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# Implementing an attachment and sensitivity-based home intervention in a rural area of Eastern Canada

## Abstract

Recent home-based interventions have focused on improving relationships between parents and their young children in measurable ways, but these interventions have not often been implemented in rural areas where there may be greater psychosocial needs. When an attachment theory framework is used and the focus is on parental sensitivity, improvements in parent-child attachment security have been found, and these effects are relatively stronger when families are at high psychosocial risk and the intervention includes direct feedback on parent-child interactions. This paper reviews this literature, describes the development of such a program in a rural area of Eastern Canada, and presents preliminary data on initial families.

**Keywords:** attachment, home-based intervention, rural, sensitivity, parenting, program implementation, relationships

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## Introduction

There are many challenges providing services to high psychosocial risk families living in rural areas. In addition to risks such as potential maltreatment histories and extreme poverty, families may have other challenges in terms of parents with their own relationship problem histories, poor parenting skills, and children with disruptive behavior. Children in these poor psychosocial circumstances are at significant risk for the development of insecure relationships with their caregivers.[1] which in turn is associated with many different kinds of negative developmental outcomes across childhood and beyond.[2] However, an attachment theory approach has been used to establish evidence-based home-visiting programs that target parent-child relationship processes and the challenges of young children that have been abused and/or neglected.[3] Those that meet certain criteria have been shown to improve child-parent attachment security and reduce the worst kind of relationship in which there is fear and disorganization in the relationship.[4-6] The goal of this paper is to report on implementation of such a program in a rural area of East Coast Canada, The King's County Relationship Intervention Program (KRIP). KRIP's mission is to improve emotional warmth, sensitivity, and attachment security within parent-child relationships in which a preschool-age child has a maltreatment history. While mental health and family support services exist locally, rural impoverished families may be hesitant, fearful, and/or unable to access some of these services.[7,8] The goals of this paper are therefore to provide a summary of attachment theory, review evidence-based parenting interventions to designed to promote attachment security and parental sensitivity, unique challenges in serving the needs of families in rural areas, steps taken to initiate the KRIP program, and preliminary findings from the implementation phase.

### A summary of attachment theory

Consistent with other attachment- and sensitivity-based programs.[4], the KRIP mission is to improve emotional warmth, sensitivity, and attachment security within parent-child relationships in some cases where there is a maltreatment history. It is therefore important to provide an overview of Attachment Theory.[9] This theory provides a conceptual basis to address how children and adults use attachment-figures when distressed, regulate their emotions and behavior within relationships, and deal with distress, trauma, and loss.[10] Four attachment styles have emerged. In childhood, attachment security.[11] is when a child is not anxious about the availability of a caregiver in times of distress when she may be called upon to act in a sensitive, responsive, and predictable fashion. However, insensitive, intrusive, inconsistent, and sometimes frightening parenting contributes to the development of insecurity as children learn their secure base may not be there for them. This heightens anxiety for children and interferes with exploration in behaviorally organized ways that may reflect either excessive signaling behavior towards and preoccupation with the caregiver in the case of *ambivalence*, or passive and sometimes active *avoidance* of the caregiver altogether. When the caregiver is abusive and/or neglectful, the child is in a terrible dilemma when distressed: survival instincts urge her to flee to the safety of the caregiver, but it is this caregiver who may be the very source of fear and distress. The child is therefore left in extraordinary approach-avoidance conflict, and this experience of fright can become paralyzing and result in the child dissociating from themselves as a way of detaching from what is happening. Her behavior may consequently become *disorganized,* and seem bizarre, inexplicable, disoriented, emotionally incongruent, confused, violent, or controlling of the parent.[12-14] Attachment insecurity in the preschool period.[15] is related to predictable differences in child behavior problems, parental distress, and poor quality of parent-child play interactions, with secure children typically fairing the best and disorganized children fairing the worst.[4-17] These same four attachment categories apply to adults. George and West.[18,19] describe how adult attachment representations can reflect relationship styles in which adults deal with relationship distress by turning to real or internalized representations of close others when they are *secure/autonomous*, deactivate their attachment system by not turning to others when *dismissive*, become overly emotional and dependent due to hyper activation of the attachment system when *preoccupied*, or become completely overwhelmed with relationship threats, dissociative, or emotionally unregulated when *unresolved/disorganized* to past relationship traumas. The four attachment styles therefore have common underlying features in child and adulthood.



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In adulthood, developmental measures of adult attachment representations have emerged to categorize attachment styles and relate these to indices of adjustment, relationship trauma, and caregiving behavior. Measures have included interviews of attachment-related early childhood experiences in the *Adult Attachment Interview*.[AAI,20] and narrative story-telling tasks in response to ambiguous pictures depicting attachment-related themes in *The Adult Attachment Picture Projective.*[AAP,19] In both, responses are coded to classify adult attachment. Bakermans-Kranenberg and van IJzendoorn.[21] have examined AAI studies and shown that adult insecurity is higher in various clinical groups (e.g., depression), with the highest rates of unresolved classifications coming from people with either domestic violence histories or Borderline Personality Disorder (BPD). Similarly, the AAP has been used to show high rates of unresolved classifications in clinical samples of BPD, trauma, and anxiety.[22,23] and relationship trauma can also accompany mental health problems. With respect to trauma history, a study conducted in rural Appalachia found a history of traumatic events was related to higher levels of parental stress and dysfunctional relationships with young children, and parent trauma history was related to reports of their own children's trauma history.[24] There are other forms of combined risk as well, for example, poverty, child abuse history, and current violence in the family may co-occur, and thus compound unresolved relationship trauma and amplify the probability of insecure adult attachment classifications, serious mental health problems, and further family violence in adulthood.[25,26] These issues may be more common in rural families.

## Evidence-based parenting attachment and sensitivity interventions

There are calls to promote evidence-based practice based on the best available research in important areas such as parenting services.[27,28] and researchers continue to seek better methods to promote positive changes in relationships in high risk or maltreatment groups through attachment- and sensitivity-based interventions. High risk has included some combination of teenage parenting, psychosocial impoverishment, maternal depression, inadequate parenting skills, and infants of low birth weight and irritability.[29] Bakermans-Kranenburg et al.[3] reviewed studies designed to reduce disorganized attachment by promoting security and sensitivity, and found programs were effective when infants were older rather than younger than six months of age, home visitors had professional training, there was a focus on sensitive parenting rather than simply behavioral management, there were relatively fewer than more sessions, and children were at greater risk. Similar findings have been found in a meta-analysis of relationship-based interventions for low income families where positive developmental change in play behavior was the outcome variable.[30] Studies have also examined families with maltreatment histories. For example, Cicchetti et al.[26] found low levels of child security and high levels of infant disorganized attachment at one year, but a year-long sensitivity-based intervention led to significant decreases in disorganization and increases in security compared to controls which remained the same. Similar studies of older children have shown that such programs can have a positive impact on children's representations of themselves and their parent, as well as decreases in child behavior problems.[31,32] Other studies have found positive change comes from short-term involvement. For example, Bernard et al.[33] randomly assigned parents and toddlers at high risk for neglect to receive either a 10 week attachment-informed program with multiple components including positive parenting using video feedback or a parent education control. Their intervention group had higher rates of child-parent security and lower rates of disorganized attachment after the intervention.

In a study conducted in Francophone-Canada, Moss et al.[4] randomly assigned maltreating families to either an 8-week sensitivity- and attachment-based home visiting treatment program promoting sensitivity and emotional engagement or to a control group receiving "status quo" services. These parents were all being monitored by a community service or child welfare agency, and children ranged in age from 1 to 6 years. In the intervention group, rates of security more than doubled and rates of disorganization more than cut in half, whereas controls remained the same. Further evidence that this intervention put children on a very different developmental pathway was that mothers also became more sensitive and older children in the study showed reductions in behavior problems. Moss et al.[4] suggested that this was the first short-term attachment- and sensitivity-based program designed specifically for young children and their parents involved with child protection services. It is noteworthy that the studies in Bakermans-Kranenburg et al.[3] used videotape feedback in keeping with the finding that more broadly-defined family-based interventions are most effective when they include this component.[34] and videotape feedback is a component of other attachment- and sensitivity-based interventions for a general population of primiperous mothers.[35] and families in which children had been referred to clinical services for behavioural/ emotional problems.[36] We chose to use the intervention protocol described in Moss et al.[4] in our study as it seemed most relevant to children with maltreatment histories. Few if any of the above studies were conducted in rural areas. In one exception, Knoche et al.[37] provided a relationship-focused intervention in a rural area of a Midwestern state to low socioeconomic families with preschool children enrolled in the Head Start program. The intervention included videotaped interactions across a 16 month period and was designed to promote warm and responsive parent-child interactions, children's autonomy, and support children's learning to promote school readiness, and half of the families were randomly assigned to receive this intervention and others received "status quo" services. Groups did not originally differ in the quality of their interactions, but by the end of the intervention, the treatment group received higher scores on all three indices of relationship quality. However, the emphasis of this study was on the quality of interactions, and although these may underlie attachment constructs, attachment security was not directly assessed.

## Serving the needs of families in rural areas

General population studies in the United States, New Zealand, and Canada have identified many risk factors for child maltreatment including family dysfunction, single parenthood, poverty, low parent education, and poor parental attachment.[38-40] In a Canadian study.[41] living in a rural area was found to be a risk factor for child maltreatment, although this was found for girls and not boys. Of course there are potential limitations to these studies related to how child abuse is defined, for example, through retrospective self-report or through actual records of child protection services.

What seems important is that these risk factors may be greater in rural than urban areas. For example, family dysfunction in the form of exposing children to domestic violence is usually classified by child protection workers as emotional neglect, and there is evidence that separated and divorced women in rural settings are more likely to experience interpersonal violence within intimate relationships than their urban counterparts.[42] There are other challenges for rural women in terms of lower social support, more geographic isolation, higher rates of poverty, and less public transportation options than in urban areas.[43] For example, Taubenheim & Tiano.[7] discuss barriers to treatment of rural Appalachian families which include isolation,

financial problems, social stigma and privacy, transportation issues, and trusting service providers, themes also found in qualitative research of mothers with mental health problems in rural Ireland.[44] People in rural areas may also have less access to mental health and other services.[45] For example, Ziller, Anderson & Coburn.[46] compared mental health care expenditure records for urban and rural American residents and found people in rural areas spent relatively less money on mental health needs and office-based visits but more on prescription drugs. Services for children and families in rural areas pose unique challenges that revolve around accessibility, availability, and acceptability that fit the demographics of a particular area.[47] One of the advantages of home visitation programs is that it deals directly with accessibility, although such programs still may not be available and acceptable. In fact stigmas against receiving services to help with parenting may be very high in parents who are being monitored by child protection services and do not wish to admit problems in their parenting.

### KRIP implementation and protocol

Before implementation of KRIP in our region, we had to address what home visitation services existed already. We were surprised to find out that there were four different organizations providing home visitation to families, all with different mandates for families of young children. There was a child development organization whose focus was on behavioral intervention for children with potential developmental delay and medical risks; a public health organization whose focus was on families identified as at risk shorty after a child's birth and a specific mandate to encourage breast-feeding; family support workers working under child protection services to assist families with maltreatment concerns; and, another community-based organization who seemed to assist high psychosocial risk families with longstanding and ongoing contact with child protection services. This last group was called the *Kids Action Program* and seemed to address those the intervention was most designed to help with and the most challenges including extreme poverty, isolation, transportation issues, unsettled living conditions and relationship histories, and in some cases, literacy challenges. Interestingly, meetings with all four groups suggested that each believed they were offering home-based intervention which was attachment-based, but none actually measured relationship-based constructs to determine if their intervention was successful, or perhaps more importantly, have been shown to be effective for individual families.[28] Second, we had to develop the KRIP program. We chose to have a protocol with assessment and intervention components to determine if the program was effective both in general and for individual families. A protocol was thus set up in which families were seen initially for assessments at pretest, and then again 10 and 20 weeks after the pretest. Half of the families receive the intervention between pretest and 10 weeks, in which the 20 week assessment serves as a follow up assessment. The other half receives the intervention between 10 and 20 weeks, in which their time from pretest to 10 weeks serves as a wait-list delay. It also means all families contribute to pretest – posttest data, which are the only data we will present in this paper. Ten and 20 weeks were chosen as the structured Moss et al.[4] intervention protocol takes 8 weeks to deliver: it consists of eight 90-minute home-based visitations. Each of the home visits includes visitor-parent discussion and problem-solving, videotaped structured play, and a discussion of feelings and behavior during selections of the play that reinforce positive relationship elements and emotional attunement. Following Moss, the target families had to have a child 2 to 7 years of age, the child had to be currently residing with the parent, and the family had to have had past or current contact with child protection services. These conditions are often the case for low-level child maltreatment in which families are monitored, but children are not removed from the home for more extreme child welfare concerns. More details about the intervention can be found elsewhere.[5]

## Materials and methods

The assessments involve a 60 to 90 minute laboratory visit, questionnaires, and observations by home visitors, and the following data are collected. Some measures are collected only once as they are assumed to not be the focus of intervention change, but related to family relationship processes. Some measures are used one time point to address adult attachment, parent's own history of abuse, and mental health. Adult attachment is assessed using the *Adult Attachment Projective Picture System.*[18,19] which is a series of drawings that show attachment-related events such as illness, separation, solitude, and abuse designed to activate the attachment system. The drawings are simple sketches, and it is not clear what is happening nor what character(s) could be thinking or feeling. Parents are asked to make up a story about the picture, and structured prompts are used if details are left out such as what led up to the scene, what happens next, and thoughts and feelings. Caregiver responses are transcribed and then reviewed by accredited coders for constructs such as connectedness and synchrony, as well as defensive processes that may be displayed within the stories. These lead to the adult attachment classifications of secure, dismissing, preoccupied, and unresolved. Parent abuse history is assessed using the *Childhood Trauma Questionnaire*.[48] which is a self-report questionnaire that addresses recollections of past experiences of an adult's own childhood that indicate trauma symptoms associated with physical, emotional, and sexual abuse, as well as physical and emotional neglect. Caregiver mental health is assessed using the *Millon Clinical Multiaxial Inventory, 3rd Edition*. MCMI-III.[49] which assesses Axis II personality disorders and Axis I clinical disorders according to DSM-V criteria. Scores are adjusted for response style and people are assigned to a range which reflects either no significant problem, or alternatively, the presence or prominence of a trait or syndrome, with the latter being more severe. Other assessment measures are given at all three times as they are expected to change across the time of the intervention. Three of these focused on the parent-child relationship, and there are "gold standard" observational measures of attachment security that are related to a history of maltreatment and other developmental problems. First, Ainsworth et al.[11] lab-based Strange Situation (SS) procedure for infants has been modified for behavior typical of preschool-age children. This consists of a videotaped sequence of five minute episodes of play, a first separation, a first reunion, a second separation, and a second reunion in a university laboratory with age appropriate toys. The focus of coding is on child's physical proximity, signaling, and emotional response towards parent, as well as the parent's behavioral and emotional attunement to the child, and ultimately attachment is blindly classified by accredited coders as secure, ambivalent, avoidant, and disorganized/ controlling. Second, The Attachment Q-Sort.[50] is a home-based observation of attachment security which is systematically related to SSP categories.[51] Although it does not distinguish between insecure categories, disorganized attachment is associated with the lowest AQS scores. Attachment security is also related to observations of parental sensitivity.[52,53] and both are lower in parents with maltreatment histories.[4-26] The *Maternal Behavior Q-set* (MBQS).[52-54] is a similar measure of maternal sensitivity, and in both systems, there are behavioral descriptors which are sorted by observers into columns most to least like the child and parent, and scores are correlations of this observed sort with the attachment and sensitivity criterion sorts, respectively. Scores therefore range

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from -1.0 (very insensitive) to 1.0 (extremely sensitive), with scores in general populations to range around.35 and scores less than 0 considered quite low. We trained home visitors to completed AQS and MBQS observational assessments following training procedures of the Pederson and Moran research group, and as the AQS and MBQS are completed by the same home observer and are highly related.[55], they can be averaged to create a score of *relationship harmony.* Other measures addressed other potential positive changes for the family. Caregiver reports of child behavior problems are assessed on the age-appropriate version of the well-known *Child Behavior Checklist.*[56], which provides broad-band measures of behavior problems that are internalizing reflective of anxiety, depression, and social withdrawal or externalizing reflective of problems in attention, aggression, and acting-out. Fear in the relationship is assessed using the *Caregiver Helplessness Questionnaire.*[57], which addresses parent helplessness, fright in the parent and child, and child caregiving dimensions, which are conceptually related to the kind of parenting in maltreating parents and disorganized attachment as well as social support, parental depression, and child behaviour problems. There were also report measures of parental depression and affective lability to address emotional distress of the parent.

There were other pragmatic elements addressed during implementation. The intervention protocol was in French and had to be formally translated into English (note: the English protocol was returned to Ellen Moss for intellectual property purposes and cannot be obtained from the current authors). Three of the authors have received formal training in Montreal from Moss and others on the intervention protocol and/or SSP administration and scoring. The *Kids Action Program* home visitors were trained in the intervention protocol and Q-sort observation methods. An ongoing group of students was established to conduct the university-based assessments and score measures. Ties were established for trained coding of the AAP transcripts and SSP protocols. A website was set up to support the program, krip.acadiau.ca.

## Results and discussion

Eighteen participants have already begun the program. All parents have been mothers thus far, but fathers could be seen using the same protocol. This is a high risk sample as 22% of mothers thus far have not completed high school, 50% are single parent families, 11% are teenage parents, 28% of parents were in out-of-home care themselves when they were a child, and 89% live below the Canadian national poverty line for family size, which is around $23K. It is possible, of course, that some of this information was not reported accurately for various practical reasons such as implications for government subsidies. Pretest home observation data in Figure 1 shows that child security and parental sensitivity at time 1 are highly related, $r$ =.77, but often quite low. Of the five parent-child pairs with positive scores in the upper right quadrant, four turned out to not have child protection concerns, and therefore those that did accounted for all of the poor scores. In parents, high levels of mental health problems, childhood abuse history, and unresolved adult attachment classification have been found with these problems more common in maltreatment groups than controls. For example, of these 18 mothers, none were secure, 4 were dismissing, 5 were preoccupied, and 9 unresolved, with these last two categories accounting for all the major mental health problems, a majority of personality disorders, and most of the childhood abuse history. Seven mothers have completed the program and several more are in "mid-stream". Pre - post relationship harmony scores are shown in Figure 2. All but one parent had increases in relationship harmony across the time they received the intervention. The average increase was 47, which is higher than other published effects, and 4 of 7 showed dramatic improvement. There were other positive trends in that depression scores and affective lability scores decreased for most, which means parents were in less emotional distress and more in control of their emotions. A smaller number of parents have completed waitlist or follow up data, but scores appear stable across the time frames when intervention is not taking place. SSP data has not been coded yet, but will address concurrent validation of these treatment effects. Data analyses will ultimately be much more complex, of course, but pilot data show how multiply challenged these families are and suggest that positive developmental change across a variety of important areas is possible.

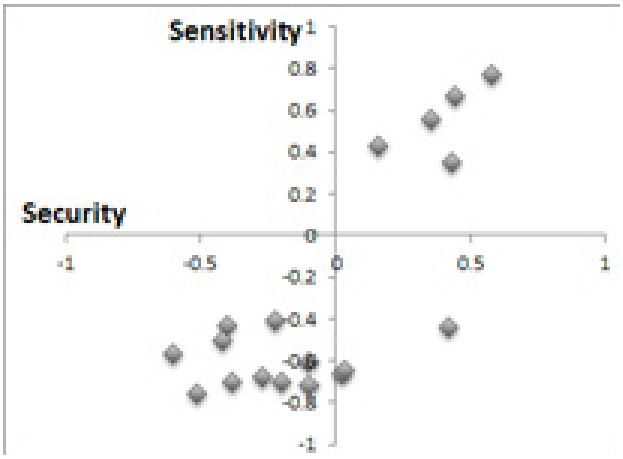


**Figure 1** Q-sort sensitivity and security are related.

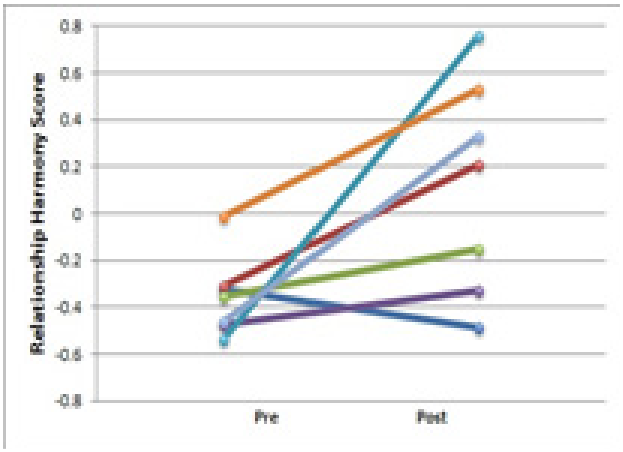


**Figure 2** Pre-post harmony increases.

## Conclusion

Home-based interventions for high psychosocial distress families improve indices of relationships parents have with their young children. The current studies uses this research base to describe the implementation of such a program based on previous work by Moss et al.[4,5] The current study differs from that study in that it is being conducted in English-speaking instead of Francophone Canada, and also in a rural area where impoverishment may be greater. The current study includes a number of issues important to psychosocial risk factors which may affect treatment effects, including adult attachment style, mental health of parents, and child behavior problems. There are many family-based interventions that target parent-child relationships, but many do not include behavioral observations within an attachment theory framework to evaluate effectiveness. In

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the current study, home-based observations of attachment security and parental sensitivity were averaged to create a broader measure of relationship harmony, and preliminary data in the current study showed improvements for 6 of 7 mother child pairs and significant improvements for 4. Attachment-based interventions have only been available for 20 or so years.[58], but they are becoming more common and this study hopes to add to that trend.

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## Conflicts of Interest

The authors have no known conflicts of interests to report.

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