

A typological analysis of behavioral profiles of sexually abused children

Martine Hébert¹, Nathalie Parent², Isabelle V. Dagnault³, and Marc Tourigny⁴

¹Département de sexologie, Université du Québec à Montréal

²Département des fondements et pratiques en éducation, Université Laval

³Département de psychologie, Université du Québec à Montréal

⁴Département de psycho-éducation, Université de Sherbrooke

Abstract

A cluster analysis is used to explore differential outcomes in 123 French Canadian children reporting sexual abuse contrasted with 123 control children. Mothers' reports of behavioral problems on the Child Behavior Checklist, abuse-related variables, personal factors, and family characteristics are used as potential variables discriminating clusters. Results reveal four clusters: (a) anxiety constellation group refers to children displaying behavior problems on a subset of scales, (b) the severe distress group refers to children showing a broader array of behavior problems, (c) victims of less severe sexual abuse (SA) group consists of children disclosing mostly extrafamilial SA, and (d) resilient children refers to children who, while disclosing severe abuse, rely less on avoidance coping. Findings underscore the need to go beyond abuse-related variables to orient treatment for children disclosing sexual abuse and for tailoring interventions to distinct subgroups.

Keywords

Child sexual abuse; profiles; adaptation; coping; family; consequences

Child sexual abuse (SA) is an important social problem. Prevalence rates derived from community samples vary from 12% to 35% for women and 4% to 9% for men (Putnam, 2003). Although incidence surveys are based solely on reported cases, the rates are still considerable. The Canadian incidence study estimated that 5,870 founded cases of child SA were reported to Child Protection Services from January to December 1998 (Trocmé et al., 2001). Although children and youth younger than age 18 represent only one-fifth of the population, they are victims in more than 60% of all police-reported sexual offences (Statistics Canada, 2003). Even if a number of prevention programs have been implemented in the past decade and have provided beneficial effects (Hébert & Tourigny, 2004), a high number of children are still at risk of growing up while having to cope with the consequences of sexual abuse.

Data gathered to date suggest that sexually abused children are likely to present significant anxiety, depression, somatic complaints, social withdrawal, anger and aggressive behaviors, compared to non-abused children (Cahill, Kaminer, & Johnson, 1999; Wolfe, 1999; Briere & Elliot 2001; Paolucci, & Genuis, 2001). In addition children experiencing SA are more likely to demonstrate inadequate sexualized behaviors and posttraumatic stress disorder PTSD symptoms (Boney-McCoy & Finkelhor, 1996; Collin-Vézina & Hébert, 2005; McLeer, Dixon, Henry, Ruggiero, Escovitz, Niedda, & Scholle, 1998; Tremblay, Hébert & Piché, 2000). Research has consistently underlined the variability of health outcomes of SA children (Spaccarelli & Kim, 1995; Webster, 2001). Thus, sexually abused children appear to be a highly heterogeneous group (Valle & Silovsky, 2002) and the impact of SA does not appear to yield a distinct identifiable syndrome (Saywitz, Mannarino, Berliner, & Cohen, 2000).

Clinicians and child welfare workers often deal with a wide variety of cases illustrating a host of abusive episodes ranging from a single exhibitionism episode, to fondling, to complete intercourse involving a stranger or a close intimate family member. Such different experiences are often lumped together in statistical analysis, which may overshadow specific profiles of adaptation. Not only do children experience quite diverse abuse but it is also highly improbable that all have the same personal competencies to deal with the trauma and that all benefit from the same family environment to help them in this task. The diversity of case presentation may impair the clinician's ability to propose a specific standardized treatment that applies to all cases (Saywitz et al., 2000). Currently, there is a paucity of guidelines that help practitioners orient cases following disclosure. The identification of profiles of outcomes may provide cues in this regard.

Clinicians and researchers have attempted to better delineate variables associated with severity of SA impact in the hope that this would yield cues to identify those most in need for treatment. Characteristics such as severity of the abusive act (abuse involving penetration), duration/frequency of the abuse, presence of force/violence during the abuse, relationship to perpetrator and age at onset of abuse have been investigated (Beitchman, Zucker, Hood, DaCosta, & Akman, 1991; Cohen & Mannarino, 1998; Fergusson, Horwood, & Lynskey, 1996). Although more adverse impact in survivors has been found to be associated with longer duration of abuse, use of force or violence, and father or father figure as perpetrator, the results of empirical studies remain highly inconsistent (Bal, DeBourdeaudhuij, Crombez & Van Oost, 2004; Calam, Horne, Glasgow, & Cox, 1998; Koverola, Pound, Heger, & Lytle, 1993; Ligezinska, Firestone, Manion, McIntyre, Ensom, & Wells, 1996; Spaccarelli & Kim, 1995; Tyler, 2002), suggesting that other variables may play a key role.

Spaccarelli's transactional model conceptualizes sexual abuse as a stressor involving a series of abuse events and disclosure-related events that may each increase the risk for negative outcomes (Spaccarelli, 1994). In this model, outcomes are determined by multiple transactions between appraisals and coping responses as well as environmental factors (prior support, reaction of the family and community; Nurcombe, 2000). Characteristics of family associated with increased symptoms may worsen the impact of abuse events or impede on the child's coping (Spaccarelli, 1994). A supportive stance from the nonoffending parent

may act as a protective factor by promoting the use of efficient coping (Spaccarelli, 1994). Coping and family characteristics, especially parental support, are among the key mediators proposed to explain the link between SA and emotional distress (Barker-Collo & Read, 2003; Whiffen & MacIntosh, 2005). It is well recognized in the literature that reliance on escapist coping strategies is consistently related with higher level of distress (Folkman & Moskowitz, 2004). Although avoidant coping has been directly related to greater distress in sexually abused children, and in fact may mediate the effects of SA on distress (Bal, Van Oost, DeBourdeaudhuij, & Crombez, 2003; Shapiro & Levendosky, 1999), approach coping has been inconsistently related to outcomes (Chaffin, Wherry, & Dykman, 1997; Johnson & Kenkel, 1991; Tremblay, Hébert, & Piché, 1999).

A supportive family environment may also serve as a buffer against detrimental outcomes following disclosure of SA (Elliot & Carnes, 2001, Rosenthal, Feiring, & Taska, 2003). In one study, Spaccarelli and Kim (1995) reported that perceived support was the best predictor of the victim's outcome among all considered variables. Indeed, children who felt supported by the non-offending parent maintained a higher level of functioning in social, interpersonal and academic domains (Spaccarelli & Kim, 1995). Even after differences in abuse-related characteristics had been controlled for, family contextual factors significantly added to the prediction of the level of behavioral difficulties of SA school-age children (Hébert, Tremblay, Parent, Daignault, & Piché, in press). More specifically, of the different aspects of family functioning evaluated, the intensity of family conflict was found to contribute to the prediction of externalizing behavior problems. Analyses of factors distinguishing children appearing resilient in a six months follow-up, also highlighted the discriminating power of this variable (Hébert et al., in press).

Although researchers have investigated potential variables linked with severity of impact, the crucial question of whether certain types of SA are associated with different outcomes has been overlooked (Trickett, Noll, Reiffman & Putnam, 2001). The issue of differential impact is more likely to provide pertinent clues for the design of specific interventions. Indeed, outcomes for any childhood problem will be related to the configuration and timing of a host of surrounding circumstances including events both within and outside the child (Mash & Barkley, 2003). Hence, in order to formulate relevant treatment recommendations, there is a need to further explore the diversity of SA experiences along with the factors influencing the diversity of outcomes (Barker-Collo & Read, 2003; Valle & Silovsky, 2002).

Cluster analysis is well suited for identifying subsets of individuals from heterogeneous populations (Hair, Anderson, Tatham, & Black, 1998). This statistical method has been used to derive typologies of mental health outcomes in adult SA survivors (Bennett, Hughes, & Luke, 2000; Elhai, Flitter, Klotz, & Sellers, 2001; Follette, Naugle, & Follette, 1997; Hulme & Agrawal, 2004). In the only published report of clusters of sexually abused children, Trickett et al. (2001) analyzed the profiles of 166 SA girls (6 – 16 years of age) referred to Child Protective Services (CPS) agencies. All had been victims of abuse involving genital contact or penetration by a family member. A first cluster comprised girls who had been abused throughout a short period of time, by multiple perpetrators, none of whom were biological fathers, and where the abuse was likely to have involved physical violence. A second cluster consisted of victims of SA of short duration by a nonbiological father figure;

the abuse did not involve use of violence. A third and last cluster consisted of victims of chronic abuse perpetrated by the father. In analyzing differential outcomes, the authors found that girls subjected to chronic abuse by their fathers were reported to display more delinquency, immaturity, and aggressive behaviors problems than were girls subjected to SA of shorter duration. The former were also found to display more depression and withdrawn behaviors, compared with victims of SA involving the use of force or violence and victims of SA of shorter duration. However, both victims of SA involving force and victims of chronic incest presented more dissociation symptoms. Results suggest that differential treatment would be indicated for presenting cases. Although this study provided invaluable information on how differences in the abuse experience are important to our understanding of health outcomes of SA victims, a number of limitations are apparent. Above all, the entire sample consisted of victims of intrafamilial sexual abuse and the abuse experienced was severe compared with other SA samples in that 70% experienced some type of penetration. Consequently, the sample represented neither the diversity of cases nor those usually seen at hospital clinics or initially reported at CPS. In addition examination of profiles of girls aged 6 thru 16 may obscure potential developmental patterns.

Saunders and his colleagues (Saunders, Berliner, & Hanson, 2003) convincingly argue that a comprehensive assessment is required to identify a treatment plan tailored to the problems and needs of child victims and their families and that the likelihood of beneficial outcomes is enhanced when effective treatment plans are matched correctly to specific problems. It appears likely that a variety of interventions are required to ensure the delivery of treatments that are tailored to the individual circumstances needs of the child (Ross & O'Carroll, 2004). Examining within-group variation in outcomes following SA and associated abuse-related characteristics, personal and family variables, is likely to offer important cues for treatment orientation. In this context, the purpose of the present study was to explore the heterogeneity of profiles of sexually abused children by means of a cluster analysis.

Method

Participants

A total of 123 French-speaking children (110 girls and 13 boys) were referred for evaluation to the Child Protection Clinic of Ste-Justine Hospital, a tertiary-care pediatric hospital located in Montreal, Canada, following alleged sexual abuse. An interdisciplinary team (pediatrician, nurse, social worker, and psychologist) is responsible for cases referred on an outpatient basis as well as for hospitalized patients. All sexual abuse allegations are further reported to the CPS of the designated region. Children were between the ages of 7 and 13 years old ($M = 9.22$, $SD = 1.53$). A total of 64% of children experienced intrafamilial sexual abuse (64%), and for 52% of them the abuse lasted at least 6 months. In most cases, the sexual experience was severe (sexual acts involving attempted or completed oral, vaginal, and/or anal penetration; 66%) or moderate (unclothed touching; 29%), following Russell's (1983) classification. For all cases, the perpetrator was at least 4 years older than the child and the abuse was disclosed in the last 6 months. A total of 123 children recruited from public schools in the Montreal region served as a comparison group. The schools were chosen particularly on account of their general socio-economic level with a view to

recruiting children comparable to those in the sexual abuse group. Groups were paired in terms of gender and age.

Measures

Children completed three questionnaires evaluating coping strategies, perceived social support and self-esteem. Questionnaires evaluating children's behavioral problems and quality of family relationships were completed by the mother. All measures were administered in French.

Self-report Coping Scale (SRCS; Causey & Dubow, 1992)—The SRCS evaluates coping strategies used by children when confronted to a common stressor (peer argument). Approach (seeking social support and self-reliance) and avoidance strategies (distancing, internalizing and externalizing) are considered in accordance with the conceptualization of Roth & Cohen (1986). For each question, the child must indicate on a 5-point Likert scale how often he or she uses a given strategy to cope with a peer argument. In this study, a brief version of the SRCS was used. The 20-item version was derived from the original scale by retaining items showing the highest item-total correlations in a sample of 130 children (Hébert, Parent, Daignault, & Tremblay, submitted). Analyses on the brief version of the SRCS revealed adequate internal consistency for each subscale (Cronbach's alpha ranging from .72 to .86) and a factorial structure similar to the original version (Hébert et al., 2006).

Self-perception profile for children (SPPC; Harter, 1985a)—The SPPC is designed to assess children's perceived competence. The child first evaluates which of two descriptions is most like him or her and then rates whether the description is *sort of true for me* or *really true for me*. Items are scored on a scale ranging from 1 to 4 with the highest scores corresponding to higher perceived competence. The global self-worth subscale was used in the present study ($\alpha = .76$).

Social Support Scale for Children (SSSC; Harter, 1985b)—The original version of the SSSC assesses four sources of potential support: (a) teacher, (b) classmates, (c) close friends, and (d) parents. It comprises 24 items presented in the same format as the *SPPC* (Harter, 1985). For each question, the child indicates on a 4-point Likert-type scale how often the given source of support is provided. In this study, the Parent subscale ($\alpha = .71$) and a composite score of close friends and classmates support ($\alpha = .85$) was used.

Child Behavior Checklist (CBC; Achenbach & Edelbrock, 1991)—The CBC is a widely used questionnaire designed to assess children's levels of social competence and behavioral difficulties according to the parent. Adequate internal consistencies and validity indices are reported in the test manual (Achenbach, 1991). This measure includes 118 items scored on a 3-point scale indicating the frequency of different behaviors over the past 6 months. The eight syndrome subscales were used in the present study: Withdrawn ($\alpha=.75$), Somatic Complaints ($\alpha=.68$), Anxious/Depressed ($\alpha=.88$), Social Problems ($\alpha=.67$), Thought Problems ($\alpha=.68$), Attention Problems ($\alpha=.82$), Delinquent Behavior ($\alpha=.71$), and Aggressive Behavior ($\alpha=.91$). A sexualized behavior score can also be computed and was

used as an outcome measure in the present study ($\alpha=.67$). For each behavior problem score, scores are presented as *t* scores and the highest scores reflect greater behavioral difficulties.

Family Relationship Index (FRI; Holahan & Moos, 1981)—The FRI includes 27 items from the Family Environment Scale (Moos & Moos, 1981), a scale designed to assess quality of family relationships. Three dimensions are evaluated: (a) cohesion; (b) expressivity; and (c) conflict (reversed scored). This index is reported to have high internal consistency and good construct validity and has been used extensively as a summary measure of quality of family environment (Holahan & Moos, 1991; Moos & Moos, 1994). In the present study, two subscales are used: Cohesion ($\alpha=.78$) and Conflict ($\alpha=.76$). The Expressivity subscale was dropped from the analysis considering the low internal consistency obtained ($\alpha<.60$).

An adaptation (Parent & Hébert, 1995) of the History of Victimization Form (Wolfe, Gentile, & Bourdreau, 1987) was used to record abuse-related characteristics from CPS and/or medical records. Three abuse-variables were considered: (a) severity of abuse (according to Russell's classification); (b) duration of abuse (single episode, at least two incidents or multiple episodes throughout a 6-month period); and (c) identity of the perpetrator (stranger, known but unrelated, extended family member or immediate family member). Prior analyses of interrater reliability were based on 30 records and indicated high agreement; the median intra-class correlation was 0.86.

Procedure

The objectives of the study were introduced to mothers or legal guardians at their first hospital visit for a medical examination. Consent forms were collected and a meeting with the family was scheduled. Child completed measures were administered by a trained graduate student while the parents answered the questionnaires. Children from the comparison group were recruited through public schools. Letters explaining the purpose of the research were first sent to families. Participants returned the consent form to the teacher. Parents were then contacted and a home-interview was scheduled. Parents from the comparison group were questioned about the occurrence of different life events (hospitalization, separation, residential move, adoption, illness, birth of a sibling, sexual abuse, etc.) in the history of the child to screen out children who had disclosed sexual abuse. The Human Research Review Committee of the University of Québec in Montréal and the Ethics Committee of Sainte-Justine Hospital approved the study.

Results

Selection of Cluster Method and Grouping Variables

Cluster analysis is considered an excellent method to study heterogeneous populations (Borgen & Barnett, 1987). Its main purpose is to classify subjects into subgroups on the basis of similarities in terms of selected variables. Two sets of variables were used, a first set to run the cluster analysis and a second set to validate the identified clusters. Sets of variables were determined on the basis of correlation matrices. The rationale was to create complementary sets of variables in each given category. A total of 14 clustering variables

were selected: (a) characteristics of abuse experience (severity of abuse, identity of the perpetrator); (b) family environment (cohesion); (c) children personal characteristics (coping strategies: problem solving, seeking social support, internalizing, externalizing and distancing); and (d) outcomes (anxiety, thought problems, somatization problems, aggressive behavior and sexualized behavior). The remaining variables (a) abuse-related variables: duration of the abuse; (b) family environment: family conflict; (c) children personal characteristics: perceived social support and self-esteem and (d) outcomes: withdrawal, delinquent behavior, attention disorder and social problems were used to validate and create profiles with the emerged clusters. Correlations between variables range from .02 to .52, the average correlation being .14.

To conduct the cluster analysis, the square Euclidian distance was selected as the measure of similarity whereas the Ward hierarchical cluster method was used as the clustering algorithm. Hierarchical clustering methods are recognized as the most widely used techniques to study heterogeneous populations and Ward's method is generally considered the best among these (Borgen & Barnett, 1987). Ward's algorithm produces a dendrogram that ultimately groups all the individuals of the sample into a single entity. As clusters are condensed, Ward's method measures loss of information as the total sum of squared deviations of every point from the mean of the cluster to which it belongs. Because variables were measured by different questionnaires using various scale formats, standardized values of the variables were used. Data were prescreened for outliers as recommended by Comrey (1985). An outlier was defined as a participant who showed a standard score greater than 3 on more than two variables. Results showed that two participants were considered outliers on three or more variables and were thus eliminated from the analyses.

Selection of the cluster solution and quality adjustment estimation

Initially, an analysis of the percentage of change observed in agglomeration coefficients for the first eight clusters was conducted. One-way ANOVAs were conducted to examine if all selected clustering variables differentiated groups. Results revealed that one variable did not distinguish groups (children' seeking of social support to cope with an interpersonal problem). This variable was removed from the clustering variables and the cluster analysis was recalculated. Subsequent one-way ANOVAs revealed a significant overall effect for cluster membership on all selected grouping variables. Table 1 presents agglomeration coefficients for the first eight cluster solutions. Data revealed a small percentage of change in coefficients from the fourth cluster solutions.

To identify the most significant cluster solution, comparison of cluster solutions was based on practical judgment and theoretical foundations as suggested by Hair et al. (1998). First, the grouping of children into four clusters was examined. Second, global interpretation of the three-versus four-cluster solutions was attempted. Findings showed that the four-cluster solution classifies children on abuse characteristics and severity of behavioral problems, whereas the three-cluster solution only classifies children on the basis of abuse characteristics. The four-cluster solution provided the most clinically meaningful description of sexually abused children and was selected for further analyses.

Interpretation of the clusters

A discriminant function analysis was performed to provide description of the clusters and to help determine which variables contributed to the distinctions. Analyses revealed that all three discriminant functions (Function 1: $\lambda=.09$, $\chi^2(36) = 277.97$, $p = .000$, canonical $R^2=.84$; Function 2: $\lambda=.29$, $\chi^2(22) = 139.90$, $p=.000$, canonical $R^2=.74$; Function 3: $\lambda=.64$, $\chi^2(10) = 50.62$, $p=.000$, canonical $R^2=.60$) reliably differentiated groups. Functions accounted for 57.4%, 29.0%, and 13.6%, respectively, of the between-group variability. Based on the discriminant functions, cluster membership was predicted for each participant. Results revealed a high hit rate; 93% of children were correctly classified. Detailed analysis revealed that 88% of children are correctly classified in Cluster 1, 95% are correctly classified in Cluster 2, 94% in Cluster 3, and 97% in Cluster 4. Table 2 provides the structure weights for the discriminant functions.

The following variables showed highest absolute values for the first discriminant function: family cohesion, internalizing coping, distancing coping, and behavior problems reflecting somatization, sexualized behavior, thought problems, and aggressive behaviors. Inspection of group centroids suggests that this constellation appears to particularly describe Cluster 3 children. On the second function, identity of the perpetrator and anxiety behavior problems showed the highest absolute values. A constellation of higher frequency of extrafamilial abuse and less anxiety symptoms appears to characterize Cluster 4 children. The third function suggests that severe abuse coupled with high problem-solving coping and low externalizing coping best characterized Cluster 2 children. Follow-up analyses were conducted using discriminant functions scores as the dependent variable and the cluster groups as the independent variable in a one-way ANOVA followed by post hoc tests. These analyses showed that all groups significantly differentiated from each other for both the first, $F(3, 119) = 93.50$, $p = .000$, and second, $F(3, 119) = 47.14$, $p = .000$, function. Results for the third function, $F(3, 119) = 22.18$, $p = .000$, revealed a main effect for cluster groups, and post hoc analyses indicated that all groups were significantly different from each other, except for Clusters 1 and 4. To further interpret cluster profiles and identify the unique attributes of each cluster, as well as to contrast each cluster group with children in the comparison group, a series of ANOVAs and post hoc tests also were conducted and results are presented in Table 3. In addition, to validate the cluster solution, clusters were compared with other variables not initially used in forming the cluster solution, as proposed by Hair et al. (1998). A set of complementary variables was thus used to validate the clusters. These validation variables fall into the same categories as the initial clustering variables: (a) abuse-related variables (duration of the abuse), (b) family environment (family conflict), (c) children's personal characteristics (perceived social support and self-esteem), and (d) children's behavior problems (withdrawal, delinquent behavior, attention disorder, and social problems). The results of these analyses are presented in Table 4.

Description of clusters

Mean behavioral problems scores for each cluster are plotted in Figure 1. Examination of the four clusters regarding characteristics of the sexual abuse, presence of personal and familial protective and risk factors and level of associated behavioral problems revealed the following profiles of SA children:

Two clusters (Clusters 1 and 3) identify children displaying significant behavioral problems. Cluster 1 (n = 40), is subsequently named Anxiety Constellation Group. Children display significant more behavioral problems than children in the comparison group for all CBC subscales, the most elevated scales being Anxiety (*T score* = 68), Delinquent (*T score* = 65) and Attention (*T score* = 65). When contrasted to Cluster 3 children, they show less thought problems, sexualized behaviors, aggressive behaviors, social problems, attention problems, and withdrawal behavior problem scores but comparable scores for the anxiety, somatization, and delinquent subscales. Relative to children in the comparison group, Cluster 1 children use more externalizing strategies to cope with an interpersonal problem and less problem-solving coping.

Cluster 3 (n = 31) subsequently named Severe Distress Group, identified children that are found to display the highest scores for all CBC subscales (*T score* = 62), are highly elevated and reach clinical norms (*T score* = 69). ANOVAS indicate that they display higher scores on all CBC scales when contrasted to children in the comparison group to children in Clusters 2 and 4. When contrasted to Cluster 1 children, they are found to display higher scores on all scales except for the Anxiety, Somatization, and Delinquent subscales. With regard to abuse-related variables, children more often report severe sexual acts (90% completed penetration or attempted penetration) when contrasted to children in both Clusters 1 and 4. The cluster is further differentiated from other clusters by family environment typified by less family cohesion. They also rely more often on distancing strategies to cope with stressors compared with SA children in the other three clusters as well as with comparison group children.

Two clusters (Clusters 2 and 4) appear to identify children functioning within norms. The distinctive features of Cluster 4 (n = 32), subsequently named Victims of Less Severe SA Group, relate to the identity of the perpetrator and the length of the abuse. Children less often experience abuse involving immediate family members than children in the other three clusters. Validation variables indicate that Cluster 4 children less often report chronic abuse than do children in the other clusters. When contrasted to children from the comparison group, no significant differences are apparent concerning behavioral problems. In terms of potential protective factors, children in Cluster 4 obtain lower self-esteem scores than do comparison children but do not achieve significantly different scores concerning coping skills. No significant difference is noted concerning family cohesion and family conflict between Cluster 4 children and comparison group children.

Cluster 2 (n = 20), subsequently named Resilient Group, reveals a profile in which children did not show clinically elevated scores on the CBC, although they reported a comparable level of severe sexual abuse (75%) to Cluster 3 children. Children in this cluster reported severe acts of abuse more frequently than Cluster 1 and Cluster 4 children. The distinctive features relate to the fact that these children rely less on avoidance coping than other SA children and rely more on approach coping than Cluster 1 and Cluster 4 SA children. They also present higher self-esteem scores than do children in Clusters 3 and 4. When contrasted with nonabused peers, they rely less on avoidance coping and are living in a family where there is less conflict.

Additional analyses were conducted on demographic variables (gender and age of children, mothers' age, level of education, marital and socio-economic status) to examine whether these factors are related to clusters. No significant differences among clusters were found on demographic variables except for marital status. Children in cluster 4 Victims of less severe SA Group, were less likely to live in single-parent families than children in the other clusters (Cluster 1: 65%; Cluster 2: 55%; Cluster 3: 61%; Cluster 4: 25%; $\chi^2(3)$, $p < 0.05$). The analyses failed to identify significant differences regarding gender because the distribution of boys is similar across clusters (Cluster 1: 10%, Cluster 2: 10%, Cluster 3: 13%, Cluster 4: 9%, Comparison group: 10.6%), $\chi^2(3) = .248$, *ns*. Similarly, mean age in months) of children is not significantly different across clusters (Cluster 1: 114.24, Cluster 2: 112.20, Cluster 3: 105.05, Cluster 4: 110.42, Comparison group: 113.08), $F(4, 214) = 1.435$, *ns*.

Discussion

Relying on a sample of both intra- and extrafamilial SA, the present study identifies four different clusters of children disclosing SA. While considering abuse-related characteristics, personal factors, and familial factors, a first cluster referred to children subjected to chronic SA but experiencing mainly anxiety symptoms (33% of the sample), whereas a second cluster identified children displaying a host of negative outcomes (25% of the sample) reaching clinical levels for both internalizing and externalizing difficulties, suggesting a broader array and more pervasive behavioral problems following disclosure. Two clusters described children who were displaying less negative outcomes: a first cluster (26% of the sample) was defined by children experiencing less severe SA, whereas a second cluster describes resilient children (16% of the sample) who, while subjected to severe intrafamilial SA, displayed efficient coping skills.

Inclusion of a control group in the design of this study and comparison of each cluster with other subgroups enables identification of distinctive features. Children classified in the Anxiety Constellation group comprise the greatest number of sexually abused children. When contrasted to nonabused peers, they are found to display significant behavior problems on all CBC subscales, however when contrasted to other sexually abused children, analysis of their profiles clearly reveal a peak for the Anxiety subscale. The Severe Distress group contains the greatest percentage of children reporting invasive sexual acts as 90% reported attempted or complete penetration. Among distinctive features of this cluster, children obtained the lowest score on family cohesion when compared with other children disclosing SA. Children in this subgroup are also found to obtain both lower familial cohesion and higher conflict when compared to control. In fact children in the Severe Distress group are clearly different from control children both in terms of personal variables (using significantly more of all types of avoidance coping strategies, present lower levels of self-esteem) and family characteristics (less cohesion, more conflict). They also display significantly more behavior problems and all CBC subscales when contrasted with control children and they obtain significantly higher scores for all scales except Anxiety, Somatization and Delinquent subscales when compared to the Anxiety Constellation group.

Data suggest that children in the Resilient Group appear to benefit from a series of protective factors that may help them overcome the trauma associated with SA. None of the abuse-

related variables distinguishes this group from the Severe Distress group suggesting the trauma experienced is of similar magnitude. However they clearly present a set of personal competencies (relying less on avoidance coping and presenting higher self-esteem) to cope with the aftermaths of SA, thus confirming coping as a crucial variable in identifying pathways of resilience (Banyard, 2003). The family environment is also susceptible to offer more assets to overcome and help reduce the impact of SA, being more cohesive and less conflict-ridden than that of children in the Severe Distress group. However, one possibility is that this group is less willing to disclose pathology or more prone to social desirability responding

In the present sample, approximately one child out of five experienced less severe abuse, forming the group named Less Severe SA. These children present the highest prevalence of abuse by a stranger (19%) and lowest prevalence of abusive episodes involving an immediate family perpetrator (19%) when compared with other clusters. For these children, validation of the clusters confirms that children are involved in less severe SA as the group contains the greatest percentage of children (48%) reporting a single episode of abuse. Children in Cluster 4 were found to be more likely to live in a two-parent house hold. Children in intact families are less likely to experience social and emotional problems, whereas children in single-parent families present a higher risk of experiencing social and emotional problems (Amato, 2005). Children who grow up in two-parent families may receive more effective parenting and may be emotionally closer to both parents and subjected to fewer stressful events. Thus, in contrast to children living in single-parent families, children in intact families may not be confronted with other stressors (economic hardship, residential changes, loss of contact with a parent, etc.) that may impede on behavioral outcomes (Amato, 2005).

Surprisingly, perceived peer and parental support variables did not discriminate between clusters and nor between SA and control children, suggesting that these variables are not as potent as, for instance, coping strategies in differentiating profiles. A number of empirical reports have documented the importance of parental and more specifically maternal support in predicting children's outcomes (Lovett, 2004). One possible explanation refers to the low variability of the parental support measure in the present study and a possible ceiling effect (M ranging from 20.7 to 21.8, maximum score = 24). Thus, children report a relatively high score of maternal support. Several hypotheses may be suggested to account for this result; the measure used is not sensitive enough or the present sample involves highly supportive mothers because all took necessary action to provide medical services to the child by consulting the clinic; in this respect, mothers did not deny the child's disclosure. The general measure of perceived parental support used in the present study is perhaps not sensitive enough to distinguish parental levels of specific support offered following disclosure. Indeed, perceived social support from friends and parents were evaluated in general terms and not in specific relation to the SA. Children were asked to think about actions they perform when confronting common stressful situations and to evaluate support they generally perceive from parents and friends. Further reports may consider exploring multiple facets of support from both the parent's as well as the child's perspective thus providing a more comprehensive assessment of the predictive power of this variable. Cohen and Wills (1985) stipulate that support from others may have a greater influence on psychological well-being when the specific support offered corresponds to the one required to overcome a

particular stressor. It is probable that peers do not respond to all the needs of the child disclosing SA. Given the private nature of the SA, many children may not even disclose the abuse to their peers at this age-period. In addition, peers may become more salient for assuming social support functions later on in early adolescence (Berndt, 1989; Harter, 1985; Rosenthal et al., 2003; Sullivan, 1983).

Implications of the current findings relate to the treatment of children disclosing SA since the data provides an initial step toward a more systematic comprehension of the array of symptom profiles in this clientele. Given the vast heterogeneity of cases, no single type of intervention is likely to be effective for all sexually abused children (Cohen, Berliner, & Mannarino, 2000; Saywitz et al., 2000). Tailoring interventions to distinct subgroups may enhance potential benefits for children. In addition, a better matching of level of services needed may ensure lower dropout rates (Skowron & Reinemann, 2005). The present data clearly suggest that clinicians need to go beyond abuse-related variables to orient treatment. The identity of the perpetrator, the duration of the abuse and the specific sexual acts involved are not the sole factors involved in the development of a particular constellation of behavior problems. Both personal (coping) and family factors (degree of conflict and cohesion) contributed relevant information to the derived clusters.

The derived typology highlights significant differences between subgroups with different needs, different personal resources and family vulnerabilities that are unlikely to be met by a single therapy plan. The clinical profile of children in the Anxiety Constellation cluster suggest behavioral problems more specifically related to anxiety. Trauma-focused cognitive behavioral therapy (TF-CBT) is well documented and has been found to be effective in relieving such symptoms and related symptoms of sexually abused children (Putnam, 2003; Ross & O'Carroll, 2004). A recent randomized controlled trial has demonstrated the superiority of the approach to child-centered therapy (Cohen, Deblinger, Mannarino, & Steer, 2004) and the maintenance of the effects (Cohen, Mannarino, & Knudsen, 2005). Children identified in the Severe Distress cluster may need to benefit from a more comprehensive treatment plan that considers both the aftermath of sexual abuse as well as concomitant issues facing the child and his or her family. Although an individual treatment approach may be suitable for these cases, concomitant issues facing the family may be more effectively addressed in a family therapy format than in an individual therapy.

The finding that some children do not display significant behavioral problems, despite reporting severe SA is consistent with prior research reports (Kendall-Tackett, Williams, & Finkelhor, 1993). Although children identified as resilient do not present behavioral problems as reported by their mothers, they may experience other symptoms not evaluated in the present study. Even more difficult to confirm is whether some children are truly resilient or whether SA is associated with latent effects. The limited longitudinal data available suggests that a significant proportion of initially asymptomatic children deteriorate over time (Calam et al., 1998; Mannarino et al., 1991). Findings thus highlight the need to carefully monitor children over several years following disclosure (Webster, 2001) and in terms of treatment recommendations, clinicians need to plan for periodic assessment to evaluate possible sleeper effects (Saywitz et al., 2000). In a recent review of the literature published in the last decade, Putnam (2003) concludes that the SA field needs research trials with

longitudinal follow-up. Such a design would permit a more thorough evaluation of resilient pathways.

Our analyses also identified a group of children who, at least on the basis of the assessment instruments used, showed little psychological distress, when compared to control children despite of their reports of SA. Although these children may be victims of less severe abuse, the disclosure is likely to trigger a crisis in the family. Asymptomatic children may benefit from psychoeducational interventions focusing on abuse prevention strategies in order to reduce the risk of revictimization and help them voice specific issues linked to the disclosure as well as clarify any potential misperceptions (Putnam, 2003). Parents are also likely to benefit from short-term psychoeducational sessions in which common reactions facing families following disclosure can be discussed and by means of which they can be taught possible signs of difficulties that may surface when the child is confronted to cues reminding the abuse or achieve a later developmental stage (Saywitz et al., 2000). Clinicians may need to offer additional guidance and counseling to mothers likely to experience distress as the child's disclosure may precipitate memories of past sexual abuse. Prior reports have documented that close to half of mothers of sexually abused children report antecedents of sexual abuse (Collin-Vézina et Cyr, 2003).

This study further adds to the literature on the application of cluster analysis for the identification of clinically useful referral subgroups. Future studies are needed to confirm the identified clusters and explore whether the typology is reliable across diverse samples of children reporting SA. Although these results provide valuable data for treatment orientation with this clientele, there is also a need to validate the clusters in follow-up measures and ascertain the stability of the typologies and the potentially different long-term trajectories of children in each given cluster. The clusters were derived from behavioral questionnaires completed by the mother only and are not measures evaluating outcomes more specifically related to SA. In future studies, PTSD symptoms need to be evaluated thoroughly and research designs need to rely on a multi-informant method. Although maternal report may indeed reflect actual child behavior problems, maternal distress may influence their perception of their child's behavior problem, especially in the evaluation of internalizing behavior problems (Kroes, Veerman, & De Bruyn, 2003). Future studies may benefit from gathering not only mothers' and childrens' reports of children's behavioral problems to gain a more definite portrayal of profiles of sexually abused children.

Other factors not investigated in the present study may relate to the typologies and need to be considered in future investigations. The issue of comorbidity of multiple forms of maltreatment is a key variable that needs to be explored. Considerable overlap appears to exist in the occurrence of maltreatment types (Higgins & McCabe, 2001), and behavior problems are associated with reports of a larger number of different maltreatment experiences (Higgins & McCabe, 2000a, 2000b). In addition studies need to pursue in depth-analysis of potential gender differences in outcomes following disclosure of SA. Although analyses on sociodemographic variables did not identify gender as a discriminating variable for the derived clusters, findings may reflect the nature of the sample studied (i.e. only 13 boys out of a sample of 123 children). As with other studies in the field, gender-based analyses are often difficult because samples often have very few male victims

(Tyler, 2002). Given the lower reported prevalence of SA for boys, future investigations need to plan a longer recruitment phase to achieve a large enough sample to document possible heterogeneity of clinical profiles of boys.

Notwithstanding these limitations, the present data represent an initial step helping to disentangle the heterogeneity of the clientele. The data supports the need for a comprehensive individualized assessment that can capture the diversity of profiles and treatment plan for children disclosing SA. A first step is defining appropriate treatment options given presenting case characteristics or clinical profiles. Clearly, a host of different treatment options are required to meet the range of individual needs of children and their families having to cope with the aftermath of SA. Identification of clinical profiles may inform treatment approaches. Hopefully further analyses will pursue this line of inquiry and set up a research agenda to explore how each subgroup respond to treatment, thus identifying the best treatment approach for each child disclosing SA.

Acknowledgments

This research was funded by grants from the *Conseil québécois de la recherche sociale* (CQRS) and the Social Sciences Research Council of Canada (SSRHC) awarded to the first author. The authors wish to thank the children and the parents who participated in the study and members of the Clinique de pédiatrie socio-juridique de l'Hôpital Sainte-Justine. Our special thanks are extended to Jacques Joly for statistical consultation.

References

- Achenbach, TM. Integrative Guide for the 1991 CBCL/4-18, YSR, and TFR Profiles. Burlington, VT: University of Vermont Department of Psychiatry; 1991.
- Amato PR. The impact of family formation change on the cognitive, social, and emotional well-being of the next generation. *The Future of Children*. 2005; 15(2):75–96. [PubMed: 16158731]
- Bal S, DeBourdeaudhuij I, Crombez G, Van Oost P. Differences in trauma symptoms and family functioning in intra- and extrafamilial sexually abused adolescents. *Journal of Interpersonal Violence*. 2004; 19(1):108–123. [PubMed: 14680532]
- Bal S, Van Oost P, De Bourdeaudhuij I, Crombez G. Avoidant coping as a mediator between self-reported sexual abuse and stress-related symptoms in adolescents. *Child Abuse & Neglect*. 2003; 27:883–897. [PubMed: 12951138]
- Banyard VL. Explaining links between sexual abuse and psychological distress: Identifying mediating processes. *Child Abuse & Neglect*. 2003; 27:869–875. [PubMed: 12951136]
- Barker-Collo S, Read J. Models of response to childhood sexual abuse: Their implications for treatment. *Trauma Violence and Abuse*. 2003; 4(2):95–111.
- Beitcham JH, Zucker KJ, Hood JE, DaCosta GA, Akman D. A review of the short-term effects of child sexual abuse. *Child Abuse & Neglect*. 1991; 15(4):537–556. [PubMed: 1959086]
- Bennett SE, Hughes HM, Luke DA. Heterogeneity in patterns of child sexual abuse, family functioning, and long-term adjustment. *Journal of Interpersonal Violence*. 2000; 15(2):134–157.
- Berndt, TJ. Obtaining support from friends during childhood and adolescence. In: Belle, D., editor. *Children's social networks and social supports*. New York: John Wiley and Sons; 1989. p. 308-331.
- Boney-McCoy S, Finkelhor D. Is youth victimization related to trauma symptoms and depression after controlling for prior symptoms and family relationships? A longitudinal prospective study. *Journal of Consulting and Clinical Psychology*. 1996; 64:1406–1416. [PubMed: 8991327]
- Borgen FH, Barnett DC. Applying cluster analysis in counseling psychology research. *Journal of Counseling Psychology*. 1987; 34:456–468.
- Briere, J., Elliot, DM. Immediate and long term impacts of child sexual abuse. In: Franey, K. Geffner, R., Falconer, R., editors. *The Cost of Child Maltreatment: Who Pays? We All Do*. San Diego: Family Violence and Sexual Assault Institute; 2001. p. 121-136.

- Cahill LT, Kaminer RK, Johnson PG. Developmental, cognitive, and behavioral sequelae of child abuse. *Child and Adolescent Psychiatric Clinics of North America*. 1999; 8(4):827–843. [PubMed: 10553206]
- Calam R, Horne L, Glasgow D, Cox A. Psychological disturbance and child sexual abuse: A follow-up study. *Child Abuse & Neglect*. 1998; 22:901–913. [PubMed: 9777260]
- Causey DL, Dubow EF. Development of a Self-Report Coping Measure for elementary school children. *Journal of Clinical Child Psychology*. 1992; 21:47–59.
- Chaffin M, Wherry JN, Dykman R. School age children's coping with sexual abuse: Abuse stresses and symptoms associated with four coping strategies. *Child Abuse & Neglect*. 1997; 21:227–240. [PubMed: 9056102]
- Cohen JA, Deblinger L, Mannarino A. Treating traumatized children – A research review and synthesis. *Trauma, Violence, & Abuse*. 2000; 1(1):29–46.
- Cohen JA, Deblinger L, Mannarino A, Steer A. A multisite, randomized controlled trial for children with sexual abuse-related PTSD symptoms. *Journal of the American Academy of Child and Adolescent Psychiatry*. 2004; 43(4):393–402. [PubMed: 15187799]
- Cohen JA, Mannarino AP. Factors that mediate treatment outcome of sexually abused preschool children: Six and 12-month follow-up. *Journal of the American Academy of Child and Adolescent Psychiatry*. 1998; 37(1):44–51. [PubMed: 9444899]
- Cohen JA, Mannarino AP, Knudsen K. Treating sexually abused children: 1 year follow-up of a randomized controlled trial. *Child Abuse & Neglect*. 2005; 29:135–145. [PubMed: 15734179]
- Cohen S, Wills TA. Stress, social support, and the buffering hypothesis. *Psychological Bulletin*. 1985; 98:310–357. [PubMed: 3901065]
- Collin-Vézina D, Cyr M. La transmission de la violence sexuelle: Description du phénomène et pistes de compréhension. *Child Abuse & Neglect*. 2003; 27:489–507. [PubMed: 12718959]
- Collin-Vézina D, Hébert M. Comparing dissociation and PTSD in sexually abused school-aged girls. *Journal of Nervous and Mental Disease*. 2005; 193:47–52. [PubMed: 15674134]
- Comrey AL. A method for removing outliers to improve factor analytic results. *Multivariate Behavioral Research*. 1985; 20:273–281. [PubMed: 26781966]
- Elhai JD, Flitter JM, Klotz GSN, Sellers AH. Identifying subtypes of women survivors of childhood sexual abuse: An MMPI-2 cluster analysis. *Journal of Traumatic Stress*. 2001; 14(1):157–175.
- Elliot AN, Carnes CN. Reactions of nonoffending parents to the sexual abuse of their children: A review of the literature. *Child Maltreatment*. 2001; 6(4):314–331. [PubMed: 11675815]
- Fergusson D, Horwood L, Lynskey M. Childhood sexual abuse and psychiatric disorder in young adulthood, I: prevalence of sexual abuse and factors associated with sexual abuse. *Journal of the American Academy of Child and Adolescent Psychiatry*. 1996; 35:1355–1364. [PubMed: 8885590]
- Folkman S, Moskowitz JT. Coping: Pitfalls and promise. *Annual Review of Psychology*. 2004; 55:745–774.
- Follette WC, Naugle AE, Follette VM. MMPI-2 profiles of adult women with child sexual abuse histories: Cluster-analytic findings. *Journal of Consulting and Clinical Psychology*. 1997; 65(5): 858–866. [PubMed: 9337504]
- Hair, JF., Anderson, RE., Tatham, RL., Black, WC. *Multivariate Data Analysis*. 5. Prentice-Hall; Upper Saddle River: 1998.
- Harter, S. *Manual for the Perceived Competence Scale for Children*. University of Denver; 1985a.
- Harter, S. *Manual for the Social Support Scale for Children*. University of Denver; 1985b.
- Hébert M, Parent N, Daignault IV, Tremblay C. Validation of the Self-Report Coping Scale. (submitted).
- Hébert, M., Tourigny, M. Child sexual abuse prevention: A review of evaluative studies and recommendations for program development. In: Shohov, SP., editor. *Advances in Psychology Research*. Vol. 29. NY: Nova Science Publisher; 2004. p. 123-155. chapter 5
- Hébert M, Tremblay C, Parent N, Daignault IV, Piché C. Correlates of behavioral outcomes in sexually abused children. *Journal of Family Violence*. (in press).

- Higgins DJ, McCabe MP. Multi-type maltreatment and the long-term adjustment of adults. *Child Abuse Review*. 2000a; 9:6–18.
- Higgins DJ, McCabe MP. Relationships between different types of maltreatment during childhood and adjustment in adulthood. *Child Maltreatment*. 2000b; 5(3):261–272. [PubMed: 11232272]
- Higgins DJ, McCabe MP. Multiple forms of child abuse and neglect: Adult retrospective reports. *Aggression and Violent Behavior*. 2001; 6:547–578.
- Holahan, CJ., Moos, RH. *Family Relationship Index (FRI)*. Palo Alto, CA: Consulting Psychologists Press; 1981.
- Holahan CJ, Moos RH. Life stressors, personal and social resources and depression: a four-year structural model. *Journal of Abnormal Child Psychology*. 1991; 100:31–38.
- Hulme PA, Agrawal S. Patterns of childhood sexual abuse characteristics and their relationships to other childhood abuse and adult health. *Journal of Interpersonal Violence*. 2004; 19(4):389–405. [PubMed: 15038881]
- Johnson BK, Kenkel MB. Stress, coping and adjustment in female adolescent incest victims. *Child Abuse & Neglect*. 1991; 15:293–305. [PubMed: 2043980]
- Kendall-Tackett KA, Williams LM, Finkelhor D. Impact of sexual abuse on children: A review and synthesis of recent empirical studies. *Psychological Bulletin*. 1993; 113:164–180. [PubMed: 8426874]
- Koverola C, Pound J, Heger A, Lytle C. Relationship of child sexual abuse to depression. *Child Abuse & Neglect*. 1993; 17(3):393–400. [PubMed: 8330226]
- Kroes G, Veerman JW, De Bruyn EEJ. Bias in parental reports? Maternal psychopathology and the reporting of problem behavior in clinic-referred children. *European Journal of Psychological Assessment*. 2003; 19(3):195–203.
- Ligezinska M, Firestone P, Manion IG, McIntyre J, Ensom R, Wells G. Children's emotional and Behavioral Reactions Following the Disclosure of Extrafamilial Sexual Abuse: Initial Effects. *Child Abuse & Neglect*. 1996; 20(2):111–125. [PubMed: 8838408]
- Lovett BB. Child sexual abuse disclosure: Maternal response and other variables impacting the victim. *Child and Adolescent Social Work*. 2004; 21:355–371.
- Mash, EJ., Barkley, RA. *Child Psychopathology*. 2. The Guilford Press; New York: 2003.
- McLeer SV, Dixon JF, Henry D, Ruggiero K, Escovitz K, Niedda T, Scholle R. Psychopathology in non-clinically referred sexually abused children. *Journal of the American Academy of Child and Adolescent Psychiatry*. 1998; 37(12):1326–1333. [PubMed: 9847506]
- Moos, RH., Moos, BS. *Family Environment Scale Manual*. Palo Alto, CA: Consulting Psychologist Press; 1981.
- Moos, RH., Moos, BS. *Family environment scale manual: Development, applications, research*. 3. Palo Alto, CA: Consulting Psychologists Press; 1994.
- Nurcombe B. Child sexual abuse I: Psychopathology. *Australian and New Zealand Journal of Psychiatry*. 2000; 34:85–91. [PubMed: 11185950]
- Paolucci EO, Genuis ML. A meta-analysis of the published research on the effects of child sexual abuse. *The Journal of Psychology*. 2001; 135:17–36. [PubMed: 11235837]
- Parent, N., Hébert, M. *Adaptation française du "History of Victimization Form" by Wolfe, Gentile & Boudreau (1987)*. Ste-Foy: Département de mesure et évaluation, Université Laval; 1995. Questionnaire sur la victimisation de l'enfant.
- Putnam FW. Ten-year research update review: Child sexual abuse. *Journal of American Academy of Child and Adolescent Psychiatry*. 2003; 42:269–277.
- Rosenthal S, Feiring C, Taska L. Emotional support and adjustment over a year's time following sexual abuse discovery. *Child Abuse & Neglect*. 2003; 27:641–661. [PubMed: 12818612]
- Ross G, O'Carroll P. Cognitive behavioural psychotherapy intervention in childhood sexual abuse: Identifying new directions from the literature. *Child Abuse Review*. 2004; 13:51–64.
- Roth S, Cohen LJ. Approach, avoidance, and coping with stress. *American Psychologist*. 1986; 41:813–819. [PubMed: 3740641]
- Roth S, Newman E. The process of coping with incest for survivors: Measurement and implications for treatment and research. *Journal of Interpersonal Violence*. 1993; 8:363–377.

- Russell DEH. The incidence and prevalence of intrafamilial and extrafamilial sexual abuse of female children. *Child Abuse & Neglect*. 1983; 7:133–146. [PubMed: 6605793]
- Saunders, BE, Berliner, L., Hanson, RF., editors. *Child physical and sexual abuse: Guidelines for treatment (Final report: January 15, 2003)*. Charleston, SC: National Crime Victims Research and Treatment Center; 2003.
- Saywitz KJ, Mannarino AP, Berliner L, Cohen JA. Treatment for sexually abused children and adolescents. *American Psychologist*. 2000; 55(9):1040–1049. [PubMed: 11036707]
- Shapiro DL, Levendosky AA. Adolescent survivors of childhood sexual abuse: The mediating role of attachment style and coping in psychological and interpersonal functioning. *Child Abuse & Neglect*. 1999; 23(11):1175–1191. [PubMed: 10604070]
- Skowron E, Reinemann DHS. Effectiveness of psychological interventions for child maltreatment: A meta-analysis. *Psychotherapy: Theory, Practice, Training*. 2005; 42(1):52–71.
- Spaccarelli S, Kim S. Resilience criteria and factors associated with resilience in sexually abused girls. *Child Abuse & Neglect*. 1995; 19:1171–1182. [PubMed: 8528822]
- Spaccarelli S, Fuchs C. Variability in symptom expression among sexually abused girls: Developing multivariate models. *Journal of Clinical Child Psychology*. 1997; 26(1):24–35. [PubMed: 9118173]
- Statistics Canada. *A statistical profile*. Ottawa: Minister of Industry; 2003. Family violence in Canada.
- Sullivan, HS. *The interpersonal theory of psychiatry*. New York: Norton; 1983.
- Tremblay C, Hébert M, Piché C. Coping strategies and social support as mediators of consequences in child sexual abuse victims. *Child Abuse & Neglect*. 1999; 23:929–945. [PubMed: 10505906]
- Tremblay C, Hébert M, Piché C. Type I and II posttraumatic stress disorder in sexually abused children. *Journal of Child Sexual Abuse*. 2000; 9(1):65–90.
- Trickett PK, Noll JG, Reiffman A, Putnam FW. Variants of intrafamilial sexual abuse experience: Implications for short- and long-term development. *Development and Psychopathology*. 2001; 13(4):1001–1019. [PubMed: 11771904]
- Trocme, N., MacLaurin, B., Fallon, B., Daciuk, J., Billingsley, D., Tourigny, M., Mayer, M., Wright, J., Barter, K., Burford, G., Hornick, J., Sullivan, R., McJenzie, B. *Canadian Incidence Study of Reported Child Sexual Abuse and Neglect: Final Report*. Ottawa, Ontario: Minister of Public Works and Government Services of Canada; 2001.
- Tyler AK. Social and emotional outcomes of childhood sexual abuse – A review of recent research. *Aggression and Violent Behavior*. 2002; 7:567–689.
- Valle LA, Silovsky JF. Attributions and adjustment following child sexual abuse and physical abuse. *Child Maltreatment*. 2002; 7:9–25. [PubMed: 11838520]
- Webster RE. Symptoms and long-term outcomes for children who have been sexually assaulted. *Psychology in the Schools*. 2001; 38(6):533–547.
- Whiffen VE, MacIntosh HB. Mediators of the link between childhood sexual abuse and emotional distress. *Trauma, Violence, & Abuse*. 2005; 6(1):24–39.
- Wolfe, DA. *Child abuse: Implications for child development and psychopathology*. 2. Thousand Oaks, CA: Sage; 1999.
- Wolfe, VV., Gentile, C., Bourdeau, P. Unpublished assessment instrument. London Health Science Centre; London, Ontario, Canada: 1987. History of Victimization Form.

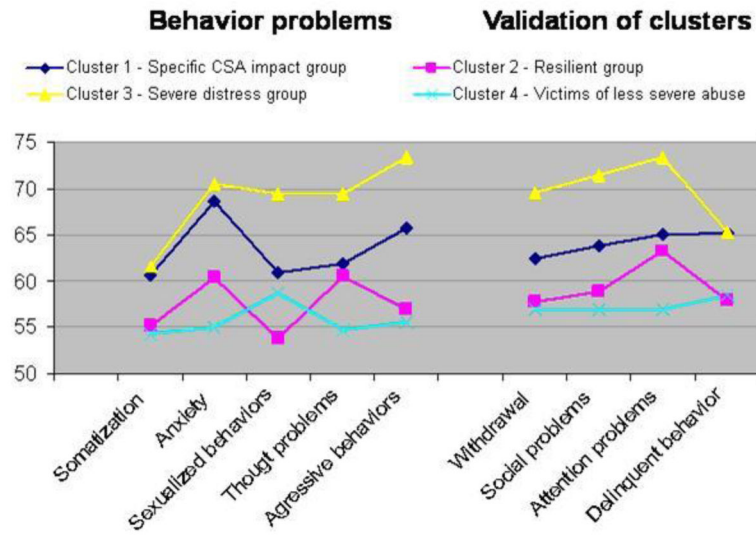


Figure 1.
Mean Scores for CBC subscales × Cluster Group

Table 1

Agglomeration coefficient analysis

| Number Of clusters | Agglomeration Coefficient | % change in coefficient to the next level |
|--------------------|---------------------------|---|
| 8 | 895,20 | 2,98 |
| 7 | 938,81 | 3,65 |
| 6 | 992,83 | 3,75 |
| 5 | 1047,20 | 4,20 |
| 4 | 1108,64 | 4,21 |
| 3 | 1170,27 | 7,21 |
| 2 | 1275,89 | 12,85 |
| 1 | 1464,00 | |

Table 2

Mean scores (standard deviations) based on cluster membership or comparison group (clustering variables)

| | Cluster 1 (n = 40) | Cluster 2 (n = 20) | Cluster 3 (n = 31) | Cluster 4 (n = 32) | <i>F</i> (3,119) | Comparison group (n = 123) | <i>F</i> (4,241) |
|-------------------------|----------------------------|---------------------------|-----------------------------|-----------------------------|------------------|-------------------------------|------------------|
| Abuse-related variables | | | | | | | |
| Abuse severity | | | | | | | |
| Severe | 40% _b | 75% _a | 90% _a | 63% _{a,b} | 9.09 | | |
| Moderate | 45% | 25% | 10% | 34% | | | |
| Less severe | 15% | 0% | 0% | 3% | | | |
| Perpetrator identity | | | | | | | |
| Immediate family | 65% _a | 50% _a | 45% _a | 19% _b | 10.31 | | |
| Extended family | 20% | 20% | 16% | 16% | | | |
| Known perpetrator | 15% | 30% | 39% | 47% | | | |
| Unknown | 0% | 0% | 0% | 19% | | | |
| Family context | | | | | | | |
| Cohesion | 7.89 (1.36) _b | 7.75 (1.52) _b | 6.13 (2.90) _a | 7.47 (1.52) _b | 5.56 | 7.67 (1.81) ₃ | 4.92 |
| Coping strategies | | | | | | | |
| Problem solving | 13.90 (3.80) _a | 17.50 (2.59) _c | 16.26 (2.71) _{b,c} | 15.15 (3.44) _{a,b} | 6.31 | 15.82 (2.90) ₁ | 5.59 |
| Internalizing | 10.50 (3.22) _b | 7.00 (2.53) _a | 12.84 (3.89) _b | 10.74 (3.80) _b | 11.53 | 10.74 (3.63) _{2,3} | 8.27 |
| Externalizing | 8.83 (3.64) _b | 4.80 (1.32) _a | 10.39 (4.22) _b | 6.68 (3.47) _b | 10.56 | 6.68 (3.44) _{1,3} | 12.17 |
| Distancing | 8.65 (3.05) _b | 6.05 (1.91) _a | 12.65 (4.23) _c | 8.23 (3.29) _b | 17.61 | 8.23 (3.55) _{2,3} | 14.64 |
| Children adjustment | | | | | | | |
| Anxiety | 68.52 (8.48) _b | 60.35 (6.36) _a | 70.52 (12.17) _b | 55.09 (6.79) _a | 20.72 | 57.38 (7.77) _{1,3} | 27.94 |
| Thought problems | 61.85 (7.21) _b | 60.50 (7.49) _b | 69.45 (6.95) _c | 54.75 (5.50) _a | 24.87 | 55.92 (6.88) _{1,2,3} | 29.39 |
| Somatization | 60.63 (8.35) _b | 55.20 (5.23) _a | 61.68 (7.95) _b | 54.43 (4.37) _a | 8.58 | 55.57 (6.30) _{1,3} | 9.84 |
| Sexualized behavior | 60.87 (10.63) _b | 53.85 (6.95) _a | 69.42 (11.68) _c | 58.69 (8.61) _{a,b} | 11.44 | 54.41 (7.32) _{1,3} | 20.91 |
| Aggressive behavior | 65.65 (9.73) _b | 57.00 (7.67) _a | 73.32 (10.73) _c | 55.62 (6.47) _a | 25.05 | 55.61 (7.57) _{1,3} | 36.11 |

Note. All *F*s significant ($p < 0.05$). Scores with the same subscript are not significantly different from each other but are significantly different with different subscripts ($p < 0.05$).

Table 3

Mean scores (standard deviations) based on cluster membership or comparison group (validation variables)

| | Cluster 1 (n = 40) | Cluster 2 (n = 20) | Cluster 3 (n = 31) | Cluster 4 (n = 32) | <i>F</i> (3,119) | Comparison group (n = 123) | <i>F</i> (4,241) |
|--------------------------|-----------------------------|-----------------------------|----------------------------|----------------------------|------------------|-------------------------------|------------------|
| Abuse-related variable | | | | | | | |
| Length of the abuse | | | | | | | |
| Chronic | 53% _a | 47% _a | 52% _a | 26% _b | 3.88 | | |
| Few episode | 37% | 37% | 19% | 26% | | | |
| One episode | 10% | 16% | 26% | 48% | | | |
| Family context | | | | | | | |
| Absence of conflict | 6.78 (1.98) _a | 7.23 (1.22) _b | 5.03 (2.89) _a | 6.41 (2.05) _{a,b} | 4.97 | 6.44 (2.17) _{2,3} | 4.35 |
| Perceived social support | | | | | | | |
| Parents | 21.00 (3.13) | 21.80 (2.61) | 20.72 (3.09) | 21.44 (2.44) | 0.72 ns | 21.83 (2.83) | 1.20 ns |
| Friends | 18.99 (3.72) | 20.33 (2.81) | 19.13 (3.26) | 19.84 (3.14) | 0.97 ns | 20.01 (3.21) | 1.36 ns |
| Self-esteem | 18.97 (3.55) _{a,b} | 20.96 (2.49) _b | 17.37 (2.63) _a | 18.18 (4.47) _a | 5.39 | 19.81 (3.22) _{3,4} | 5.39 |
| Children adjustment | | | | | | | |
| Delinquent behavior | 65.10 (7.90) _b | 57.95 (7.11) _a | 69.32 (6.88) _b | 58.53 (7.84) _a | 14.13 | 54.79 (6.71) _{1,3} | 33.27 |
| Social problems | 63.73 (10.34) _b | 58.85 (8.70) _{a,b} | 71.48 (9.27) _c | 56.94 (7.82) _a | 14.83 | 55.99 (8.13) _{1,3} | 22.90 |
| Attention behavior | 65.07 (8.68) _b | 63.30 (9.68) _b | 73.35 (9.64) _c | 57.03 (8.59) _a | 17.20 | 56.59 (8.01) _{1,2,3} | 28.63 |
| Withdrawal | 62.48 (8.55) _a | 57.80 (7.35) _a | 69.52 (11.64) _b | 56.90 (7.32) _a | 12.16 | 56.39 (7.08) _{1,3} | 18.78 |

Note. All *F*s significant ($p < 0.05$). Scores with the same subscript are not significantly different from each other but are significantly different with different subscripts ($p < 0.05$).

TABLE 4

Mean Scores (*SDs*) Based on Cluster Membership or Comparison Group (Validation Variables)

| | Cluster 1 (<i>n</i> = 40) | Cluster 2 (<i>n</i> = 20) | Cluster 3 (<i>n</i> = 31) | Cluster 4 (<i>n</i> = 32) | $\chi^2/F(3, 119)$ | Comparison Group (<i>n</i> = 123) | $\chi^2/F(4, 241)$ |
|--------------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|--------------------|---------------------------------------|--------------------|
| Gender | | | | | | | |
| % Boys | 10 | 10 | 13 | 9 | | 10.6 | 0.25 <i>ns</i> |
| Age | | | | | | | |
| Mean age (in months) | 114.24 | 112.20 | 105.05 | 110.42 | | 113.08 | 1.44 <i>ns</i> |
| Abuse-related variable | | | | | | | |
| Length of the abuse | | | | | | | |
| Chronic | 53% _a | 47% _a | 52% _a | 26% _b | 3.88 | | |
| Few episode | 37% | 37% | 19% | 26% | | | |
| One episode | 10% | 16% | 26% | 48% | | | |
| Family context | | | | | | | |
| Absence of conflict | 6.78 (1.98) _a | 7.23 (1.22) _b | 5.03 (2.89) _a | 6.41 (2.05) _{a,b} | 4.97 | 6.44 (2.17) _{2,3} | 4.35 |
| Perceived social support | | | | | | | |
| Parents | 21.00 (3.13) | 21.80 (2.61) | 20.72 (3.09) | 21.44 (2.44) | 0.72 <i>ns</i> | 21.83 (2.83) | 1.20 <i>ns</i> |
| Friends | 18.99 (3.72) | 20.33 (2.81) | 19.13 (3.26) | 19.84 (3.14) | 0.97 <i>ns</i> | 20.01 (3.21) | 1.36 <i>ns</i> |
| Self-esteem | 18.97 (3.55) _{a,b} | 20.96 (2.49) _b | 17.37 (2.63) _a | 18.18 (4.47) _a | 5.39 | 19.81 (3.22) _{3,4} | 5.39 |
| Behavior problems (<i>T</i> scores) | | | | | | | |
| Delinquent behavior | 65.10 (7.90) _b | 57.95 (7.11) _a | 69.32 (6.88) _b | 58.53 (7.84) _a | 14.13 | 54.79 (6.71) _{1,3} | 33.27 |
| Social problems | 63.73 (10.34) _b | 58.85 (8.70) _{a,b} | 71.48 (9.27) _c | 56.94 (7.82) _a | 14.83 | 55.99 (8.13) _{1,3} | 22.90 |
| Attention behavior | 65.07 (8.68) _b | 63.30 (9.68) _b | 73.35 (9.64) _c | 57.03 (8.59) _a | 17.20 | 56.59 (8.01) _{1,2,3} | 28.63 |
| Withdrawal | 62.48 (8.55) _a | 57.80 (7.35) _a | 69.52 (11.64) _b | 56.90 (7.32) _a | 12.16 | 56.39 (7.08) _{1,3} | 18.78 |

NOTE: All *F*s are significant ($p < .05$). Scores with the same subscript (letters for analyses between clusters or numbers for analyses contrasting clusters with the comparison group) are not significantly different from each other but are significantly different with different subscripts ($p < .05$).