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Natives' and Non-Natives' Relative Risk of Children's Exposure to Marital Dissolution: The Role of Family Volatility and Implications for Future Nuptiality in Native Populations

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Abstract

Using Proportional Hazards (PH) modeling, this study examined data from the Ontario Health Survey Supplement (1990/91) and a sample of Native Ontario reserve residents (Embree, 1993) in order to compare and contrast the risk and timing of early parental loss (prior to age 16) due to marital breakdown. We identify a number of family traits which, for both reserve Natives and general population residents alike, may place children at significantly increased liability of early parental loss through marital dissolution, including paternal substance abuse, maternal depression, and childhood sexual victimization. Family disruption is underestimated by 50 percent in the Native sample such that adjusting for non-response, Natives actually suffer more than twice the rate of marital breakdown (20.5 percent) of the non-reserve sample (8.8 percent). While Native families appear to exhibit similar precursors to marriage breakdown, they also dissolve more frequently, implying possible effects in other nuptiality-related processes such as increased non-marriage, reduced (marital) fertility, and reduced marital stability more characteristic of higher-order marriages.

Résumé

Fondée sur le modèle des hasards proportionnels, la présente étude examine des données issues de l'Ontario Health Survey Supplement (1990/91) et un échantillon de résidents d'une réserve autochtone de l'Ontario (Embree, 1993) afin d'établir une comparaison et une distinction entre les risques et la survenue de la perte précoce d'un parent (avant l'âge de 16) due à l'échec du mariage. Nous identifions plusieurs facteurs familiaux susceptibles d'augmenter ce risque, tant dans les réserves autochtones que dans la population en général : abus de psychotropes chez le père, dépression de la mère et sévices sexuels durant l'enfance. L'éclatement de la famille est sous-estimé de moitié dans l'échantillon autochtone. Compte tenu des non-réponses, le taux de ruptures des mariages est deux fois plus élevé chez les autochtones (soit de 20,5 p. 100 par rapport à 8,8 p. 100). Si les familles autochtones présentent les mêmes signes avant-coureurs que chez les non-autochtones, elles tendent à se dissoudre plus fréquemment et font état d'autres répercussions – augmentation du taux de non-mariage, et réduction de la fertilité et de la stabilité maritales caractéristiques du mariage parmi les couches élevées.

Key words: marital disruption, parental loss, cultural comparisons, hazards analysis

Introduction

Recent changes in family structure and stability in Canada and other Western societies have led to substantial increases in non-marriage, divorce rates and rates of remarriage, as well as increases in the numbers of children raised in lone-parent households or in step-families. Considerable research has been devoted to the potential adverse effects which many of these changes may have on the behavioral, psychological, and cognitive development of children. In general, the literature on the effects of family disruption finds that exposure to parental marital dissolution may result in increased rates of childhood problems, some of which may persist throughout the life course. Such results may include feelings of fear and disappointment about intimate relationships, lowered expectations, and a sense of powerlessness (Wallerstein, 1987); parent-adolescent emotional separation (Proulx and Koulack, 1987); difficulty in making commitments (Streitmatter, 1987); deterioration in school performance and behavior (Aro and Rantanen, 1992; Roseby and Deutsch, 1985; Bisnaire et

al., 1990; Hatzichristou, 1993); increased risk of suicide during adolescence and young adulthood (de Wilde et al., 1992; Tousignant et al., 1993; Bron et al., 1991); childhood affective disorders (Monck et al., 1994; Fergusson et al., 1994); conduct and oppositional disorders (Fergusson et al., 1993; Fergusson et al., 1994); maladaptive interpersonal behaviors (Silvestri, 1992); residential instability (Segal et al., 1992); early onset sexual activity (Fergusson et al., 1994); early home-leaving and non-marital childbearing (Kiernan, 1992); early family formation with increased likelihood of marriage break up (Kiernan, 1992; McLanahan and Bumpass, 1988; Bumpass et al., 1991); adult psychopathology (et al., 1992; Landerman et al., 1991); and, substance use and abuse (Stoker and Swadi, 1990; Estaugh and Power, 1991; Fergusson et al., 1993; Fergusson et al., 1994).

It is also recognized that the effects of marital dissolution on children may be mediated by the social, psychological and economic sequelae of family disruption or may be influenced by exposure to the parental conflict that usually precedes separation (Amato, 1993; Bifulco et al., 1987; Breier et al., 1988; Harris et al., 1986; Furstenberg and Teitler, 1994; Garber, 1992; Landerman et al., 1991). Children's reactions to separation or divorce have also been found to relate to various other factors, including the age of the child at the time of the divorce, the child's sex, length of time since the divorce, financial and custodial conditions after divorce, availability of support systems, personality and coping skills of the child, and the relationship of the child with the custodial and noncustodial parent (Furstenberg and Teitler, 1994; Garber, 1992; Landerman et al., 1991).

In view of recent substantial increases in rates of separation and divorce, and growing awareness of the potential impacts of marital dissolution on childhood development, our study aims to provide a profile of predisposing family attributes and behaviors leading to marital disruption. From a social policy standpoint, it is also particularly useful to examine systematically the extent to which our results might be similarly applicable to divergent cultural groups in Canadian society. While research on the household and family demography of the Native Indian population remains poorly developed (Department of Indian and Northern Affairs, 1997), the excess in many North American Native populations of a variety of family-related problems such as domestic violence and child neglect, mental illness, suicide and drug and alcohol abuse is a familiar theme (Durst, 1991; Kirmayer, 1994; Morrissette, 1994; Niezen, 1993). In view of this evident crisis in Native family life, we therefore analyze a sample of Ontario Native reserve residents (Embree, 1993) and compare this group's relative risk of marriage breakdown to a sample of the non-reserve general population from the Ontario Health Survey Supplement (1990/91).

From an advocacy standpoint, more information about patterns and predictors of family volatility would assist in the development of evidence-based treatment

and prevention programs for children from disturbed or disrupted home environments. Demographically speaking, current patterns and predictors of marital dissolution have implications for a variety of other nuptiality-related processes, including future rates of (marital) fertility, non-marriage and the likelihood of remarriage.

Proportional Hazards (PH) modeling (Cox, 1972) is employed to identify factors associated with the risk and timing of family disruption prior to age 16 for both cultural groups. In doing so, we follow Teachman's (1982) earlier suggestion about the efficacy of dynamic models like Proportional Hazards, already widely used in fertility research (e.g., De Wit, 1994; De Wit and Ravanera, 1998), in analyzing other family-related processes such as marital dissolution (see also Vuchinich et al., (1991) for a detailed methodological account). Hazards models are ideal in situations where the dependent variable refers to timing of a particular event. Unlike simple linear regression, they make full use of information about cases not undergoing the event of interest prior to the survey date (so-called censored cases). Any study subject with a non-zero likelihood of experiencing the outcome of interest is said to be at risk, with earlier timing implying greater risk and later timing implying reduced relative risk.

Previous Research

Research on the background factors associated with marital breakdown indicates that families that eventually dissolve may be different in a variety of ways from those that do not long before marital disruption occurs. They may, for example, be more likely to exhibit poor parenting practices and chronic substance abuse, high levels of marital conflict, or suffer from persistent economic stress. At the same time, exposure to these conditions may compromise children's economic, social, and psychological well-being later in life whether or not separation takes place.

Bumpass et al. (1991) compare the impact of family background and early marital factors on marital disruption and find parental family disruption to be an important predictor of marital disruption, mostly through its impact on age at marriage and cohabitation. The risk of marital disruption, moreover, is highest among women with young age at marriage, low education, a cohabitation history, and those whose spouse has been previously married; according to the findings, religious and educational heterogamy as well as male unemployment also reduce marital stability. Among parental background factors tested, the results from Bumpass et al. (1991) suggest further that while both parent absence and the experience of parental loss are involved with either the death or divorce of a parent, those who had a parent die while they were growing up are less likely than children from divorced families to experience a marital

disruption in adulthood. Additional demographic correlates of the likelihood of family breakdown identified by Teachman (1982) include marital duration; number of previous unions; the presence of step children as well as marital births; and the occurrence of a pre-marital birth.

From the literature on marital disruption it is apparent that a variety of personal behavioral factors during marriage may also contribute to the poor family dynamics precipitating relationship breakdown. Some of the most salient of these appear to be socioeconomic status and parental education (Teachman, 1982), both of which may be correlated with economic pressure and deprivation; parental substance abuse and emotional problems such as depression; high parental conflict; and children's early conduct problems, which may reflect both cause and consequence of poor affective relations between parents and their children (Emery, 1988; Fergusson, 1984; Fergusson et al., 1993). Substance abuse and spousal conflict are also common characteristics of families in which sexual and physical abuse of children take place (Famularo et al., 1986; Hernandez, 1992; Mian et al., 1994).

In the present study, we examine the impact of a number of variables identified mostly in treatment-oriented literature which are thought to reflect or affect the viability of family interactions and functioning. Although our list of available predictor variables is by no means exhaustive and omits a number of salient demographic indicators, the features of family life selected here for study are certainly relevant from a prevention or treatment point of view, compared to the approach taken in other work focusing on pre-existing socioeconomic and demographic conditions (see, for example, Teachman, 1982; Wineberg, 1992). The advantage with our approach, therefore, consists of a focus on household and family behaviors with the use of large representative samples not typically studied in family therapy settings. The cross-cultural focus of this work also helps to assess the extent to which intervention needs may be unique to Native communities.

Data and Methods

The data for the Native population are based on a simple random sample of 876 adults ages 19 and over from a Native Ontario reserve community with a total residential population of about 8,000 living in approximately 1,200 households. Respondents were chosen at random from within households. The overall response rate for the survey was about 72 percent (Embree, 1993). The questionnaire contains a number of items pertaining to the experience of parental loss, as well as a number of other questions about the respondent's family life while growing up. Only those respondents considered to be at risk of parental marital separation are included in the study; thus, subjects reporting separation for a period of at least six months from parents due to other causes

such as death of one or both parents, birth to a single mother, or a move to residential school are excluded from the analysis, for a final sample size of 691.[1]

Data for the general population were obtained from the 1990-91 Ontario Mental Health Supplement Survey (OHSSUP), a stratified, multi-stage area probability sample of the household population ages 15 and older. Excluded from this group are residents of Native reserves, prison inmates, foreign service personnel and residents of remote areas. A negligible proportion of the general population sample may consist of off-reserve Natives. The sample represents 9,128 persons ages 19 and older randomly selected from the household interview portion of the 1990 Ontario Health Survey (OHS). The final response rate for the survey was 76.5 percent. The OHSSUP contains detailed information on respondents' histories of parental loss, along with a wide range of demographic and socioeconomic characteristics pertaining to the childhood home environment. To yield more meaningful tests of significance, sample weights were applied to the data and rescaled to equal the actual number of cases in the sample. Further adjustment for an overall study design effect (DEFF = 2.2)[3] resulted in a sample size of 6,154. Of this number, 3,655 cases were randomly selected for analysis. This subsample was generated in order to yield more similar sample sizes for the two groups under study while, at the same time, attempting to compensate for the lower relative prevalence of certain events and behaviors such as family breakdown, parental substance abuse and childhood sexual abuse in the general population.

The dependent variables in the analyses of both the Native and OHSSUP data may be interpreted as survival time in years before experiencing parental marital breakdown. Over this interval, individuals may either survive the event up to age 16, in which case they are considered censored, or undergo the event before reaching age 16 (uncensored cases).[4] Almost 37 percent of Native respondents had been separated from either or both of their parents prior to age 16; of this number, 44 percent had experienced loss due to parental marital breakdown. This group accounts for twenty percent of the entire sample. Twenty percent of non-reserve respondents report separation from either or both of their parents at an early age, with fewer than 9 percent (8.8) of the total sample undergoing parental loss due to marital dissolution for a duration of at least 6 months. In the OHSSUP sample, the question on early parental loss referred to the timing of the first episode of separation only although more than one such episode is clearly possible. In the analysis of the OHSSUP data, the few subjects (one percent) experiencing parental death prior to age 16 without a separation due to marital breakdown are eliminated from further study since they were not at risk of parental marital dissolution, for a completed sample size of 3,611.

The median age of the child at the time of parental marital dissolution among those undergoing disruption is 8 years in the general population and 7 years for reserve Natives. Although this difference is difficult to interpret in the absence

of direct information on differential cultural patterns of marital duration, it appears that, on average, parental separation occurs slightly earlier in the lives of Native reserve children than for their non-reserve and largely Non-native counterparts. In turn, earlier timing implies grater risk.

For both samples, the covariates selected for the hazard analyses include age cohort and a number of adverse family characteristics or behaviors such as parental substance abuse and psychological disorders (depression), parental unemployment, poor parent-child emotional attachment and childhood sexual victimization. These are measured as follows: Age at the survey date is grouped according to the categories '19 to 30', '31 to 49', and '50 or older', with the oldest group serving as the reference. Age is included as a proxy for time-dependent changes in risk across successive cohorts. Without empirical evidence of marital duration from the two data sets under consideration, the inclusion in the models of age cohort of the respondent may also help us assess, if only approximately, the relative risks of different parental marriage cohorts. With hazards models, use of categorical indicators is recommended where ever possible in order to examine the linearity of effects on the outcome measures.

Parental occupation during the respondent's childhood is grouped according to 'professional', 'service sector or small business', 'farming or other occupations', 'blue collar' (the reference category), and 'unemployed'. It is hypothesized that low socioeconomic standing, as particularly reflected in chronic parental unemployment, should be predictive of a greater risk of parental marital breakdown. In the Native sample, quality of affective relations with mother and father while growing up are measured separately, with those not enjoying close relations serving as the reference. In the OHSSUP sample, relationship with parents is also a dichotomous variable measuring perceived closeness between parents and child while the respondent was growing up; those not enjoying close relations serve as the reference category. With the OHSSUP measure, unfortunately, no distinctions can be made between quality of the child's relationships with the mother and the father since the question from this survey referred to parents collectively. Apart from this one discrepancy, the measures employed in the two data sets are operationalized in a very similar or identical manner. Readers are referred to the Appendix for a detailed description of the scale measures employed. Quality of emotional relations with parents is likely to be associated with variations in the risk of parental marital breakdown given what is known from previous literature about the interplay of stressful life events and poor relationship functioning with both spouses and children (see Conger et al., 1991). Mother's and father's substance abuse and depression are dichotomous variables, with those not reporting a history of problems serving as the reference group. Sexual abuse is measured at the nominal level according to whether the respondent was ever abused sexually as a child. Those not experiencing abuse of this nature serve as the reference category. (See Appendix for further details). As suggested by previous research, parental

affective disorders and substance abuse, poor parent-child relations, chronic parental unemployment or underemployment and, in some cases, child sexual mistreatment may cluster together as mutually-reinforcing behaviors more prevalent in dysfunctional families. Any of these behaviors are likely to increase levels of stress within the family, with adverse consequences for the marital union.

The Proportional Hazards model used here (Cox, 1972) combines multiple regression with life table techniques. This technique is appropriate in overcoming the problems of censoring. Right censoring is common in event history analyses and is caused by the incomplete experience of the event studied. For example, fewer than 9 percent of respondents in the OHSSUP sample reported parental marital dissolution before age 16, whereas 20 percent in the Native group report the same event. Life table techniques can handle this censoring or data truncation by combining the experience of those who have undergone the event of interest with those who have not, in the calculation of (corrected) survival probabilities.[4]

To identify trends in family disruption, proportions undergoing a dissolution classified by the given demographic and behavioral characteristics were first estimated. The Proportional Hazards modeling technique (Cox, 1972) was then applied to the data in order to determine the factors which influence the rate at which both reserve Natives and general population residents experience the loss of a parent due to marital breakdown. This procedure yields estimates of the magnitude and direction of effects on timing of a given level of the independent variable as well as the relative risk of undergoing the transition of interest associated with a particular attribute.

For k time-constant variables, Cox's Proportional Hazards model may be written as: where a(t) can be any function of time. Estimation is accomplished via partial likelihood estimation which bears many similarities to ordinary maximum likelihood (Allison, 1984).

In unstandardized form, the hazards coefficients mean that a unit change in the level of the covariate involves a given change (either positive or negative) in the hazard, controlling for other variables in the equation. Exponentiating the coefficients in order to fix the baseline or reference category to one, coefficients less than one work to decelerate the timing of the event by a given factor, while coefficients greater than one are interpreted as having an accelerating effect (Singer and Willett, 1991). For dummy variables in particular, the exponentiated coefficient gives the relative hazard for the groups corresponding to values of the dummy variable, controlling for other predictors. Given that the unstandardized coefficients depend on the metric of the variable, it is also of use to examine the t-statistics for the null hypothesis that each coefficient is zero. In large to moderate samples, the t-statistics can be interpreted like those in an

ordinary multiple regression, indicating the magnitude of the effects in the model and representing the ratios of the estimates to their standard errors (Allison, 1984). Overall, it is more convenient to interpret the exponentiated coefficients in order to look at the influence of a given covariate on survival time rather than on the natural logarithm of survival time given by the

Results

Basic descriptive characteristics of Native and general-population respondents are shown in Table 1. Readers will note that some caution is due in interpreting data for the Native sample given the relatively high non-response rate among males. From Table 1, it is also evident that the two samples are quite different with respect to pre-existing differences in family behaviors and conditions. Overall, more Native respondents appear to have suffered adverse conditions such as sexual mistreatment and parental substance abuse and depression while growing up. Table 2 presents numbers and percentages of reserve Natives and general population residents experiencing early parental loss, as a proportion of all cases in each category, classified by the various family and individual characteristics. Table 3 gives the relative risks of family disruption, respectively, for both Native reserve and general population residents.

The most important features of Table 2 can be summarized as follows: Age cohort appears to be negatively associated with family disruption for both cultural groups, however at any age, Natives appear to experience a higher rate of family disruption (e.g., 27.8 versus 16.5 percent for reserve and non-reserve respondents aged 19 to 30 at the time of the survey). The existence of parental alcohol or drug misuse appears strongly linked to parental marital breakdown for both cultural groups. Reserve Natives exhibit higher rates of family disruption relative to their general population counterparts independent of family history of substance abuse (for reserve dwellers, 30.5 and 47.5 percent reporting father's and mother's substance abuse problem have also undergone family separation versus 24.0 and 25.6 percent in the non-reserve sample). Correspondingly, parental depression appears to be related to higher levels of family disruption, although reserve Native prevalence estimates were consistently high relative to those of non-reserve residents. Thus, 37.7 and 36.3 percent of Native reserve respondents reporting maternal and paternal depression respectively experienced family breakdown before age 16; this compares with 16.6 and 27.6 percent for the non-reserve sample. Quality of parent-child relations also appears to be associated with parental separation in that for both cultural groups, close affective relations appear to protect individuals from the early experience of family breakdown. Approximately 34 percent of reserve Natives and close to 15 percent of non-reserve residents who experienced poor relations with parents while growing up also suffered early

Table 1. Percentages of Reserve-Natives and Non-reserve Residents with Selected Demographic and Family Background Characteristics, Ontario Native Community Survey and Ontario Health Survey Supplement, 1990-91

Variable	Natives	Non-natives
Sex		
Male	30	48
Female	70	52
Age Category		
19-30 years	31	25
31-49 years	42	41
50 years and over	27	34
Father's Drug Use		
No problem	58	86
Problem	42	14
Mother's Drug Use		
No problem	85	94
Problem	15	6
Father's Depression		
No problem	87	96
Problem	13	4
Mother's Depression		
No problem	80	90
Problem	20	10

Sample sizes: Natives, 691 and Non-Natives, 3611

Table 2. Numbers and Percentages of Reserve Natives and Non-reserve Residents Experiencing Early Family Disruption (Prior to Age 16) as a Proportion of All Cases in Each Category, by Selected Demographic and Family Background Characteristics, Ontario Native Community Survey, 1993 and Ontario Health Survey Supplement, 1990-91

Variable	Natives		Non-natives	
	number	%	number	%
Age Category				
19-30 years	59	27.8	140	16.5
31-49 years	51	18.1	97	8
50 years and over	25	13.5	59	4
Father's Drug Use				
No problem	31	9.2	163	6.3
Problem	73	30.5	133	24
Mother's Drug Use				
No problem	85	15.5	261	8.1
Problem	45	47.9	35	25.6
Father's Depression				
No problem	48	11.4	260	8.3
Problem	23	37.7	36	16.6
Mother's Depression				
No problem	64	14.1	217	6.6
Problem	41	36.3	79	27.6
Quality of Paternal Relations				
Poor Relations	43	35.8	--	--
Good Relations	99	17.3	--	--
Quality of Maternal Relations				
Poor Relations	20	33.9	--	--
Good Relations	122	19.3	--	--
Quality of Parental Relations				
Poor Relations	--	--	74	14.6
Good Relations	--	--	222	7.7
Parental Occupation				
Service Sector	20	26	40	11.8
Professional	7	19.4	36	7.5
Farming and Other	32	19.2	136	7.9
Not Working	10	71.4	7	32.7
Blue Collar	48	13.6	74	10.2
Sexual Abuse				
Not abused	55	12.8	232	7.7
Abused	54	35.1	40	21

Sample sizes: Natives, 691 and Non-Natives, 3611

Percent Experiencing Parental Separation/Divorce: Natives, 20.5; Non-Natives, 8.8

Table 3. Multivariate Proportional Hazards Analyses (Relative Risks) of Reserve Natives' and Non-reserve Residents' Experience of Early Family Disruption (Before Age 16) by Selected Demographic and Family Background Characteristics, Ontario Native Community Survey, 1993 and Ontario Health Survey Supplement, 1990-91

Variable:	Natives	Non-natives
Age Category		
19-30 years	1.44	3.60***
31-49 years	1.33	1.44
50 years and over[a]	1.00	1.00
Father's Drug Use		
No problem[a]	1.00	1.00
Problem	3.07*	3.38***
Mother's Drug Use		
No problem[a]	1.00	1.00
Problem	0.96	1.39
Father's Depression		
No problem[a]	1.00	1.00
Problem	1.88	1.05
Mother's Depression		
No problem[a]	1.00	1.00
Problem	2.34*	1.81**
Quality of Paternal Relations		
Poor Relations[a]	1.00	--
Good Relations	0.51	--
Quality of Maternal Relations		
Poor Relations[a]	1.00	--
Good Relations	0.82	--
Quality of Parental Relations		
Poor Relations[a]	--	1.00
Good Relations	--	0.56***
Parental Occupation		
Service Sector	2.25	1.54
Professional	1.36	0.74
Farming and Other	1.63	0.95
Not Working	6.02	4.26*
Blue Collar[a]	1.00	1.00
Sexual Abuse		
Not abused[a]	1.00	1.00
Abused	2.80**	1.79**
Sample Size	347	3249
Percent Censored	89.3	92
Global 02	117.96*** (df=13)	247.31*** (df=12)

[a] Reference category for the variable.

Note: Final sample sizes based on list-wise deletion of missing cases.

*œ.05; **œ.01; ***œ.001

parental loss due to divorce or separation. From among the categories of parental occupational status, by far the most striking result relates to the impact of unemployment on family disruption: Over 71 percent of reserve Natives and almost 33 percent of general population residents in our samples who reported unemployment as the main activity of the family's major financial supporter also underwent family separation prior to age 16. Finally, child sexual mistreatment would also seem important to variations in prevalence of family breakdown. For both cultural groups alike, greater levels of disruption are experienced by those sexually abused during childhood (35.1 and 21.0 percent for reserve Natives and non-reserve residents, respectively). Consistent with observed overall higher point prevalences of early separation, reserve Natives experience separation more frequently relative to the large non-reserve population irrespective of abuse experience.

The multivariate findings presented in Table 3 identify a number of behaviors or traits which may place children at increased liability of early parental loss through marital dissolution. For both samples considered, father's drug or alcohol abuse has a substantial impact on the risk, increasing it by 207 percent (over and above the applicable baseline of 100) among reserve Natives and by 238 percent in the general population sample. Mother's substance abuse, alternatively, does not appear to heighten the risk significantly for either cultural group. History of parental depression elevates the risk for both groups, but significantly so only in the case of maternal mental disorder, where for reserve Natives, the associated risk is 2.34, and 1.81 for non-reserve residents. Favorable parental affective relations while growing up reduce the likelihood of parental separation or divorce by 44 percent among the general population. Childhood sexual victimization has a fairly dramatic impact on the risk in the case of both groups, nearly doubling the risk of early parental loss among the general population sample and almost tripling it for the Native reserve sample. There is some evidence that parental unemployment may also elevate the risk, by six times among reserve Natives and by more than four times in the case of non-reserve dwellers; the effect of work status, however, appears significant in a statistical sense for the general population sample alone, most likely due to very small absolute numbers in this category of Native reserve respondents. A greater relative risk of disruption among younger cohorts is also suggested by the data, significantly so for the youngest group of non-reserve dwellers who are observed to be at more than three and a half times the risk of their oldest counterparts. With a larger sample of the Native reserve population, statistically significant effects might have been obtained as well, a possibility which is consistent with the striking cultural disparity, among the youngest age cohort, in proportions having experienced parental marital disruption by age 16 (27.8 versus 16.5 percents, respectively).

Analysis of Native non-response patterns presented in Table 4 shows that parameter estimates of associated factors in the Native model are weakened by substantial selective non-response on certain covariates among those undergoing parental separation. Thus, for example, among those responding to the question about paternal substance abuse, only 18.1 percent had undergone parental marital separation as compared to 32.8 percent of non-respondents on this item; in a similar manner, only 14.7 percent of those reporting on paternal depression while growing up also experienced parental marital dissolution, compared to 34.3 percent of their non-respondent counterparts. A similar pattern of differences is also evident from comparing patterns of responses on the sexual abuse and maternal depression items among those undergoing a parental separation. As a result of this selective non-response, the actual prevalence of early family disruption in the Native population is underestimated by 50 percent in the multivariate analysis. Adjusting for the effects of non-response, the research results demonstrate that reserve Natives suffer more

Table 4. Percentage Distribution of Responses on Selected Variables in the Model of Reserve Native Divorce/Separation by Outcome on Early Family Disruption (Numbers Bracketed), Ontario Native Community Survey, 1993

Variable	Not Separated	Separated	Not Separated	Separated	$\chi 2$, df = 1
Father's Drug Use	81.9 (471)	18.1 (104)	67.2 (78)	32.8 (38)	12.7***
Mother's Drug Use	79.8 (514)	20.2 (130)	74.5 (35)	25.5 (12)	0.8
Father's Depression	85.3 (413)	14.7 (71)	65.7 (136)	34.3 (71)	34.2***
Mother's Depression	81.4 (461)	18.6 (105)	70.4 (88)	29.6 (37)	7.7**
Sexual Abuse	81.5 (476)	18.5 (108)	70.1 (75)	29.9 (32)	7.3**

n = 69

than twice the level of marital breakdown (20.5 percent) than the general population sample (8.8 percent). Non-response among non-reserve residents appears to have a relatively negligible impact, in part due to the much larger initial sample size, but also due to actual differences in completeness of reports. Cultural differences in non-response on certain items indicative of poor family functioning (e.g., parental substance abuse), in turn, may well be due to the Native community's desire to avoid further negative stigma in these areas.

Notwithstanding the substantial differences between reserve Native and (largely) Non-native and non-reserve cultural groups in prevalence estimates, the findings concerning family background show that children at greatest risk of family disruption, with all of the negative consequences frequently implied, are those whose families are characterized by various harmful behaviors or conditions such as parental substance abuse and psychological disorders, poor parent-child emotional bonding, chronic parental unemployment, and exposure of children to sexual maltreatment. The greater propensity of families with these characteristics to dissolve implies that children from non-intact family situations may also suffer harm due to exposure to negative lifestyles and behaviors preceding and sometimes following the separation. Indeed, as indicated by much of the literature on consequences of parental loss, characteristics of the child's home environment prior to and following the marriage dissolution are likely to have the greatest damaging effects on both the child's immediate psychosocial well-being and long-term adjustment. This information implies both preventive and treatment strategies for those working with children at risk of, or recovering from, a family disruption episode.

The results also underscore the relative instability of marital unions among reserve Natives in our study population. Although comparable Canadian data are not available, our findings are fully consistent with historical census information on American Indian families indicating recent steady increases in non-marriage and divorce in excess of general population rates along with substantial increases in the percentage of lone parents (Sandefur and Liebler, 1997). Coupled with the available information about Natives' pre-existing lower rate of nuptiality, our findings of a higher prevalence of (marital) family separations involving young children imply that Native reserve children are exposed more frequently to disruption of their home environment than Non-native children living elsewhere in Ontario.

Discussion and Conclusions

The profile of predictors uncovered in this investigation is certainly consistent with many of the previous findings discussed above on the correlates of marital breakdown. However, based as they are on retrospective data, our findings

preclude prospective evaluations of causal relationships between childhood family experiences and the timing of parental marital disruption. Thus, we cannot determine with complete certainty that the relevant family characteristics are causes of marital dissolution as such since they may also be regarded as consequences of disruption in some cases. For example, Belsky's (1990) analysis of variations in parenting practices suggests that satisfaction with marital relations is conducive to effective parenting which would presumably promote more favorable relations between parents and their children. While data gathered via a prospective design would be helpful in obtaining possibly more accurate and complete information, a realistic case may nevertheless be made for a causal interpretation as specified: This is because the questions pertaining to early family circumstances and behaviors referred to the entire period during which the child was growing up, and not to a particular discrete point in time. In any event, while our investigation considered parent-child affection as impinging on marital stability (presumably through level of marital satisfaction), this proposed association may be more properly modelled as a non-recursive process. The precise causal ordering of certain other variables such as parental unemployment and sexual abuse is also difficult to establish without further information about the exact timing of such events.

A further concern relates to the possible influence of 'uncontrolled heterogeneity' which results when certain differentiating features of a population are not incorporated into the model for estimation. Unfortunately, in many research situations relevant attributes may be rarely observable or measurable for the purpose of inclusion. Demographic indicators such as parental marital status, age at marriage, duration of the union, and pre-marital and marital childbearing should ideally be considered alongside behavioral characteristics within the family. In addition to employment status and occupation, more precise socioeconomic measure of education and income, along with spousal differences in these attributes, are also important; moreover, structural factors like family size and configuration (i.e., whether involving a first marriage, remarriage or cohabitation) or the availability of a social support network along with individual psychological variables would need to be measured in order to provide more detailed information on the make-up of unstable families and their members. Given our treatment-oriented approach to specifying relevant predictors of marital breakdown, it would also be appropriate to assess the contributions of family conflict in general and marital conflict in particular. Notwithstanding limitations with available data, the profile of characteristics uncovered by our study is suggestive of the array of family behaviors which predispose children during the formative years to a greater likelihood of suffering disruption due to parental marital breakdown.

An additional issue of interest involves the comparability of results from the two data sets. First, differences in the definitions of the dependent variable for the two data sets may confound the results to some extent since the OHSSUP

measure is selective of only the first episode of parental separation and thus earlier timing, on average, relative to the distribution of events for Natives; for Natives, alternatively, it is not known whether the event reported is the first, the last, or otherwise the most subjectively significant experience of parental loss. This ambiguity could be especially problematic if Native families are also more prone to repeated disruption; this possibility is certainly consistent with the fact that Natives throughout North America have been observed to suffer a variety of social and health problems well in excess of the Non-native population (May, 1982; Young, 1988; Durst, 1991; Kirmayer, 1994; Morrissette, 1994; Niezen, 1993; Embree and De Wit, 1997; De Wit et al., 1999). Indeed, among the sample of Natives studied here, levels of reported family-related problems such as sexual abuse and parental substance abuse are also observed to be considerably higher than in the general population sample. Despite the potential discrepancy in the meaning of the parental separation/divorce item, a comparison between reserve Natives' and non-reserve residents' average age at parental marital disruption demonstrates relatively small actual differences in timing; in fact, as noted above, the timing for the general population is only slightly later, suggesting that the two samples of respondents may nevertheless be quite similar with respect to interpretations of the reference event.

A second issue of data comparability relates to differences in the proportions of the two samples undergoing family breakdown. The observed smaller prevalence estimate in the OHSSUP sample compared to the Native group (8.8 percent versus 20.5 percents, respectively) suggests that conclusions from the PH regression analysis about patterns of family disruption should be drawn tentatively. PH estimates are, nevertheless, generally quite robust, even in the presence of heavy censoring (Allison, 1984). Despite disproportionate censoring in the Non-reserve general population, the profile of determinants for the two cultural groups is quite similar.

A major strength of this investigation lies in its focus on family behavioral traits in combination with use of non-treatment samples, in which case the findings may be inferred with greater confidence to non-treatment populations, whether Native or Non-native. The use of non-clinical samples, moreover, has provided us with sufficient cases to examine simultaneously a number of dimensions of variation. Furthermore, despite certain inconsistencies, the findings from this study point overall to the salience of a number of adverse family characteristics in leading to early onset of marital breakdown. In fact, as noted above, the pattern of results is remarkably similar for Ontario Native reserve residents and the larger non-reserve population in which they are situated: Paternal substance abuse, maternal depression and child sexual abuse are relevant indicators of impending disruption for both cultural groups. While we should not overlook the evidence for substantial differences in the prevalence of family disruption for reserve Natives and non-reserve residents, greater levels of essentially

similar problems for Native reserve residents would seem to imply that any preventive or treatment efforts informed by our study would be especially valuable to Natives communities. Given the evidence from previous research documenting linkages between quality of parenting received as a child and the quality of adult intimate relationships (Tayler et al., 1995), information about harmful family behaviors which may expose children to a higher risk of parental marital breakdown might also shed further light on the intergenerational transmission of family instability.

The profile of family behaviors and characteristics suggested by this study may thus be useful in identifying children (and families) at greatest risk of disruption and may also help to inform treatment strategies for those from disrupted backgrounds. The information obtained from our study on reserve Native versus non-reserve rates of family dissolution, moreover, indicates that the Native population may have a much greater unmet need for family, social and health services aimed at strengthening family units. Observed differences between reserve Natives and non-reserve residents in the risk of marriage dissolution may also imply further cultural variability in nuptiality patterns related to fertility, non-marriage and re-marriage. While by no means conclusive, our results provide impetus for further research into characteristics associated with family dissolution and the specific characteristics that appear more pronounced within our Native communities.

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Endnotes:

1. Unfortunately, in the case of the Native data set, the question about the respondent's separation from his or her parents during childhood was posed in such a way that for children who had experienced more than one episode of significant parental separation, it was not possible to distinguish either the relative timing or the nature of these multiple events. As a result of this lack of information, respondents reporting a loss for any reason other than parental marital breakdown (18.8 percent of the original sample) had to be eliminated from the analysis. The definition of parental marriage may also be less precise in the Native population given higher rates of non-marital unions typically expected in this cultural group.

2. DEFF refers to "Design Effect" which reflects the relative magnitude of the standard error of key measures obtained with the given sampling

design compared to the standard error obtained with Simple Random Sampling (SRS), which is considered as a standard. Therefore, DEFF values greater than one signify that the sample variance with the given design is larger than would be obtained were SRS sampling employed. This, in turn, indicates lower sampling precision relative to SRS.

3. The reserve Native and general population data sets alike measure time in discrete units (i.e., years of age) which may result in a large percentage of ties. Since most survival models are based on the mathematical assumption of continuous time (i.e., time measured in small fractional units such as days, weeks or months), a large number of ties may lead to biased regression coefficients (Blossfeld et al., 1989). Recent empirical research, however, has revealed little difference in the shapes of the hazard functions estimated via discrete versus continuous time methods (see De Wit et al., 1997).

4. Two assumptions, however, must be made by event-history models in overcoming the problem of censoring. First, it is assumed that all cases eventually experience the event of interest, whether by some prespecified age, by the survey date or at some other future time. Second, censoring is assumed to occur randomly over the interval such that censored cases are considered to be at risk of disruption half way through the interval. A probability of experiencing family disruption is then calculated for each case at various durations. The denominator of these conditional probabilities includes both censored and uncensored cases who are at risk during the interval. The numerator consists of the actual number of cases experiencing parental loss. Since the Proportional Hazards procedure makes full use of all censored cases, individuals who are censored by the completion of the observation period are assumed to experience the same risk as others at the mid-interval of survival time. It should be apparent that, with the very large proportions censored in the analyses of both samples, and particularly with the OHSSUP data, the assumption that all individuals eventually experience the event of interest may be problematic. Nevertheless, given the evidence from the present study for increased incidence of family disruption among younger cohorts relative to older ones (with the OHSSUP sample in particular), this assumption may be less problematic among younger as opposed to older age groups.

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Appendix:

Affective Relationship Measure:

1. Natives

Among Natives, the affective relationship measure is comprised of six items designed to tap the degree of emotional warmth, intimacy, affection, communication, support and understanding that respondents perceived themselves as receiving from their parents as children. Each item consists of five ordinal-level categories ranging from 'never' to 'almost always'. Parental bonding items in the Native questionnaire, measured separately for relations with mothers and fathers, were as follows: "Thinking back over your relationship with your mother/mother substitute or father/father substitute, how much of the time did s/he:

1. speak to you with a warm and friendly voice?
2. seem emotionally cold to you?
3. show affection towards you?
4. enjoy talking things over with you?
5. make you feel you weren't wanted?
6. seem to understand your problems or worries?"

Each of these items is summed and the resulting scale (Cronbach's Alpha reliability coefficients of .88 and .89 for the mother and father series questions, respectively) is dichotomized according to positive versus negative affective relations with each parent while growing up (i.e., never, almost never or sometimes experiencing positive interactions versus very often or almost always enjoying such relations).

2. Non-natives

In the OHSSUP, the original survey question read "Did you have a close relationship with your parents while growing up?", and was measured according to only two possible outcomes, thus necessitating the reduction in the number of categories on the Native survey measures.

Sexual Abuse Measure:

1. Natives

In the Native survey, sexual victimization refers to the following items:

1. Whether, as a child, the respondent had ever been sexually approached by a non- family person; and,
2. Whether, as a child, the respondent had ever been sexually touched or fondled by a family member.

2. Non-natives

In the OHSSUP survey, sexual victimization refers to the following events during childhood:

1. Whether anyone had ever exposed him/herself to the respondent;
2. Whether anyone had ever threatened to have sex with the respondent;
3. Whether anyone had ever fondled the respondent's sex parts; and,
4. Whether anyone had ever tried to have sex with or had sexually attacked the respondent.

Furthermore, although it is possible to distinguish the relationship of the perpetrator to the victim in both the Native and general population data sets, the primary measure of abuse used in the present analyses does not differentiate. Given very small numbers reporting childhood victimization in the general population sample and especially involving a family perpetrator, combined with the major sex imbalance in reported levels (over 80 percent of victims are female), further refinements of the abuse measure proved unfeasible. It may nevertheless be argued reasonably that, in any event, the occurrence of sexual abuse reflects certain general conditions and characteristics of the child's home environment, such as low parental competence or lack of proper child supervision (see, for example, Hernandez, 1992; Mian et al., 1994; Lujan et al., 1989).