with adhering to a particular treatment regime recommended at an initial assessment. Finally, parents looking for specific treatments for their child may be referred elsewhere by the service agency itself (Shanley et al., 2008), when they discover their initial agency will not be able to meet their specific desired service

needs. For example, parents looking for individual child therapy are instead offered family therapy, and this could motivate them to contact another agency for the services they want.

Strengths of the study

To my knowledge, this is the first study to use survival analysis methods to examine the effects of wait time on families' help-seeking behaviours in the children's mental health system. The unique statistical features of survival analysis are ideal for follow-up studies when experiencing the event is not a realistic outcome for all subjects (i.e., not all families contacted a new agency) and there are varying durations of follow-up (i.e., families were randomly lost to follow-up). Other data analytic methods could lead to bias or loss of information (Allison, 1995; Singer & Willet, 2003). For example, application of standard statistical methods, like logistic regression, on time-to-event data with a binary outcome (e.g., whether a family contacted a new agency) would assume that all subjects had been followed for the same length of time. The current study addressed some of the statistical limitations of previous studies by modelling the time to contact a new agency as survival data.

Previous studies on help-seeking pathways and service utilization for CAMHS have focused primarily on outcomes, such as the number of agencies contacted by families (Reid et al., 2011; Shanley et al., 2008) and families' non-attendance at initial treatment appointments (Foreman & Hanna, 2000; Harrison, McKay, & Bannon, 2004; McKay et al., 1996), that neither illuminate parents' help-seeking experiences while waiting nor their efforts in obtaining services. An understanding of how families respond to placement on a wait-list and how they become involved with multiple agencies simultaneously across time can be enriched by a survival analysis approach in which key variables, such as those identified in this study, are examined for their effect on time to a particular event (e.g.,

contacting a new agency). The present findings suggest this particular methodology, not yet generally used in children's mental health research, can facilitate our understanding of the time-sensitive nature underlying the help-seeking process for families seeking CAMHS.

Unlike previous studies, the current study included telephone contacts to more fully capture "help-seeking", defined as parents' initial contact with an agency. Whereas in medical health care the family physician acts as 'gatekeeper' to specialized services, in children's mental health care in Ontario there is no equivalent and families can seek amongst diverse agencies and professionals within the mental health sector (e.g., private psychologist, social worker or counselor) without controlled or coordinated access. By focusing on when parents first contacted an agency, as opposed to only when they received services (e.g., treatment), this placed families at the centre of the help-seeking process and shed light on the multiple 'entry' points families take to obtaining CAMHS.

Investigating both family and system variables on the help-seeking process was another strength of the current study. The focus on parents was warranted given parental perceptions are the strongest predictors of mental health service utilization cited in the help-seeking literature (Angold et al., 1998). Examining system variables (i.e., enabling/inhibiting factors) can be particularly informative because while factors such as client demographics are immutable, system variables are more amenable to change and potentially impact all families that seek help (Aday & Anderson, 1974; Mowbray et al., 2004). Notably, it was found that parents' own treatment histories and their experiences receiving timely help for their child (i.e., less than 2 months wait) shaped time to contact a new agency. Given that health beliefs are more amenable to change than demographic or predisposing factors, it would be reasonable for the CAMHS system to undertake measures to change parents' perceptions of

how and when they will receive help. In this way, CAHMS could mitigate the uncertainty and anxiety attributed to long waiting periods (Osuna, 1985).

Limitations

Help-seeking and service contacts were based solely on parental reports. Although parental reports of mental health service use are valid and reliable (Glisson & Green, 2006), the relationship between these reports and agency records was not assessed. This relationship was clearly impossible to assess for contacts for which no services had been received because identifying information was not collected for families. The intended focus in the current study on capturing parental perceptions of help-seeking may have led to inaccurate reporting of time-to-event data. For example, if parents were unable to recall the specific day they contacted an agency, the date of contact was defaulted to the first of the month. Similarly, if parents were unable to recall the month they contacted an agency, seasonal codes were used (e.g., Winter = December). This may have either overestimated or underestimated length of waiting time, especially for families that reported contacting more than one agency in the same month.

The use of parent report and participant selection criteria excluded youth that self-referred for help. While youth that self-refer are reasonably expected to be a small minority amongst all families of children and youth that seek help, it is a subgroup that warrants further examination because they reasonably also face greater barriers to seeking and accessing care given the probable lack of parental support (and where parental or guardian conduct may be the cause for self-referral).

The type of service received (e.g., assessment, treatment) by families that reported receiving help was not examined in the current study. This may have limited establishing whether the type of 'help' received by parents influenced the length of time they waited

before contacting a new agency. Thus, families that perceived an initial assessment as 'help' may have been more likely to contact a new agency than families that expected to wait to receive specialized treatment. Comparatively, families waiting for specialized treatments may be more content to wait a longer duration before looking elsewhere for more timely services. Future research should differentiate between waiting for assessment and waiting for active treatment, given these two waits may have different effects on parents' subsequent help-seeking.

This study represents a starting point for understanding the complexity of parents' help-seeking as time on a wait-list lengthens. Future research should consider other 'waiting' behaviours to gain a better understanding of how parents navigate the system through time. For example, what happens to families that don't show up for their first treatment appointment? Why do parents continue to look elsewhere for help once they have received help? Have these families dropped out of treatment or are they receiving services at more than one agency? Families may have a waiting threshold at which point they simply give up at the first agency they contacted and look for help elsewhere, leading them not to show up at their initial treatment appointment. Alternatively, families that are not satisfied with the services they eventually receive may be driven to seek elsewhere. Future research should investigate other dimensions of service use such as type, quality, duration, parental satisfaction, and outcomes of services on help-seeking.

While the current study examined only time for families to contact their *first* additional agency, research suggests most families are in contact with two or more agencies (Shanley et al., 2008; Reid et al., 2008, 2011). Reid et al. (2011) found parents contacted an average of four agencies or professionals (range = 1-14) in a 1-year period. Future studies could explore a 'multiple or repeatable event' survival model to describe parents' contacts

with multiple agencies, and associated wait-list placements, through time. Further, while only contacts with mental health agencies/professionals were examined, these are not the only sources of professional help a family can turn to. For example, Cohen and Hesselbart (1993) reported teachers were most commonly contacted by parents to discuss emotional or behavioural problems of adolescent children. Additional non-professional help may reasonably be provided by parents' informal networks of trusted friends and extended family members. It is possible that families seek help from other professional or non-professional sources first and only when that turns out to be insufficient or upon referral do they turn to a mental health specialist. When all is considered, the current study may underestimate the time a family experiences 'waiting' before connecting with appropriate treatment and conclusions about the factors examined by the current study should not be generalized with referral selection processes outside the mental health sector, such as care provided by youth welfare and juvenile justice systems.

The current study did not find a significant association between waiting time to contact a new agency and perceived impact of the child's illness or child psychopathology. This may have occurred because these variables were not measured repeatedly over time. Internalizing and externalizing behaviours tend to be stable over time (e.g., 3 years) in the general population but acute changes amongst children with psychopathology can occur while a family is waiting for services and may alter parents' behaviours (Erath et al., 2009). This may also be true for parental perception of the burden of the child's illness. Consequently, baseline levels of child psychopathology and burden of illness may not reflect factors that influence contacting a new agency later on. Future studies could employ repeated measures of parental perceptions of burden and child psychopathology. This approach would be remarkably complex and very costly given that families, once placed on a

CAMHS wait-list, would need to be followed-up on a regular basis (e.g., monthly) to capture changes in help-seeking (e.g., contacting a new agency) and psychopathology or burden.

Implications

A substantial number (46%) of parents on a wait-list sought additional help from other mental health agencies or professionals. This suggests highly fragmented service delivery resulting in pathways to care that can be very difficult for families to navigate. This subsequent help-seeking behaviour is contrary to, and likely to compromise, the principle of universal access that characterizes Ontario health care. Families that accept placement on wait-lists across multiple agencies exacerbate the length of these across agencies, resulting in the paradox of underutilization of resources while there is increased demand and possibly longer waiting times for families with less resources or available agencies in their area. Seeking multiple treatments simultaneously is not only costly for families, in terms of time spending looking for help and emotional distress that likely accompanies having to repeatedly tell their story and then being told that services are not readily available, but also costly for the system at large, especially when being placed on multiple wait-lists may result in multiple initial assessments at different agencies.

The development of a wait-list management system would go a long way to ensuring fair access (prioritized, for example, on the basis of need and circumstances) while abating 'shopping' and 'over-queuing' to be on a waiting list across multiple agencies for the same treatment services. The current study illuminated problems *accessing* CAMHS and this suggests wide-scale restructuring of the children's mental health care "system" in Ontario is needed. For example, the consolidation of smaller agencies could lead to access improvements through centralized coordination (Reid et al., 2011). Pending large-scale system reform, families will continue to require guidance to inform their help-seeking and

this should begin with their initial point of contact with the "system". Agency staff could encourage families at first contact to select one agency with which to engage, although this might require shorter wait lists to be effective. In larger communities, a single point of access for intake could facilitate parents contacting agencies with capacity to provide services promptly and to expedite, when appropriate, referrals to specialists' clinics. Centralized management of intake should reduce fragmentation and overlap of services, thereby making help-seeking more cost-effective in larger communities where there are more CAMHS agencies. According to queuing theories (Durrande-Moreau, 1999; Williams & Kerfoot, 2005), a common observation in demand-sensitive systems is that increasing the responsiveness of services stimulates demand and fuels expectations. Thus, increasing the quantity of 'help' available to families may reduce wait-lists temporarily only for them to re-emerge (Williams & Kerfoot, 2005).

Poor attendance rates at CAMHS are closely associated with longer waiting lists (Lefebvre et al., 1983; Jaffa & Griffin, 1990; Munjal et al., 1994; Stern & Brown, 1994). Research reports that treatment engagement is a significant problem in the children's mental health system and among children and families that begin treatment, 40%-60% terminate prematurely (McKay & Bannon, 2004; Nock et al., 2001). Foreman and Hanna (2000) recommended an acceptable waiting time of less than 30 weeks as indicated by parents' non-attendance at an initial treatment appointment. The current study suggests one possible reason that parents do not attend this appointment is because they are seeking/receiving services at another agency. In Benway et al.'s (2003) review of the literature on initial appointment non-attendance for CAMHS, a consistently stated reason among parents for non-attendance was that they had found help elsewhere (Lowman, DeLange, Roberts, & Brady, 1984; Carpenter et al., 1994). While information on waiting times and services

received at a subsequent agency contacted was not analyzed in the current study, contacting more than one agency due to long waiting times may influence choices to accept and engage treatment once services are received.

This study suggests previous parental experience with the mental health system and knowledge of more child-serving agencies in the area can influence parents' help-seeking. Thus, when families lack awareness and/or experience with the mental health system create barriers, it follows that engaging families in the mental health care of children and youth will positively affect access and may inform their future treatment engagement. A recent series of engagement research studies emphasize that parents play an integral role in accessing service, and innovative family-centered initiatives must be made to engage and inform them upon first contact with the child's mental health system (Cunningham et al., 2008; Mendenhall, Fristad, & Early, 2009; Olin et al., 2010).

This study provides evidence for understanding the wait-list problem across Ontario's children's mental health agencies from both a family and systems perspective. The lack of data on wait times for CAMHS in Canada impedes our understanding of the current state of the system and leaves us uncertain as to the success of initiatives aimed at reducing wait times (Kowalewski et al., 2011). Examining the behaviour of parents on a wait-list, in terms of contacting other agencies for help, represents a good first step to comprehensively capturing the impact of wait times on families and children seeking mental health services.

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Appendix A: Modelling Receipt of Help as a Time-Varying Covariate

The effect of whether a family received help on time to contact a new agency was examined by modelling a family's 'help status' as a time-varying dichotomous subject specific covariate for the entire sample, where:

$$\text{HELP\_STATUS}(t) = \begin{cases} 0 \text{ if } t = \text{Wait\_Days} \\ 1 \text{ if } t > \text{Wait\_Days} \end{cases}$$

where t was the number of days until the event (i.e., contacting a new agency) and Wait_Days represented the number of days the family waited from first contact with the agency to when they received help and came off the wait list. HELP_STATUS(t) was defined to take on the value 0 at time t if the family had not received help at that time, that is, if t was less than the wait-time for receiving help. The value of HELP_STATUS(t) was 0 at all times for families that never received help. For families that received help, the value of HELP_STATUS(t) was 0 when they first contacted the agency and changed to 1 when they received help; this value continued to be coded as 1 until they contacted a new agency or were lost to follow-up.

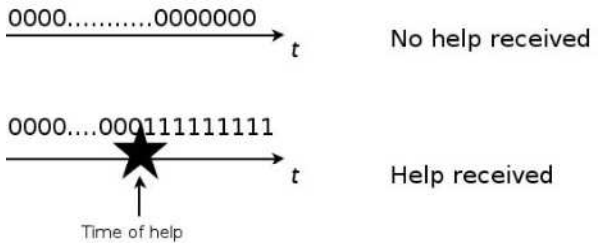

Figure A1. Coding the time-varying covariate for the extended Cox regression model.

Cox regression models that involve time-varying covariates like HELP_STATUS are called extended Cox models. The extended Cox model in the current study compared the risk for contacting a new agency at any given time, t, by evaluating which risk group each family belonged to based on whether they had received help by that time. The wait time

accrued by families prior to receiving help contributed important information about the risk of contacting a new agency for those that never received help. Thus, the time-varying covariate allowed the risk for contacting a new agency after receiving help to differ for families with varying wait times prior to receiving help. The extended Cox model with help status modelled as a time-varying covariate revealed that the risk for contacting a new agency for a family that has not received help (but who may receive help later) was not significantly different than the risk for a family who has received help by that time (HR = 0.96, 95% CI = 0.63-1.44, p = .831). This indicated that receiving help did not influence time to contact a new agency.

Appendix B: Results of Sensitivity Analyses of Wait-Time Cut-off for Families that Received Help

To examine the effect of wait time on time to contact a new agency for families that received help, a wait time cut-off was entered into a Cox regression analysis. Since wait time (to receive help) was highly skewed, it could not be entered as a continuous predictor in the Cox regression. A sensitivity analysis was computed to establish the critical cut-off at which families' wait time impacted time to contact a new agency after they had received help. Based on the distribution of wait times, families were initially categorized into those that: a) waited 1 week or less for help, b) waited between 1 and 4 weeks for help, and c) waited more than 1 month for help. Kaplan-Meier survival curves for these wait groups are presented in Figure B1. The Cox regression model, with waiting groups as a categorical predictor, showed a significant difference between families that waited 1 week or less and families that waited more than 1 month for help (HR = 0.32, CI = 0.14-0.72, p = .005). There was also a significant difference between those that waited between 1 to 4 weeks for help and families that waited more than 1 month for help. There was no significant difference between families that waited 1 week or less and families that waited between 1 to 4 weeks for help (HR = 0.86, p = .651, CI = 0.46-1.61), and for this reason another sensitivity analysis was computed to establish the critical monthly cut-off for the effect of wait time on time to contact a new agency. Due to the relatively small proportion of families that waited greater than 3 months (15%), a wait-time cut off was established at 2 months, whereby families that waited 2 months or less were more likely to contact a new agency sooner than families that waited longer (greater than 2 months; see Table B1).

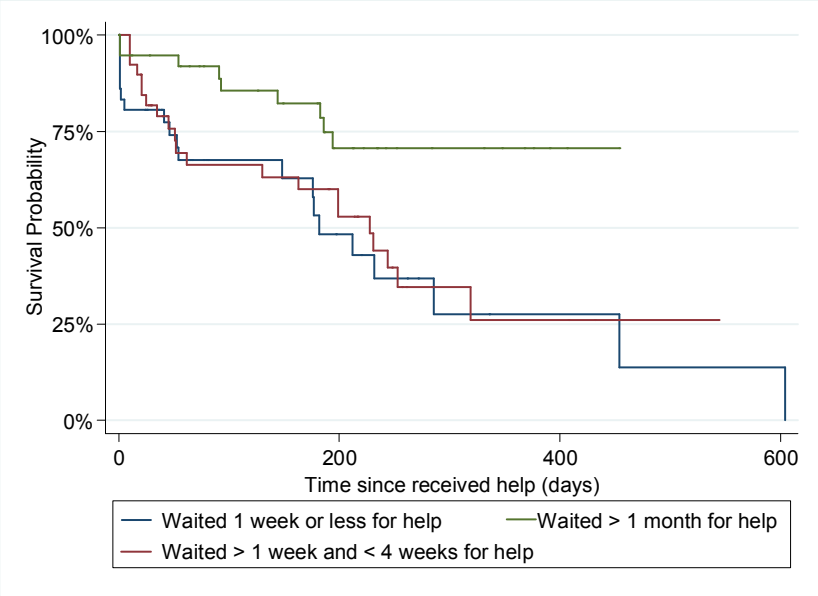

Figure B1. Kaplan-Meier curves are presented for the families that received help that waited for 1 week or less, between 1 and 4 weeks, and greater than one month.

Table B1.

Kaplan-Meier log-rank statistics for wait time cut-off points for families that received help.

Wait time cut-offs	Proportion of Received Help families (N=114)	Log rank test *p*-values
1 month cut-off		
Waited 1 month or less for help	76 (66.7%)	0.003
Waited > 1 month for help	38 (33.3%)	
2 month cut-off		
Waited 2 months or less for help	88 (77.2%)	0.022
Waited > 2 months for help	26 (22.8%)	
3 month cut-off		
Waited 3 months or less for help	97 (85.1%)	[a]
Waited > 3 months for help	17 (14.9%)	

Note. N = 114. The Kaplan-Meier log-rank method tests the null hypothesis of equivalence of time to contact a new agency across the wait-time cut-off groups.

[a] Although statistically significant, the sample cell size for families that waited more than 3 months for help was considered too small.

Appendix C: Life Table Analyses

Table C1.

Survival probabilities and hazard rates for Continuously Waiting families (Group 1)

Wait Time Interval (Days)	Total [a]	Contacted a new agency [b]	Censored	Cumulative Hazard (95% CI) $h(t_j) = (b_j/a_j)$	Survival (95% CI) $s(t_j) = s(t_j\text{-}1)[1\text{-}h(t_j)]$
[1, 2)	159	15	0	.09 (.06-.15)	.91 (.84-.94)
[2, 3)	144	1	0	.10 (.06-.16)	.90 (.84-94)
[3, 4)	143	0	1	.10 (.06-.16)	.90 (.84-94)
[6, 7)	142	1	1	.11 (.06-.17)	.89 (.83-.93)
[7, 8)	140	2	0	.12 (.08-.18)	.88 (.82-.92)
[9, 10)	138	0	1	.12 (.08-.18)	.88 (.82-.92)
[11, 12)	137	0	1	.12 (.08-.18)	.88 (.82-.92)
[12, 13)	136	1	0	.13 (.08-.19)	.87 (.81-.92)
[14, 15)	135	0	1	.13 (.08-.19)	.87 (.81-.92)
[15, 16)	134	1	1	.13 (.09-.20)	.87 (.80-.91)
[17, 18)	132	2	1	.14 (.10-.21)	.85 (.79-.90)
[18, 19)	129	1	1	.15 (.10-.22)	.85 (.78-.90)
[20, 21)	127	1	0	.16 (.11-.23)	.84 (.77-.89)
[21, 22)	126	0	1	.16 (.11-.23)	.84 (.77-.89)
[22, 23)	125	0	1	.16 (.11-.23)	.84 (.77-.89)
[24, 25)	124	1	1	.17 (.12-.23)	.83 (.76-.88)
[26, 27)	122	0	1	.17 (.12-.23)	.83 (.76-.88)
[27, 28)	121	0	1	.17 (.12-.23)	.83 (.76-.88)
[28, 29)	120	0	1	.17 (.12-.23)	.83 (.76-.88)
[29, 30)	119	1	6	.17 (.12-.24)	.83 (.76-.88)
[30, 31)	112	5	0	.21 (.15-.28)	.79 (.72-.85)
[31, 32)	107	5	1	.25 (.18-.32)	.75 (.67-.81)
[32, 33)	101	1	1	.25 (.19-.33)	.74 (.67-.81)
[33, 34)	99	0	1	.25 (.19-.33)	.74 (.67-.81)
[35, 36)	98	0	1	.25 (.19-.33)	.74 (.67-.81)
[39, 40)	97	0	1	.25 (.19-.33)	.74 (.67-.81)
[40, 41)	96	0	1	.25 (.19-.33)	.74 (.67-.81)
[42, 43)	95	1	0	.26 (.20-.34)	.74 (.66-.80)
[43, 44)	94	0	1	.26 (.20-.34)	.74 (.66-.80)
[45, 46)	93	1	0	.27 (.20-.35)	.73 (.65-.80)
[46, 47)	92	0	1	.27 (.20-.35)	.73 (.65-.80)
[47, 48)	91	0	1	.27 (.20-.35)	.73 (.65-.80)
[48, 49)	90	0	1	27 (.20-.35)	.73 (.65-.80)
[50, 51)	89	0	1	27 (.20-.35)	.73 (.65-.80)
[51, 52)	88	0	2	27 (.20-.35)	.73 (.65-.80)
[52, 53)	86	0	1	27 (.20-.35)	.73 (.65-.80)
[54, 55)	85	0	1	27 (.20-.35)	.73 (.65-.80)
[55, 56)	84	0	1	27 (.20-.35)	.73 (.65-.80)
[57, 58)	83	0	1	27 (.20-.35)	.73 (.65-.80)
[58, 59)	82	0	2	27 (.20-.35)	.73 (.65-.80)
[59, 60)	80	1	0	.28 (.21-.36)	.72 (.64-.79)
[60, 61)	79	1	0	.29 (.22-.37)	.71 (.63-.78)
[61, 62)	78	3	0	.31 (.24-.40)	.68 (.60-.75)
[62, 63)	75	0	1	.31 (.24-.40)	.68 (.60-.75)
[67, 68)	74	0	1	.31 (.24-.40)	.68 (.60-.75)
[70, 71)	73	0	1	.31 (.24-.40)	.68 (.60-.75)
[73, 74)	72	1	0	.33 (.25 -.41)	.67 (.59-.75)
[76, 77)	71	0	1	.33 (.25 -.41)	.67 (.59-.75)

Wait Time Interval (Days)	Total [a]	Contacted a new agency [b]	Censored	Cumulative Hazard (95% CI) $h(t_j) = (b_j/a_j)$	Survival (95% CI) $s(t_j) = s(t_j\text{-}1)[1\text{-}h(t_j)]$
[77, 78)	70	0	1	.33 (.25 -.41)	.67 (.59-.75)
[79, 80)	69	0	2	.33 (.25 -.41)	.67 (.59-.75)
[80, 81)	67	0	1	.33 (.25 -.41)	.67 (.59-.75)
[81, 82)	66	0	1	.33 (.25 -.41)	.67 (.59-.75)
[87, 88)	65	0	1	.33 (.25 -.41)	.67 (.59-.75)
[89, 90)	64	0	1	.33 (.25 -.41)	.67 (.59-.75)
[90, 91)	63	1	0	.34 (.26 -.42)	.66 (.58-.74)
[92, 93)	62	3	0	.37 (.29-.46)	.63 (.54-.71)
[99, 100)	59	0	2	.37 (.29-.46)	.63 (.54-.71)
[100, 101)	57	0	1	.37 (.29-.46)	.63 (.54-.71)
[111, 112)	56	0	1	.37 (.29-.46)	.63 (.54-.71)
[113, 114)	55	0	1	.37 (.29-.46)	.63 (.54-.71)
[114, 115)	54	0	1	.37 (.29-.46)	.63 (.54-.71)
[118, 119)	53	0	1	.37 (.29-.46)	.63 (.54-.71)
[121, 122)	52	1	0	.38 (.30-.47)	.62 (.53-.70)
[122, 123)	51	1	0	.39 (.31-.49)	.61 (.51-.69)
[129, 130)	50	0	1	.39 (.31-.49)	.61 (.51-.69)
[131, 132)	49	0	1	.39 (.31-.49)	.61 (.51-.69)
[142, 143)	48	0	1	.39 (.31-.49)	.61 (.51-.69)
[150, 151)	47	1	0	.41 (.32-.50)	.59 (.50-.68)
[153, 154)	46	1	0	.42 (.33-.51)	.58 (.48-.67)
[154, 155)	45	1	0	.43 (.34-.53)	.57 (.47-.65)
[161, 162)	44	0	1	.43 (.34-.53)	.57 (.47-.65)
[168, 169)	43	0	1	.43 (.34-.53)	.57 (.47-.65)
[181, 182)	42	1	0	.44 (.36-.54)	.55 (46-.64)
[183, 184)	41	1	0	.46 (.37-.56)	.54 (.44-.63)
[184, 185)	40	1	0	.47 (.38-.57)	.53 (.43-.62)
[195, 196)	39	0	1	.47 (.38-.57)	.53 (.43-.62)
[196, 197)	38	0	1	.47 (.38-.57)	.53 (.43-.62)
[201, 202)	37	0	1	.47 (.38-.57)	.53 (.43-.62)
[203, 204)	36	0	1	.47 (.38-.57)	.53 (.43-.62)
[205, 206)	35	0	1	.47 (.38-.57)	.53 (.43-.62)
[214, 215)	34	1	0	.49 (.39-.59)	.51 (.41-.60)
[222, 223)	33	0	1	.49 (.39-.59)	.51 (.41-.60)
[223, 224)	32	0	1	.49 (.39-.59)	.51 (.41-.60)
[225, 226)	31	1	1	.50 (.41-.60)	.50 (.39-.59)
[227, 228)	29	0	1	.50 (.41-.60)	.50 (.39-.59)
[228, 229)	28	1	0	.52 (.42-.63)	.48 (.37-.58)
[231, 232)	27	0	1	.52 (.42-.63)	.48 (.37-.58)
[239, 240)	26	0	1	.52 (.42-.63)	.48 (.37-.58)
[241, 242)	25	1	0	.54 (.44-.65)	.46 (.35-.56)
[243, 244)	24	2	0	.58 (.47-.69)	.42 (.31-.53)
[254, 255)	22	1	0	.62 (.51-.73)	.40 (.29-.51)
[259, 260)	21	1	0	.62 (.51-.73)	.38 (.27-.49)
[260, 261)	20	0	1	.62 (.51-.73)	.38 (.27-.49)
[261, 262)	19	0	1	.63 (.53-.75)	.38 (.27-.49)
[274, 275)	18	1	0	.66 (.55-.77)	.36 (.25-.47)
[280, 281)	17	1	1	.66 (.55-.77)	.34 (.23-.45)
[281, 282)	15	0	1	.66 (.55-.77)	.34 (.23-.45)
[288, 289)	14	0	1	.66 (.55-.77)	.34 (.23-.45)
[333, 334)	13	1	0	.69 (.57-.80)	.31 (.20-.43)
[334, 335)	12	1	0	.71 (.59-.82)	.29 (.18-.41)
[337, 338)	11	1	0	.74 (.62-.85)	.26 (.15-.38)
[340, 341)	10	1	0	.76 (.64-.87)	.23 (.13-.36)

Wait Time Interval (Days)	Total [a]	Contacted a new agency [b]	Censored	Cumulative Hazard (95% CI) $h(t_j) = (b_j/a_j)$	Survival (95% CI) $s(t_j) = s(t_j\text{-}1)[1\text{-}h(t_j)]$
[351, 352)	9	1	0	.79 (.67-.89)	.21 (.11-.33)
[380, 381)	8	1	0	.81 (.70-.91)	.18 (.09-.30)
[386, 387)	7	0	1	.81 (.70-.91)	.18 (.09-.30)
[392, 393)	6	0	1	.81 (.70-.91)	.18 (.09-.30)
[411, 412)	5	0	1	.81 (.70-.91)	.18 (.09-.30)
[418, 419)	4	1	0	.86 (.73-.95)	.14 (.05-.27)
[419, 420)	3	0	1	.86 (.73-.95)	.14 (.05-.27)
[459, 460)	2	0	1	.86 (.73-.95)	.14 (.05-.27)
[543, 544)	1	0	1	.86 (.73-.95)	.14 (.05-.27)

Table C2.

Survival probabilities and hazard rates for Received Help families (Group 1)

Time Interval (Days)	Total [a]	Contacted a new agency [b]	Censored	Cumulative Hazard (95% CI) $h(t_j) = (b_j/a)$	Survival (95% CI) $s(t_j) = s(t_j\text{-}1)[1\text{-}h(t_j)]$
Subgroup 1: Waited 2 months or less to receive help					
[1, 2)	88	5	1	.06 (.02-.13)	.94 (.87-.97)
[2, 3)	82	1	0	.07 (.03-.15)	.93 (.85-.97)
[5, 6)	81	1	0	.08 (.04-..16)	.92 (.84-.96)
[10, 11)	80	3	0	.11 (.06-.20)	.88 (.80-..94)
[12, 13)	77	0	1	.11 (.06-.20)	.88 (.80-..94)
[17, 18)	76	1	0	.13 (.07-.22)	.87 (.78-.93)
[20, 21)	75	0	1	.13 (.07-.22)	.87 (.78-.93)
[21, 22)	74	2	0	.15 (.09-.26)	.85 (.75-.91)
[24, 25)	72	0	1	.15 (.09-.26)	.85 (.75-.91)
[25, 26)	71	1	0	.16 (.10-.26)	.84 (.74-.90)
[26, 27)	70	0	1	.16 (.10-.26)	.84 (.74-.90)
[27, 28)	69	0	1	.16 (.10-.26)	.84 (.74-.90)
[29, 30)	68	0	1	.16 (.10-.26)	.84 (.74-.90)
[30, 31)	67	0	1	.16 (.10-.26)	.84 (.74-.90)
[35, 36)	66	1	0	.17 (.10-.27)	.83 (.73-.89)
[36, 37)	65	0	1	.17 (.10-.27)	.83 (.73-.89)
[39, 40)	64	0	1	.17 (.10-.27)	.83 (.73-.89)
[40, 41)	63	0	1	.17 (.10-.27)	.83 (.73-.89)
[41, 42)	62	1	0	.19 (.12-.29)	.81 (.71-.88)
[44, 45)	61	0	1	.19 (.12-.29)	.81 (.71-.88)
[45, 46)	60	1	0	.20 (.13-.30)	.80 (.70-.87)
[46, 47)	59	1	0	.21 (.14-.32)	.78 (.68-.86)
[51, 52)	58	1	0	.23 (.15-.33)	.77 (.66-.85)
[52, 53)	57	1	0	.24 (.16-.35)	.76 (.65-.84)
[53, 54)	56	1	0	.25 (.17-.37)	.74 (.63-.83)
[54, 55)	55	1	0	.27 (.18-.38)	.73 (.62-.81)
[55, 56)	54	0	1	.27 (.18-.38)	.73 (.62-.81)
[61, 62)	53	0	1	.27 (.18-.38)	.73 (.62-.81)
[62, 63)	52	1	0	.28 (.20-.40)	.72 (.60-.80)
[65, 66)	51	0	1	.28 (.20-.40)	.72 (.60-.80)
[67, 68)	50	0	1	.28 (.20-.40)	.72 (.60-.80)
[73, 74)	49	0	1	.28 (.20-.40)	.72 (.60-.80)
[77, 78)	48	0	1	.28 (.20-.40)	.72 (.60-.80)
[80, 81)	47	0	1	.28 (.20-.40)	.72 (.60-.80)
[81, 82)	46	0	1	.28 (.20-.40)	.72 (.60-.80)
[91, 92)	45	1	0	.29 (.21-.41)	.70 (.59-.79)
[130, 131)	44	1	0	.31 (.22-.41)	.68 (.57-.78)
[148, 149)	43	1	0	.33 (.24-.45)	.67 (.55-.76)
[149, 150)	42	0	1	.33 (.24-.45)	.67 (.55-.76)
[163, 164)	41	1	0	.35 (.25-.47)	.65 (.53-.74)
[176, 177)	40	1	0	.36 (.26-.49)	.64 (.51-.73)
[177, 178)	39	1	0	.38 (.28-.50)	.62 (.50-.72)
[182, 183)	38	1	0	.39 (.29-.52)	.61 (.48-.71)
[183, 184)	37	1	0	.41 (.31-.54)	.59 (.46-.69)
[187, 188)	36	0	1	.41 (.31-.54)	.59 (.46-.69)
[190, 191)	35	0	1	.41 (.31-.54)	.59 (.46-.69)
[191, 192)	34	0	1	.41 (.31-.54)	.59 (.46-.69)
[194, 195)	33	1	0	.43 (.32-.55)	.57 (.44-.68)
[195, 196)	32	0	1	.43 (.32-.55)	.57 (.44-.68)
[197, 198)	31	0	1	.43 (.32-.55)	.57 (.44-.68)
[199, 200)	30	2	0	.47 (.36-.59)	.53 (.40-64)

Time Interval (Days)	Total [a]	Contacted a new agency [b]	Censored	Cumulative Hazard (95% CI) $h(t_i) = (b_i/a)$	Survival (95% CI) $s(t_i) = s(t_i\text{-}1)[1\text{-}h(t_i)]$
[212, 213)	28	1	0	.49 (.37-.61)	.51 (.38-.63)
[214, 215)	27	0	1	.49 (.37-.61)	.51 (.38-.63)
[216, 217)	26	0	1	.49 (.37-.61)	.51 (.38-.63)
[217, 218)	25	0	1	.49 (.37-.61)	.51 (.38-.63)
[220, 221)	24	0	1	.49 (.37-.61)	.51 (.38-.63)
[228, 229)	23	1	0	.51 (.40-.64)	.49 (.36-.61)
[231, 232)	22	1	0	.53 (.41-.66)	.47 (.34-.59)
[232, 233)	21	1	0	.55 (.43-.68)	.45 (.32-.57)
[234, 235)	20	0	1	.55 (.43-.68)	.45 (.32-.57)
[244, 245)	19	1	0	.58 (.45-.71)	.42 (.29-.55)
[248, 249)	18	0	1	.58 (.45-.71)	.42 (.29-.55)
[252, 253)	17	0	1	.58 (.45-.71)	.42 (.29-.55)
[253, 254)	16	1	0	.60 (.48-.73)	.40 (.27-.52)
[257, 258)	15	0	1	.60 (.48-.73)	.40 (.27-.52)
[261, 262)	14	0	1	.60 (.48-.73)	.40 (.27-.52)
[262, 263)	13	0	1	.60 (.48-.73)	.40 (.27-.52)
[272, 273)	12	0	1	.60 (.48-.73)	.40 (.27-.52)
[284, 285)	11	0	1	.60 (.48-.73)	.40 (.27-.52)
[286, 287)	10	1	0	.64 (.51-.78)	.36 (.22-.49)
[319, 320)	9	1	0	.68 (.54-.82)	.32 (.18-.46)
[336, 337)	8	0	1	.68 (.54-.82)	.32 (.18-.46)
[368, 369)	7	0	1	.68 (.54-.82)	.32 (.18-.46)
[376, 377)	6	0	1	.68 (.54-.82)	.32 (.18-.46)
[408, 409)	5	0	1	.68 (.54-.82)	.32 (.18-.46)
[432, 433)	4	0	1	.68 (.54-.82)	.32 (.18-.46)
[454, 455)	3	1	0	.79 (.58-.94)	.21 (.06-.42)
[544, 545)	2	0	1	.79 (.58-.94)	.21 (.06-.42)
[604, 605)	1	1	0	1.00	.21 (.06-.42)
Subgroup 2: Waited more than 2 months to receive help					
[1, 2)	26	2	0	.08 (.02-.27)	.92 (.73-.98)
[28, 29)	24	0	1	.08 (.02-.27)	.92 (.73-.98)
[54, 55)	23	1	0	.12 (.04-.32)	.88 (.68-.96)
[56, 57)	22	0	1	.12 (.04-.32)	.88 (.68-.96)
[64, 65)	21	0	1	.12 (.04-.32)	.88 (.68-.96)
[77, 78)	20	0	1	.12 (.04-.32)	.88 (.68-.96)
[93, 94)	13	1	0	.16 (.06-.38)	.84 (.62-.94)
[126, 127)	18	0	1	.16 (.06-.38)	.84 (.62-.94)
[144, 145)	17	1	0	.21 (.09-.44)	.79 (.56-.91)
[180, 181)	16	0	1	.21 (.09-.44)	.79 (.56-.91)
[182, 183)	15	0	1	.21 (.09-.44)	.79 (.56-.91)
[186, 187)	14	1	1	.27 (.13-.51)	.73 (.49-.87)
[195, 196)	12	0	1	.27 (.13-.51)	.73 (.49-.87)
[212, 213)	11	0	1	.27 (.13-.51)	.73 (.49-.87)
[213, 214)	10	0	1	.27 (.13-.51)	.73 (.49-.87)
[222, 223)	9	0	1	.27 (.13-.51)	.73 (.49-.87)
[235, 236)	8	0	1	.27 (.13-.51)	.73 (.49-.87)
[242, 243)	7	0	1	.27 (.13-.51)	.73 (.49-.87)
[284, 285)	6	0	1	.27 (.13-.51)	.73 (.49-.87)
[331, 332)	5	0	1	.27 (.13-.51)	.73 (.49-.87)
[348, 349)	4	0	1	.27 (.13-.51)	.73 (.49-.87)
[391, 392)	3	0	1	.27 (.13-.51)	.73 (.49-.87)
[407, 408)	2	0	1	.27 (.13-.51)	.73 (.49-.87)
[454, 455)	1	0	1	.27 (.13-.51)	.73 (.49-.87)

Appendix D: Background Variables Tables

Table D1.

Descriptive statistics for Continuously Waiting[a] families

Background variables	Contacted a new agency[b] n (%) or $M \pm SD$	Did not contact a new agency[c] n (%) or $M \pm SD$
Parents/families		
Parental educational attainment		
Less than high school	9 (12%)	18 (21%)
High school graduate	14 (19%)	17 (20%)
At least some college or university	42 (56%)	41 (49%)
University graduate	10 (13%)	8 (10%)
Income		
<$40,000	28 (37%)	49 (59%)
$40,000 - $60, 000	15 (20%)	12 (14%)
>$60,000	32 (43%)	23 (27%)
Parent treatment history		
Treatment history	49 (65%)	41 (49%)
No treatment	26 (35%)	43 (51%)
Marital status		
Married/common-law	52 (69%)	46 (55%)
Single parent	23 (31%)	38 (45%)
Impact of child's illness on family ($M \pm SD$)	79.9 ± 22.1	77.3 ± 18.7
Children		
Child age ($M \pm SD$)	10.2 ± 3.52	9.9 ± 3.27
Child sex		
Male	50 (67%)	54 (64%)
Female	25 (33%)	30 (36%)
Child adjustment[d] ($M \pm SD$)		
Internalizing	65.2 ± 14.5	65.5 ± 12.2
Externalizing	69.6 ± 13.3	68.3 ± 11.8
Functional impairment	70.0 ± 14.1	69.0 ± 14.3
Number of agencies		
≥ 10 agencies	39 (52%)	55 (66%)
<10 agencies	36 (48%)	29 (34%)

Note: N=159. [a] Continuously Waiting refers to families that never came off the wait-list and were still waiting for help from the first agency they contacted at the end of their follow-up period. [b] n= 75; [c] n= 84 ; [d] T-scores based on population norms.

Table D2.

Descriptive statistics for Received Help[a] *families*

Background variables	Contacted a new agency[b] n (%) or $M \pm SD$	Did not contact a new agency[c] n (%) or $M \pm SD$
Parents/families		
Parental educational attainment		
Less than high school	6 (12%)	18 (28%)
High school graduate	11 (22%)	15 (23%)
At least some college or university	27 (54%)	24 (38%)
University graduate	6 (12%)	7 (11%)
Income		
<$40,000	21 (34%)	34 (53%)
$40,000 - $60, 000	13 (26%)	12 (19%)
>$60,000	20 (40%)	18 (28%)
Parent treatment history		
Treatment history	31 (62%)	35 (55%)
No treatment	19 (38%)	29 (45%)
Single parent status		
Married/common-law	27 (54%)	34 (53%)
Single parent	23 (46%)	30 (47%)
Impact of child's illness on family ($M \pm SD$)	85.3 ± 22.5	72.5 ± 17.0
Children		
Child age ($M \pm SD$)	11.3 ± 3.18	11.01 ± 3.32
Child sex		
Male	29 (58%)	43 (67%)
Female	21 (42%)	21 (33%)
Child psychopathology[d] ($M \pm SD$)		
Internalizing	64.5 ± 12.5	62.8 ± 14.5
Externalizing	72.5 ± 11.9	67.4 ± 12.3
Functional impairment	73.7 ± 11.9	68.1 ± 14.8
Number of agencies		
≥ 10 agencies	24 (48%)	20 (31%)
<10 agencies	26 (52%)	44 (69%)

[a] Received Help refers to families that received help prior to contacting a new agency or by the last date of their follow-up.
[b] n= 50; [c] n= 64; [d] T-scores based on population norms.

Appendix E: Inter-correlation Matrix Between Continuous Predictor Variables

Table E1.

Inter-correlation matrix of continuous predictor variables for total sample

		1	2	3	4	5
1	Child age (years)	-				
2	Internalizing T-score	.09	-			
3	Externalizing T-score	.10	.25*	-		
4	Functioning/Impairment T-score	.20*	.48*	.53*	-	
5	Impact of child's illness on family T-score	.08	.30*	.64*	.60*	-

Note: N=273. T-scores based on population norms by age and sex.
*Correlation is significant at the .001 level (2-tailed).

Curriculum Vitae

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Education

2010 – present	M.Sc. Candidate, Clinical Psychology, Western University, London, Ontario
2006-2010	Bachelor of Science (Honours Psychology), Queen's University, Kingston, Ontario
2008-2009	Exchange program, University of Edinburgh, Edinburgh, Scotland, United Kingdom

Honours and Awards

2010-2012	Western Graduate Research Scholarship
2010	Queen's University Dean's List
2008	Queen's University Kathleen Ryan Bursary

Related Work Experience

Fall 2010	Graduate Teaching Assistant: Psychology 1000-Introductory Psychology, Western University
Winter 2011	Graduate Teaching Assistant: Psychology 2990- Psychology in Life, Western University
Fall 2011	Graduate Teaching Assistant: Psychology 2301A - Introduction to Clinical Psychology, Western University
Winter 2012	Graduate Teaching Assistant: Psychology 2310B – Introduction to Clinical Psychology, Western University
Summer 2011	Research Assistant, Western University

Academic Lecture

September 2011	Psychology 2310B. Duration: 3 hours. Lecture Title: *Psychometric Assessment Properties*

Poster Presentations

Schraeder, K., Otchet, F, & D. White. (2012, June). A Comprehensive Process Evaluation of the Wait-List Clinic at the Canadian Mental Health Association – London-Middlesex. Poster presented at the Canadian Psychological Association Convention in Halifax.