

## Intergenerational Transmission of Conjugal Stability in a Caribbean Community\*

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We are interested in whether family relations are replicated from generation to generation. Is the daughter of a single mother, for example, more likely to become a single mother herself? Inter- and intra-cultural variation indicates that environment has strong influences on the development of family behavior. Different cultures each have distinct systems of mating and parenting, including patterns of within-culture variation. Reproductive behavior may be strongly influenced by environmental conditions and social experience during ontogeny (Alexander, 1990). There is controversy, however, concerning the effect of family environment on children's long-term developmental outcomes (Collins et al. 2000; Harris, 1995).

We use an evolutionary theoretical framework to explore intergenerational patterns of conjugal stability. The objective is to examine the effects of a child's family environment on her or his subsequent mating and parenting behavior as an adult. We test the hypothesis *that father absence during early childhood is associated with conjugal instability as an adult*. In contrast to this hypothesis, we suggest that adolescence may be more important than early childhood in shaping adult reproductive behavior. Lack of parental control of adolescents' sexual behavior may permit the formation of early and unstable conjugal unions.

A cross-cultural comparative perspective is essential for evaluating theories of family formation and development. We compare evidence of intergenerational transmission of conjugal stability in Western industrial populations with multi-generation patterns of conjugal stability in a rural Caribbean community. In addition, we compare the influence of parental supervision on children's behavior in Western populations and in a rural Caribbean community. Data analyzed include genealogies and quantitative behavioral observations collected during a twelve-year ethnographic study of Bwa Mawego, a rural village on Dominica in the Lesser Antilles.

### **ONTOGENY OF FAMILY ENVIRONMENTS: THE DRAPER-HARPENDING MODEL**

Family environments presumably affect child development (Bornstein, 1995; Bowlby, 1982). Children in turn become parents, and generate family environments that are influenced

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by their own early experiences. The evolutionary basis for intergenerational transmission of family behavior, however, is controversial.

In their seminal work, Draper and Harpending (1982, 1988) propose that humans evolved psychological mechanisms that use conjugal stability in the early childhood family environment as a cue for development of subsequent reproductive strategies. Unstable conjugal unions of parents cue the child to develop a "mating effort strategy" (early maturation, short term mating relationships, high fertility). Conversely, stable conjugal unions cue the child to develop a "parental effort strategy" (delayed maturation, stable long term mating relationships, low fertility). Early childhood (the first five to seven years of life) is proposed as a sensitive period for reproductive development. Developmental canalization of reproductive behavior may be adaptive when adult environment is reliably predicted by childhood environment. In effect, toddlers can use cues in their family environment to prepare for their reproductive future.

Following the logic of parental investment theory (Trivers 1972), resource abundance is linked to father-absence: "If there is abundant food, then a male does not benefit from provisioning his offspring to the extent that he does if food is scarce, so the payoff to male labor must be a crucial element in our theory" (Draper & Harpending, 1988, p. 351). Mating effort strategies are hypothesized to be adaptive in environments with plentiful resources, because the added effort of a second parent may do little to improve children's survival and eventual reproduction. Parental effort strategies are hypothesized to be adaptive in environments with scarce resources, because biparental care is important for child survival and ultimate reproduction (i.e., two parents are needed to provide sufficient resources for child well-being). Conversely, because biparental care is less important in resource-rich environments, father-absence in early childhood may be an indicator of resource abundance. Father-absence, hence, may serve as a cue for development of a mating effort strategy.

In Western industrialized cultures, consistent with the Draper-Harpending model, children of divorced parents have higher rates of divorce (Amato, 1996; Bereczkei & Csansky, 1996; Bumpass, Martin & Sweet, 1991; Glenn & Kramer, 1987; Keith & Finlay, 1988; McLanahan & Bumpass, 1988) and more negative attitudes about marriage (Booth, Brinkerhoff & White, 1984; Chisholm, 1999a; Kulka & Weingarten, 1979; Sororsky, 1977; Wallerstein & Kelly, 1980; Waynforth, Hurtado & Hill, 1998), than do their counterparts from intact families. In contrast, other studies indicate that parental marital status has little or no influence on attitudes and beliefs about marriage and family (Amato, 1988; Carson & Pauly, 1990; Ganong, Coleman & Brown, 1981; Greenberg & Nay, 1982; Gottman, 1989; Jones & Nelson, 1996; Kinnaird & Gerraard, 1986; Kozuch & Cooney, 1995; Landis-Kleine, Foley, Nail, Padgett, & Walters-Palmer, 1995; Wallerstein, 1985). In sum, patterns of conjugal stability may be replicated, if imperfectly, from generation to generation. The precise mechanism for replication of conjugal patterns is unknown; however, it appears that beliefs and attitudes about marriage are not primarily involved in the transmission of conjugal stability.

### **HYPOTHESES AND PREDICTIONS I: INTERGENERATIONAL CONSEQUENCES OF FATHER-ABSENCE**

The Draper-Harpending model suggests humans evolved psychological mechanisms for canalization of mating and parental effort. Reproductive behaviors are posited to adaptively respond to conditions during early childhood. Early childhood environment is hypothesized to cue subsequent adult behavior. Children are predicted to replicate their parents' reproductive decisions resulting in either relatively stable or unstable conjugal unions.

Here, we examine the intergenerational transmission of conjugal stability. If the Draper-Harpending hypothesis is correct, then individuals reared in father-absent family environments should themselves have unstable conjugal unions as adults.

**Prediction 1;** Individuals who lived in father-absent households during early childhood are more likely to have father-absent offspring than individuals who lived in father-present households.

**Prediction 2:** Individuals who lived in father-absent households during early childhood are more likely to have offspring with multiple mates than individuals who lived in father-present households.

**Prediction 3:** Individuals whose mother had multiple mates are more likely to have multiple mates, than individuals whose mother had only one mate.

### **STUDY POPULATION**

The Commonwealth of Dominica is a small, rural island nation located between the French Departments of Guadeloupe to the North and Martinique to the South (15°N, 61°W). The island is extremely mountainous and relatively undeveloped. Dominica's population of about 65,000 people are of mixed African, European and Island-Carib descent. Most Dominicans are bilingual in English and French-Patois.

Bwa Mawego is one of the least developed villages on the remote, Windward side of the island. The village is located about a half-hour drive from a main road at the dead-end of a narrow, mountainous road. There are approximately 700 full and part-time residents. Average annual income in Bwa Mawego is approximately \$5,000 E.G. (\$1,850 U.S.). Economic activities are few. These include subsistence gardening, fishing, bay oil production, banana production, and, for a few villagers, wage labor. Most adults are involved in some subsistence agriculture. In addition, most families cultivate some bay leaf or bananas for market.

The people of Bwa Mawego live in small (150 - 600 sq. ft.), mostly one or two room houses of wood or cinder block. Many houses have electricity, but only a few have rudimentary plumbing. Family compounds and single-family dwellings and out-buildings are typically arranged around a yard. Most daytime household activity takes place in the yard area.

Bwa Mawego (and the island in general) has a relatively healthy population. Life

expectancy for Dominicans is 74 years (compared to 66 for the Caribbean and 77 for the U.S.). The infant mortality rate is 17 per 1000 live births (46 per 1000 for the Caribbean and 7 per 1000 for the U.S.).<sup>1</sup>

Kinship and family are the foundation of economic, social, and reproductive behavior in Bwa Mawego. Almost everyone in the village is related to everyone else through consanguineal or affinal links.<sup>2</sup> Kin ties provide a map for navigating social life, and they offer avenues for the flow of goods and services. Family members cooperate for their mutual benefit. Husbands, wives and children share gardening chores. Male kinsmen work together on family construction projects and garden clearing. Related females share childcare duties. This does not mean that friendships are not important, but the axiom of amity (Fortes 1969) has priority in Bwa Mawego.

The nature of cooperation among kin depends in large part on the structure of households and their relation to other households. For example, a woman that moves into her husband's extended family compound may receive little direct assistance from her affinal kinswomen, but her children will receive significant care and support from their paternal relatives. Coresident adult sisters, in contrast, assist each other with childcare and daily chores.

Women and their daughters do most of the family's domestic chores including: sweeping the house and yard, burning trash, washing dishes, washing clothes, bathing small children, cooking, splitting firewood, and fetching water. Mothers are primarily responsible for childcare, but grandmothers and older daughters are often involved. When girls reach the age of 8-10 they frequently take up some responsibility for caring for younger siblings.

Men are responsible for more periodic household tasks such as repairing paths near the house, repairing buildings, collecting large amounts of firewood, etc. For the most part, men in long-term conjugal relationships are responsible for earning a living, whether it be through temporary work for wages or through the family's agricultural enterprise. Single men attached to a household have much more leisure time. They garden and do jobs for other villagers to help their families economically, but much of their effort is for their own benefit. In general, male contributions to household well-being are primarily economic. For example, households with a resident adult male (including fathers, brothers, and husbands) on average have twice as many luxury items and three times the house value of households without resident males ( $t = 3.1$ , 1-tailed  $p = .002$  for luxury items,  $t = 3.6$ , 1-tailed  $p = .005$  for house value).

Beyond households, larger kin groups are important. There are several large patrilineages identifiable by surnames. Patrilineal descent provides individuals with access to ancestral family lands.<sup>3</sup> This can be an advantage to individuals whose immediate family does not own land. In addition, distant kin generally look out for each other's interests in situations where non-kin would mind their own business. For example, a man might escort a drunken distant

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<sup>1</sup> Data are from the U. S. Census Bureau International Data Base available at [www.census.gov/ipc/www/idbne.w.html](http://www.census.gov/ipc/www/idbne.w.html).

<sup>2</sup> In this case "affinal" refers to linkages through mating rather than marriage.

<sup>3</sup> In theory one could lay claim to matrilineal ancestral lands, but reckoning matrilineal kinship beyond one or two ascending generations is difficult without the aid of surnames.

cousin home when non-kin would most likely ignore him.

Formal marriage in Bwa Mawego is an institution in decline. Villagers can scarcely recall the last wedding. In part, the demise of formal marriage is due to the weakening of the Catholic Church. About a generation ago, almost all villagers were Catholic, but now other Christian sects compete for members. In fact, many villagers today show little interest in organized religion. The shift away from Catholic values allowed villagers to relax their concern over the legitimacy of children. Today children are legitimized when a man claims paternity, but a man's claim of paternity carries few material or social benefits by its-self (other than nominal membership in a paternal kin group). There is no social stigma attached to having children out of wedlock. Without religious sanctions or legal benefits, formal marriage apparently seems more trouble than it is worth to many villagers. Marriage entails an expectation of sexual fidelity, but village women suggest that divorce over male philandering would be unreasonable. Yet, formal marriage is sign of serious commitment to a relationship. Even women with grown children from a long-term consensual union want to be married. Men, however, seem less interested.

Though formal marriage is almost a thing of the past, many villagers still forge durable conjugal unions. In Bwa Mawego, as elsewhere in the Caribbean, a couple commonly has a child together before deciding to establish a conjugal household. Once established, conjugal households are generally stable. Hence, many father-absent individuals are father-absent from infancy. Currently about 30% of reproductive age women are in long-term unions. This compares to about 21% for rural Jamaica and 41% for the Grenadines (M. Smith 1962:231-2).

### **METHODS I: GENEALOGIES**

Genealogical data were used to test predictions concerning the intergenerational transmission of conjugal stability. The sample consists of 803 individuals for whom complete genealogies are available. Genealogical data were collected and cross-checked through a series of interviews. Multiple key informants provided the name of each ego's mother and father for a list of all village residents obtained through annual census updates (1987-1998). After the initial interviews the genealogical database was analyzed for errors and missing data using the DIAGNOSE routine of the KINDEMCOM software package (Chagnon & Bryant, 1984). Once errors and missing data were identified a second round of interviews and cross-checks was conducted. The updated genealogical database was analyzed again using the DIAGNOSE routine, and a third round of interviews was conducted to fill in newly identified gaps in the data. The process of interviewing and analysis was repeated twice more, after which the genealogical memory of our informants was more or less exhausted. The resulting database contains genealogical information for 1,289 individuals born between 1848 and 1998.

Two proxy measures of conjugal stability were used for this analysis: (1) father-absence status and (2) number of mates with whom individuals had children. Ego's father-absence status (i.e., whether or not ego spent their early childhood with their father) was determined from genealogies using one of two methods. If an individual's mother was known but father was unknown (i.e., "not from here") then that ego was designated "father-absent." Remaining

individuals were grouped according to their mothers' identification number. Then egos within groups of maternally related siblings were compared according to their fathers' identification number. If an ego's mother and father had only one child together and ego's mother had other children, then ego was designated "father-absent." Genealogical determination of father-absence status of living residents of Bwa Mawego was cross-checked using informal interviews and census data. Cross-checks determined that the genealogical method for assigning father-absence/presence is valid. Of 147 living individuals, whose life histories are well known to us, ten (7%) were misclassified as father-present using the genealogical method — none were misclassified as father-absent ( $Kappa=.81$ ).

Strictly speaking, this genealogical method provides an imperfect measure of father-absence. However, father-absence status determined in the manner described is an adequate measure of conjugal stability — individuals who had several children with one mate had a more stable relationship than individuals who had only one child with one mate and then had other children with other mates.

Number of mates with whom individuals had children is an obvious measure of conjugal stability. For consistency of analysis we compare individuals who had children with only one mate to those who had children with more than one mate.

Separate analyses were conducted for males and females concerning the number of mates with whom individuals had children. Individuals with incomplete reproductive careers were excluded from these analyses. Agreement between mother-child father-absence status was analyzed separately from agreement between father-child father-absence status. It is important to consider males and females separately because some males may have mates and children outside the village that are not included in the genealogies.

### **RESULTS I: EARLY FATHER-ABSENCE AND CONJUGAL STABILITY**

Father-absence in early childhood has been a condition common to a significant minority of villagers for at least the last one-hundred years (average for all cohorts = 24%). Furthermore, there is no cohort effect in the distribution of early father-absence in this population (see figure 1). This indicates that factors contributing to conjugal instability have been relatively constant over the past century.

Initially we conducted three tests of the Draper-Harpending model. First, we examined whether an individual's early family environment "predicted" their offspring's early family environment. Hence, we tested for an association between parents' father-absence status and offspring's father-absence status. Second, we were interested to see if individuals' early family environment associated with later conjugal stability. Based on the Draper-Harpending model the prediction was that father-absent individuals would have offspring with more mates than would father-present individuals. Finally, individuals whose mothers had offspring by more than one mate are predicted to themselves have offspring by more than one mate.

Women who spent their early years in a father-present household were slightly more likely to have father-present children than women who spent their early years in father-absent households. This effect is quite small and the association is marginally significant ( $\chi^2 = 2.09$ , 1 df,  $\phi = 0.05$ , 1-tailed  $p = 0.08$ ,  $N = 803$ ). There was no association between offspring

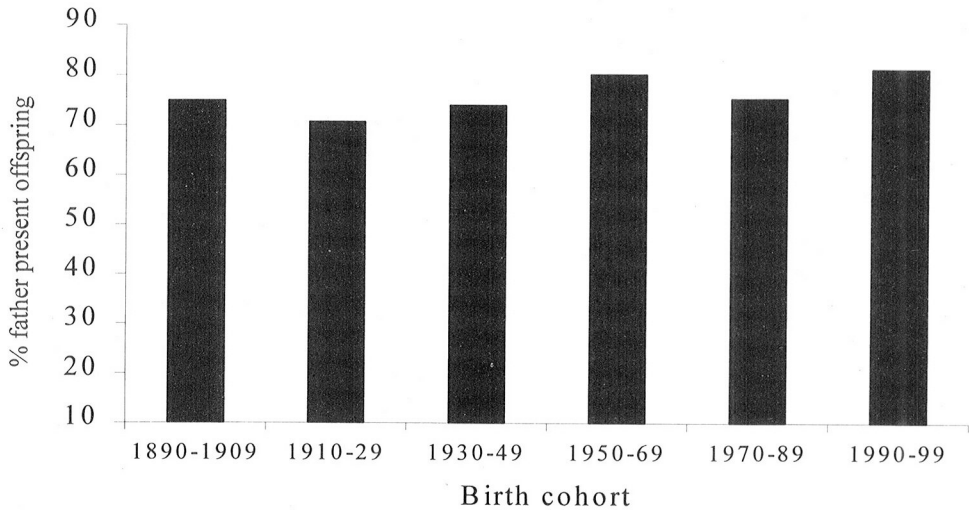


Figure 1. Most children in the village are raised in father-present families. This pattern is consistent over past one hundred years. Mean percent of father-present offspring for all cohorts = 76%

and father's father-absence status ( $x^2=0.61$ , 1 df,  $\phi=-0.029$ , 2-tailed  $p=0.43$ ,  $N=716$ ). Early father-absence is not associated with the number of mates with whom individuals had offspring (for females  $x^2=0.002$ , 1 df,  $\phi=0.003$ ,  $p=0.96$ ,  $N=222$ ; for males  $x^2=0.11$ , 1 df,  $\phi=-0.022$ ,  $p=0.74$ ,  $N=219$ ). Women whose mothers had offspring by more than one man were significantly more likely to have offspring by more than one man than women whose mothers had offspring by only one man ( $x^2=3.51$ , 1 df,  $\phi=0.14$ , 1-tailed  $p=0.03$ ,  $N=188$ ). Men whose mothers had offspring by more than one mate were not more likely to have offspring with more than one mate than were men whose mothers had offspring by only one mate ( $x^2=0.57$ , 1 df,  $\phi=0.06$ , 1-tailed  $p=0.22$ ,  $N=193$ ). However, we should view the findings for males with caution because of the difficulty in determining whether they had mates and children outside the village.

In sum, multi-generation data from Bwa Mawego offer weak support for the Draper-Harpending hypothesis. Historically, it appears that over multiple generations patterns of conjugal stability tend to be transmitted from mother to daughter, but not mother to son. Some canalization of reproductive behavior based on presence/absence of a stable conjugal union in early childhood may, therefore, occur. However, we must rule out alternative explanations before concluding that the observed intergenerational pattern of conjugal stability is due to *early* childhood environment. One parsimonious explanation is that females raised in households lacking a stable conjugal union are subject to less adult supervision during adolescence (Maccoby, 1991; McLanahan & Bumpass, 1988).

#### HOUSEHOLD COMPOSITION, ADULT SUPERVISION AND CHILDREN'S BEHAVIOR

Genealogical data indicate that women raised by a mother with multiple mates tend to have multiple mates themselves. A parsimonious interpretation for this finding is that

adolescents in single-parent households are subject to less parental control than adolescents in two-parent households, which increases their chances of entering into ill-advised mating relationships that are likely to dissolve (Maccoby, 1991; McLanahan & Bumpass, 1988). However, some evolutionary theories of reproductive development provide an alternative interpretation. They suggest that differences in the sexual behavior of father-absent and father-present children are not due to differences in parental control, but instead result from divergent developmental pathways initiated in early childhood (Belsky, Steinberg & Draper, 1991, p. 660-1). This claim is contrary to evidence that fathers themselves are often intensely involved in monitoring daughters' sexual behavior (Flinn, 1988). Moreover, the idea that adolescent sexual behavior is not influenced by parental supervision is counterintuitive. It is, therefore, important to examine the relationship between adult supervision and children's behavior.

Here we examine the influence of household composition on children's behavior. First, we review research on North American populations suggesting that conjugal instability among individuals raised in father-absent households is directly related to lack of parental control of adolescents' behavior. Second, we look at the relationship between household composition and children's behavior in Bwa Mawego. The prediction is that children subject to more adult supervision are less exposed to opportunities to engage in age-inappropriate sexual behavior and delinquency.

Studies of industrial populations show that differences in adolescent sexual behavior primarily are due to differences in parental control. A study of the intergenerational consequences of marital dissolution suggests that the tendency for daughters of divorced parents to marry earlier may be due to lack of parental control. "It seems obvious that single parents would have more difficulty maintaining authority and control over daughters' dating, which, in turn, is directly related to early family formation behavior (McLanahan & Bumpass, 1988, p. 148)."

Several studies of Western populations indicate that differences in adolescent behavior result from differences in adult supervision and parental control of offspring. Newcomer and Udry (1987) examine stability and disruption in household composition and their influence on the initiation of sexual activity. They find lack of parental supervision may influence the earlier initiation of sexual activity for father-absent girls. "It is the *state of being* in a single-mother household which is important for girls, and not the disruption effect" (*Ibid* p. 238 emphasis in original). Dornbusch et al. (1985) show that household composition was the strongest predictor of adolescent deviance and was the only statistically significant association with deviance (as opposed to race or SES). In addition, analyses of family decision making processes indicate that mother-only households had less control over adolescents and that an additional adult (either father or not) increased parental control (*Ibid*). Hogan and Kitagawa (1985) found that urban, African-American teens whose parents exercise high levels of control over dating are less likely to be sexually active. Similarly, Romer et al. (1999) determined that parental monitoring significantly delayed initiation of sexual behavior.

There is one study potentially contrary to the parental supervision hypothesis. Newcomer and Udry (1984) found that timing of initial sexual encounters in adolescents is not associated

with mother's attitudes or communication patterns concerning sex. Attitudes and communication patterns, however, may not measure control behavior. There is a well-documented inconsistency between expressed attitudes and actual behavior (Bernard et al., 1986, p. 388; Johnson & Sackett, 1998, p. 302-4; Rathje & Hughes, 1975). As Newcomer and Udry (1984) caution: "the mother's attitudes, control behavior, and communication with the child are so poorly measured that the actual relationships cannot be discerned" (p. 480).

In sum, data from industrial populations indicate that differences between children's behavior of two-parent and single-parent households are probably due to differences in adult supervision. There is strong support in the literature for the hypothesis that parental supervision during adolescence affects sexual behavior, with potential consequences for subsequent conjugal stability (see also Maccoby, 1991; Flinn, 1988).

## **HYPOTHESES AND PREDICTIONS II: HOUSEHOLD COMPOSITION AND PARENTAL CONTROL**

Here we examine effects of parental control on children's behavior. Lack of parental control may facilitate early initiation of sexual activity leading to subsequent conjugal instability. Household composition is predicted to influence parental ability to control children's behavior. Specifically, availability of adult supervision is predicted to influence children's time spent roaming the village and time spent in domestically productive activity.

**Prediction 1:** Number of coresident adult kin is positively associated with children's time spent in productive activity and negatively associated with children's time spent in unsupervised roaming.

**Prediction 2:** Children's time spent with adult kin is positively associated with time spent in productive activity and negatively associated with time spent in unsupervised roaming.

**Prediction 3:** Children's time spent with mother is positively associated with time spent in productive activity and negatively associated with time spent in unsupervised roaming.

**Prediction 4:** Father-absent children spend less time with adults than do father-present children.

**Prediction 5:** Father-absent children spend less time in productive activity and more time roaming the village than do father-present children.

## **METHODS II; BEHAVIORAL SCANS**

Behavioral data were collected using instantaneous behavioral scans. The method used was a modified version of the "spot check" behavioral sampling technique (Hames, 1992; Johnson & Sackett, 1998; Quinlan, 1995). A circular spot check route that passed through every household's yard was established through one neighborhood (hamlet) of Bwa Mawego. Twice daily at a randomly determined time between 7:00 and 18:00 a researcher walked the

entire route and recorded the name, nearest neighbors, location, activities and time for each individual encountered. Scans were conducted on 30 days between May and August of 1993 and 1994. Activities were coded under nine broad categories of behavior including (1) childcare, (2) chores, (3) eat/drink, (4) hygiene, (5) transport, (6) play, (7) passive, (8) conversation, and (9) subsistence. The sample includes 2,701 observations of 86 individuals including 36 children between age 5 and 15 living in one hamlet of Bwa Mawego. The spot check method is well suited to research in Bwa Mawego. Most domestic activity during daylight hours takes place in family yards, and foot-paths used for moving about the village are generally highly visible. In addition, many villagers are accustomed to exchanging greetings and small talk with people who pass by their yards. The findings presented here, however, should be interpreted with caution because the sample is small.

Adult supervision is measured in two ways: (1) by the number of coresident adults in the child's household or family compound, and (2) as the proportion of observations of a child in the presence of an adult — i.e., the number of times a child was observed in the same place at the same time with an adult divided by the total number of observations of that child. We examine two proxy measures of parental control: (1) proportion of time a child spends roaming the village, and (2) the proportion of time a child spends in productive activity. Villagers feel strongly that older children and adolescents should not be allowed to roam about the village because such roaming exposes children to dangerous or inappropriate situations. Behavioral observations coded as "transport" indicate that an individual was seen walking or running; 87% of these occurred on footpaths or along the main road. For this analysis "transport" excludes observations also coded as household chores (e.g. carrying water). The proportion of observations of an unaccompanied child coded as "transport" serves as a measure of time spent roaming the village and, hence, as a proxy for parental control. Additionally, villagers expect a well-raised child to be helpful around the house. Hence, the proportion of time a child spends in productive activity also serves as a proxy for parental control. "Productive activity" refers to any behaviors coded as "household chores," "subsistence," or "childcare." These encompass all observed activities geared toward meeting the labor demands of the domestic unit. Under the coding system productive activity includes cleaning house; performing heavy maintenance on buildings etc.; carrying water; preparing food; washing clothes; doing small repairs; chopping firewood; washing dishes; working in gardens; tending domestic animals; fishing; and feeding, bathing, instructing, restraining, carrying, or entertaining a younger sibling/relative.

## **RESULTS II; HOUSEHOLD COMPOSITION AND CHILDREN'S BEHAVIOR**

Participant observation indicates that parents are very interested in limiting their children's — particularly girls' — movement throughout the village. Parental concerns over the whereabouts of their children are undoubtedly influenced by desire to discourage adolescent sexual encounters, which commonly take place in the bush at the periphery of the village (see also Greenfield, 1966, p. 109). In a general sense, villagers view areas beyond the immediate vicinity of their yard as a zone where an unwary person may be lured into dangerous or compromising situations. Concerned parents sometimes comment that children should not spend their time "walking up and down." Indeed, one hallmark of a "poorly brought-up" child is spending too much time roaming around the village looking for things to do. If adult supervision translates into parental control then one expects children with more supervision

to spend less time roaming about the village.

Direct observation data indicate that adult supervision influences children's behavior. Number of adult kin residing in a household is inversely associated children's time spent roaming the village ( $r_s = -.70$ ,  $N = 36$ , 1 tailed  $p < .001$ , controlling for age). Children's time spent with an adult is negatively correlated with time spent roaming about the village ( $r_s = -.28$ ,  $N = 36$ , 1 tailed  $p = .046$ , controlling for age). The amount of time a child spends with his/her mother also is significantly correlated with time spent in unsupervised roaming ( $r_s = -.50$ ,  $N = 36$ , 1 tailed  $p = .002$ , controlling for age). Children's time spent in productive activity is positively correlated with the number of adult kin residing in a child's household ( $r_s = .60$ ,  $N = 36$ , 1 tailed  $p < .001$ , controlling for age). Children's time spent in productive activity, however, is not significantly associated with time spent with adults or time spent with mother, although a trend is apparent ( $r_s = .16$  and  $.18$  respectively,  $p = .177$  and  $.150$ ,  $N = 36$ ). Results presented here are for partial Spearman's correlation coefficients (Sheskin, 1997, p. 619). Partial Pearson's correlation coefficients yielded similar results.

Next, we examine children's behavior by presence or absence of their father in the household. This analysis includes children between ages 9 and 15. In this small sample ( $N = 26$  subjects) there is considerable variation in household composition, dichotomized into father-present or father-absent categories depending on whether children live with their father for most of the year.

Results indicate differences in activity budgets of father-absent and father-present children that may involve parental control. Father-present children spend more time doing household chores than do father-absent children (Mann-Whitney  $U = 45$ , 1-tailed  $p = .02$ , see table 1). Father-present children also spend less time roaming the village than do father-absent children ( $U = 54$ ,  $p = .06$ ). Additionally, father-present children spend more time in the presence of an adult and with their mother than do father-absent children (with adult  $U = 55$ ,  $p = .07$ , with mother  $U = 36$ ,  $p = .06$ ).

Table 1.

<i>Children's Time Allocation</i>		<i>%</i>	<i>Mean Rank</i>	<i>N</i>
<i>With Adult</i>	<i>Father-absent</i>	47	11.4	14
	<i>Father-present</i>	55	15.9	12
<i>With Mother</i>	<i>Father-absent</i>	30	9.1	10
	<i>Father-present</i>	39	13.5	12
<i>Doing Chores</i>	<i>Father-absent</i>	12	10.7	14
	<i>Father-present</i>	17	16.8	12
<i>Roaming Village</i>	<i>Father-absent</i>	18	15.7	14
	<i>Father-present</i>	11	11.0	12

Table 1. Father-absent and father-present children's time allocation. Column heading "% " indicates percent of observations.

## CONCLUSION

Limitations of this study should be addressed. Genealogical data present some special difficulties. First, although it provides an indication of conjugal instability during the proposed sensitive period, the method of determining father-absence is somewhat imprecise—i.e., some father-absent individuals are misclassified as father-present. Second, the number of mates with whom individuals had children is a clear indication of conjugal stability, but it does not address the sensitive period. Taken together, however, these two variables provide valid measures of conjugal stability that demonstrate a clear trend in Bwa Mawego. In addition, the time depth provided by the genealogies gives them an advantage over cross-sectional data because genealogies allow us to demonstrate that mating patterns in Bwa Mawego have been stable over the past century. Although there are many superficial changes rapidly taking place in the village, the overall pattern of social relations remain relatively unperturbed. Genealogies and ethnography, hence, provide a definite context for understanding the quantitative behavioral observations.

In Bwa Mawego there is weak, but statistically significant, intergenerational transmission of conjugal stability. Women whose mother had multiple mates are 14% more likely to have multiple mates than women whose mother had only one mate. An evolutionary interpretation suggests that this intergenerational pattern of conjugal instability has its foundations in the early childhood family environment. A more parsimonious interpretation suggests that conditions during later childhood and adolescence may be more important in shaping adult reproductive behavior. For a species with extremely slow development, it makes little sense for *early environment* (i.e., the first 5 years) to have *strong* influence on adult behavior.

Studies of industrial populations indicate that enhanced parental control reduces adolescents' exposure to sexual activity. Ethnography of Bwa Mawego and other Caribbean communities suggests that parents' concerns over their children's whereabouts are motivated, at least in part, by desire to limit offspring exposure to sexual encounters. In Bwa Mawego, household composition influences aspects of children's behavior that indicate enhanced parental control. Therefore, if parental supervision protects girls from exposure to sexual relationships that might undermine their ability establish a stable conjugal union in the future, then the association between mothers' and female offspring's reproductive behavior could be attributed to differences in parental supervision in adolescence rather than family environment in early childhood.

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supported by applying survey analysis on the same sample. Specifically, women with higher educational attainment and career attainment actually expressed a stronger desire for marriage, albeit at a late age.

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*Paternal Engagement in Immigrant and Refugee Families*

Paternal disengagement has been identified as a key risk factor for Canadian children. Prior to this study, the specific barriers to paternal engagement facing immigrant and refugee fathers had not been studied or identified, nor had strategies been developed to ensure that the needs of this population are met in new and existing services. The design of specialized services for immigrant and refugee fathers, as well as the successful integration of immigrant and refugee fathers into existing services, requires that practitioners gain an understanding of fatherhood from a cross cultural perspective. The intent of this study was to explore the values, strengths and difficulties faced by new Canadian fathers as they negotiate a variety of Canadian experiences while coping with the struggles associated with migration. Implications of these findings for the development and implementation of programs intended to support families will be discussed.

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*Intergenerational Transmission of Conjugal Stability in a Caribbean Community*

Some evolutionary models of human behavior posit that father-absence during early childhood influences subsequent adult reproductive strategies. We compare evidence for intergenerational transmission of conjugal stability in Western industrial populations with multi-generation patterns of conjugal stability in a rural Caribbean community. Genealogies (N=803) and behavioral data for a Caribbean community suggest that father-absence during early childhood has weak influence on later conjugal stability. Father-absent females were slightly more likely to have father-absent children than were father-present females ( $p=.08$ ). Women whose mother had multiple mates were more likely to have multiple mates themselves ( $p=.03$ ). Father-absent males were not more likely to become absent fathers than were father-present males. Men whose mother had multiple mates were not more likely to have multiple mates. Evidence from industrial populations and behavioral observations in a Caribbean community suggest that parental supervision during adolescence influences children's subsequent conjugal stability.

Keywords: conjugal stability, father-absence, family environment, Caribbean, Dominica, evolution

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*Physical Punishment and Maternal Beliefs in Sweden and Canada*

The purpose of the present study was to examine the cultural embeddedness of the notions of hierarchy and solidarity in parent-child relationships at the macro and micro levels in two nations. Mothers' beliefs about and use of physical punishment in Sweden, where parental use of physical punishment has been prohibited by law, were compared to those found in Canada, where

de Hong Kong confirme notre hypothèse. Plus particulièrement, l'utilisation de l'analyse de hasard (hazard analysis) montre qu'une éducation et qu'une carrière parmi les femmes de notre sondage réduisent leurs taux de mariage, mais que cet effet a tendance à diminuer au cours de leurs vies. Une analyse par enquête du même échantillon souligne d'autant plus ce résultat. En particulier, les femmes ayant atteint un niveau plus élevé dans leur éducation et dans leur carrière ont exprimé un plus fort désir de se marier, bien qu'à un âge plus avancé.

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*Paternal Engagement in Immigrant and Refugee Families*

Le dégage­ment paternel a été identifié comme facteur de risque principal pour les enfants canadiens. Avant cette étude, les barrières spécifiques aux revêtements paternels immigré d'enclenchement et des pères de réfugié n'avaient pas été étudiés ou n'avaient pas été identifiés, ni des stratégies avaient été développées pour s'assurer que les besoins de cette population sont satisfaits dans de nouveaux et existants services. La conception des services spécialisés pour des pères d'immigré et de réfugié, aussi bien que l'intégration réussie des pères d'immigré et de réfugié dans des services existants, exige que les praticiens gagnent une compréhension de paternité d'une perspective culturelle en travers. L'intention de cette étude était d'explorer les valeurs, les forces et les difficultés faites face par de nouveaux pères canadiens comme elles négocient une variété d'expériences canadiennes tout en faisant face aux luttes s'associait au transfert. Des implications de ces résultats pour le développement et la mise en place des programmes destinés pour supporter des familles seront discutées.

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Certains modèles évolutionnistes du comportement humain posent en principe que l'absence du père pendant l'enfance est un facteur qui influence les stratégies de reproduction des adultes dans la génération subséquente. Notre étude compare les données de la transmission intergénérationnelle d'une stabilité conjugale parmi les populations des pays industrialisés de l'occident aux modèles multi-générationnels de stabilité conjugale dans une communauté rurale Antillaise. Les généalogies (N=803) et les données tirées d'une communauté au Caraïbe semblent indiquer que l'absence du père au début de l'enfance a une importance faible sur la stabilité conjugale suivante. Pour les jeunes filles d'un père absent, elles ont un peu plus de chances d'établir une famille dans laquelle le père sera absent que d'autres filles dont le père est présent ( $p=.08$ ). Les filles de mère à multi-partenaires ont une forte chance d'en avoir aussi ( $p=.03$ ). Il est peu probable que les fils de père absent risquent devenir père absent eux-même. Tandis que les jeunes garçon de mère à multi-partenaires risquent guère d'être eux-même multi-partenaires. Les données des populations de pays industrialisés aussi bien que les observations des comportements dans une communauté Antillaise semble indiquer que, pendant l'adolescence, la surveillance des parents influence la stabilité conjugale des générations suivantes.

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las mujeres a postergar, pero no a abandonar, el matrimonio, con el motivo de completar más inversión en capital humano a una edad temprana. Un análisis empírico de una base de datos nueva sobre las mujeres de Hong Kong da credibilidad a nuestro hypothesis. En particular, el uso de un análisis de riesgo muestra que una aumentación del nivel educacional y profesional de las mujeres en nuestra muestra reduce sus tasas de matrimonio, pero este efecto disminuye a través de la vida de la mujer. La aplicación de un análisis de encuesta respalda aún más este resultado. Específicamente, las mujeres que tienen un nivel educacional y de carrera más alto han expresado un deseo más fuerte para casarse, pero a una edad más avanzada.

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La retirada paternal se ha identificado como factor de riesgo dominante para los niños canadienses. Antes de este estudio, no habían estudiado ni habían sido identificados las barreras específicas a los revestimientos paternos inmigrante del contrato y a los padres del refugiado, ni las estrategias habían sido desarrolladas para asegurarse de que las necesidades de esta población están resueltas en nuevos y existentes servicios. El diseño de los servicios especializados para los padres del inmigrante y del refugiado, así como la integración acertada de los padres del inmigrante y del refugiado en servicios existentes, requiere que los médicos ganen una comprensión de la paternidad de una perspectiva cultural cruzada. El intento de este estudio era explorar los valores, las fuerzas y las dificultades hechos frente por los nuevos padres canadienses como negocian una variedad de experiencias canadienses mientras que hacía frente a las luchas se asoció a la migración. Las implicaciones de estos resultados para que el desarrollo y puesta en práctica de los programas

previstos utilicen a familias serán discutidas.

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Algunos modelos evolutivos del compartamiento humano sostienen que la ausencia paterna durante la niñez temprana influye en las estrategias reproductivas subsiguientes. Se compara la evidencia de la transmisión intergeneracional de la estabilidad conyugal en poblaciones occidentales con patrones multigeneracionales de estabilidad conyugal en una comunidad rural caribeña. Genealogías (N=803) y datos sobre el compartamiento de una comunidad caribeña sugieren que la ausencia paterna durante la niñez temprana ejerce una débil influencia sobre la estabilidad conyugal posterior. Las mujeres con padres ausentes resultaron ligeramente más proclives a tener niños con padres ausentes que las mujeres con padres presentes ( $p=.08$ ). Las mujeres cuyas madres tenían múltiples parejas resultaron a su vez más proclives a tener múltiples parejas ( $p=.03$ ). Los varones con padres ausentes no resultaron más proclives a convertirse en padres ausentes que los varones con padres presentes. Los hombres cuyas madres tenían múltiples parejas no resultaron más proclives a tener múltiples parejas. La evidencia proveniente de poblaciones industriales y las observaciones sobre el comportamiento en una comunidad caribeña sugieren que la supervisión de ambos padres durante la adolescencia influye en la subsecuente estabilidad conyugal de los niños.

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