

**Université de Montréal**

**Influences des structures familiales sur les connaissances et  
comportements de prévention du VIH/SIDA chez les adolescents  
et les jeunes au Cameroun**

Par

Zacharie TSALA DIMBUENE

Département de démographie  
Faculté des arts et des sciences

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Cette thèse intitulée :

**Influences des structures familiales sur les connaissances et  
comportements de prévention du VIH/SIDA chez les adolescents  
et les jeunes au Cameroun**

Présentée par :

Zacharie TSALA DIMBUENE

A été évaluée par

Simona Bignami  
Présidente-rapporteuse

Barthélemy Kuate Defo  
Directeur de recherche

Maria V. Zunzunegui  
Membre du jury

Ann E. Biddlecom  
Examinatrice externe

Représentant du doyen de FES

## Résumé

En dépit de nombreuses interventions en santé reproductive en Afrique subsaharienne, la trilogie « IST/VIH/SIDA - grossesses précoces - avortements » persiste à des niveaux très élevés par rapport aux autres parties du monde. Cela indique que les nombreuses interventions en santé reproductive auprès des adolescents et des jeunes ont enregistré peu de succès en ce qui concerne le changement des comportements sexuels. Ces interventions se focalisent souvent sur l'individu, et négligent les environnements sociaux et culturels dans lesquels se forge le vécu de la sexualité chez les jeunes. Un de ces agents de socialisation est la famille, où les individus naissent, grandissent, et sont socialisés selon les valeurs et normes en vigueur.

Fort de ce constat, l'objectif principal de la présente thèse est de resituer l'environnement familial au cœur des débats en santé reproductive chez les adolescents et les jeunes en Afrique subsaharienne. Trois questions spécifiques sont examinées dans cette thèse. Premièrement, elle aborde les associations entre les structures familiales et l'entrée en sexualité. Deuxièmement, elle analyse leurs influences sur les connaissances des modes de transmission et des moyens de prévention du VIH/SIDA. Troisièmement, elle cherche à déterminer les forces potentielles dans les familles dites « à risque » (ayant au plus un parent biologique) à partir de la théorie de résilience selon laquelle des facteurs familiaux et contextuels peuvent atténuer les comportements sexuels à risque chez les adolescents et jeunes.

Cette thèse démontre substantiellement que vivre avec ses deux parents biologiques, la nature des relations entre parents/tuteurs et le jeune et un niveau élevé du contrôle parental sont significativement associés à de faibles risques des rapports sexuels prémaritaux. Par contre, les

unions polygamiques, un statut socioéconomique élevé du ménage, et le fait d'être orphelin augmentent significativement le risque de rapports sexuels prémaritaux.

L'étude démontre aussi que l'environnement familial et la communication sur la sexualité, aussi bien avec les parents/tuteurs qu'avec les pairs, jouent un rôle fondamental dans l'acquisition des connaissances correctes des modes de transmission et de prévention du VIH/SIDA. Néanmoins, le rôle des parents/tuteurs sur l'acquisition des connaissances sur le VIH/SIDA s'avère indirect puisqu'elle repose sur une hypothèse implicite. Seule une mesure directe des connaissances des parents sur les modes de transmission et les moyens de prévention peut mieux rendre compte de cette association.

Les résultats obtenus à partir de la théorie de résilience indiquent, dans chaque type de familles, que la qualité des relations entre les parents/tuteurs et le jeune est significativement associée à une faible probabilité de comportement sexuel à risque, défini comme étant la cooccurrence de plusieurs partenaires sexuels au cours de 12 derniers mois et de non-utilisation du condom. Par contre, le contrôle parental est associé à une faible probabilité de comportement sexuel à risque seulement dans les familles à deux parents biologiques. Ce résultat suggère que l'influence du contrôle parental baisse une fois que les jeunes ont eu une expérience sexuelle. Les interventions en santé reproductive devraient promouvoir chez les parents/tuteurs les facteurs familiaux susceptibles de réduire les comportements sexuels à risque.

**Mots-clés :** Structures familiales, socialisation, contrôle social, changements familiaux, résilience, sexualité prémaritale, VIH/SIDA.

## **Abstract**

In spite of numerous reproductive health interventions in sub-Saharan Africa, the trilogy “STDs/HIV/AIDS - Unwanted pregnancies - Abortion” remains at the highest rates compared with other regions of the world. In fact, youth-oriented reproductive health programmes did not work adequately in sub-Saharan Africa, as regards changes in risky sexual behaviors. These interventions have often focused on individuals, and have neglected socio-cultural environments in which sexual behaviors are shaped. One of the most influential contexts is the family in which young people are born, grow up, learn and internalize norms and values about socially acceptable behaviors and sexual conduct.

In order to fill this gap, this research aims to address the centrality of family structure in reproductive health debate in sub-Saharan Africa where little is known about its potential influences on sexual behaviors. Three issues are of interest in this thesis. Firstly, the study examines the interplay of family structure and premarital sexual intercourse. Secondly, it addresses the role of family structures in shaping accurate and inaccurate HIV/AIDS knowledge of transmission routes and preventive strategies. Thirdly, using the resilience theory, the study aims to determine the strengths within families “at-risk” that can prevent young people from engaging in risky sexual behaviors.

The research substantiates that living in two-parent families, higher levels of parent/guardian monitoring, and good parent/guardian-youth relationships are associated with lower rates of premarital sexual intercourse. By contrast, polygamous families, parent/guardian-youth communication about sexuality, higher household socioeconomic status, change in family

structure, and orphanhood were significantly associated with higher rates of premarital sexual intercourse.

The study also finds that family structure as well as family/peer communication about sexuality is key explanatory variable on which HIV education and prevention efforts should be directed at. A more direct effect of family structure must be addressed in future research, using direct measures of parent/guardian's HIV knowledge.

Finally, using the resilience theory, this thesis finds that good parent/guardian-youth relationships are associated with lower rates of risky sexual behaviors, captured by the co-occurrence of multi-partnership and condom non-use in the last 12 months preceding the surveys, irrespective of the type of family. Parental monitoring showed a protective effect only in two-parent families. This finding suggests that when young people are sexually experienced, parental monitoring becomes less efficient than when they are not. HIV interventions must put emphasis on these factors that help to reduce risky sexual behaviors among young people even among those living in the so-called "at-risk" families.

**Key words:** Family structure, socialization, parental control, family changes, resilience, accuracy of HIV/AIDS knowledge, premarital intercourse.

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## Dédicace

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En mémoire à mes parents

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# CHAPITRE PREMIER : INTRODUCTION GÉNÉRALE

## I.1 Énoncé du problème

La littérature sur l'entrée en sexualité des adolescents et des jeunes dans le monde et en Afrique subsaharienne indique que l'initiation sexuelle survient souvent à l'adolescence entre 15 et 20 ans (Bozon, 2003; Gage, 1998; Gupta, 2000; Gupta & Mahy, 2003; Kayembe et al., 2008; Leke, 1998; Zabin & Kiragu, 1998). Par ailleurs, les conséquences de la sexualité précoce et/ou prénuptiale sont suffisamment documentées. Elles se subdivisent en composantes sanitaire et socio-économique; et elles sont plus importantes en Afrique subsaharienne comparativement aux autres régions du monde (Kuate Defo, 2006; Meekers, 1994; Zabin & Kiragu, 1998). Lorsqu'elle est précoce, l'entrée en sexualité prémaritale est souvent associée à une prévalence élevée des infections sexuellement transmissibles (IST, y compris le VIH/SIDA) (Boerma & Gregson, 2003; Pettifor, van der Straten, Dumbar, Shiboski, & Padian, 2004) et des grossesses prénuptiales (Kaptue, 1998; Zabin & Kiragu, 1998). Bon nombre de filles abandonnent ou sont simplement chassées de l'école à cause d'une grossesse (Meekers & Ahmed, 1999), alors que les garçons peuvent être rejetés par leurs familles lorsqu'ils sont l'auteur d'une grossesse prénuptiale.

En dépit de leur contribution notable, les facteurs explicatifs dans les études sur l'entrée en sexualité en Afrique subsaharienne reposent en grande partie sur les caractéristiques individuelles des adolescents et des jeunes. De cette manière, elles ignorent les contextes dans lesquels se produit l'initiation sexuelle. L'un de ces facteurs majeurs est la famille, agent de socialisation par excellence dans toutes les sociétés du monde, à côté de l'école, la religion et bien d'autres associations ayant le rôle d'accompagner et d'assurer aux

adolescents et aux jeunes les meilleures transitions tout au long de la vie (Furstenberg, 2000). Alors que les associations entre la structure familiale et l'entrée en sexualité sont largement documentées dans les pays développés (Albrecht & Teachman, 2004; Wu, 1996; Wu & Martinson, 1993; Wu & Thomson, 2001), peu de choses sont connues dans le contexte spécifique de l'Afrique subsaharienne quant au rôle de la famille sur la transition des adolescents et des jeunes vers la vie sexuelle. Quelques exceptions existent (Babalola, 2004; Babalola, Tambashe, & Vondrasek, 2005; Chatterji, Murray, London, & Anglewicz, 2005; Ngom, Magadi, & Owuor, 2003; Tambashe & Shapiro, 1996; Thurman, Brown, Richter, Maharaj, & Magnani, 2006), qui rapportent que la structure familiale dans laquelle l'adolescent ou le jeune a vécu (ou vit) influence la primo-sexualité.

Malgré le foisonnement des études sur les associations entre les structures familiales et les comportements sexuels des adolescents et des jeunes, il n'en demeure pas moins que les résultats sont mitigés, dans la mesure où certaines études rapportent un effet négatif et significatif en faveur des familles avec deux parents biologiques comparés aux autres types, alors que d'autres indiquent un effet non significatif (Schneider, Atteberry, & Owens, 2005). Il nous paraît donc important d'examiner l'association entre les structures familiales et l'entrée en sexualité prémaritale dans le contexte de l'Afrique subsaharienne.

### **Question de recherche n°1**

Quelles sont les influences des structures familiales sur l'entrée en sexualité des adolescents et des jeunes adultes?

Étant donné les conséquences sanitaires auxquelles s'exposent les jeunes lors du premier rapport sexuel, souvent non protégé en Afrique subsaharienne, celui-ci a toujours été considéré comme une des stratégies de lutte contre les IST/VIH/SIDA et fait partie de la stratégie ABC (*de l'anglais Abstinence – Be Faithful, and Use a Condom*) (Heald, 2002). Les programmes et interventions en santé reproductive encouragent les adolescents et les jeunes de s'abstenir des relations sexuelles dehors du mariage. Le constat indique que malgré les différentes campagnes de sensibilisation contre les IST et particulièrement le VIH/SIDA, les adolescents et les jeunes continuent de s'engager dans des comportements sexuels à risque. C'est dans ce sens que fut avancée l'hypothèse d'un déficit des connaissances en ce qui concerne les modes de transmission et les moyens de prévention du VIH/SIDA (Kinsman & al., 2001; Klepp, Ndeki, Leshabari, Hannan, & Lyimo, 1997; Speizer, Magnani, & Colvin, 2003). Selon cette hypothèse, les comportements sexuels à risque des adolescents et les jeunes résulteraient d'un manque des connaissances adéquates sur les modes de transmission et les moyens de prévention des IST/VIH/SIDA. Cette vision a été à la genèse d'une série des enquêtes du type « connaissances, attitudes, croyances et pratiques (CAP) » basées sur le modèle des croyances relatives à la santé (*de l'anglais Health Belief Model*) ; l'objectif primordial étant l'amélioration des connaissances sur les IST/VIH/SIDA qui, subséquemment, devrait entraîner l'adoption des comportements de prévention (Cleland & Ferry, 1995; London & Robles, 2000).

Selon le modèle des croyances relatives à la santé, les individus vont adopter les comportements de prévention nécessaires (i) s'ils se considèrent à risque de contracter le sida et (ii) que le SIDA est une maladie incurable ; (iii) qui peut être évité par des moyens préventifs et (iv) disposent des ressources nécessaires pour adopter des comportements de

prévention (Godin, 1991). Dans ce sens, la connaissance des modes de transmission et des moyens de prévention du VIH/SIDA devient une étape importante pour la promotion des comportements de prévention contre le VIH/SIDA chez les adolescents et les jeunes. En d'autres termes, une meilleure connaissance du VIH/SIDA peut modifier les attitudes et les croyances des individus qui en situation réelle, feraient un choix rationnel et éclairé pour se protéger contre le VIH/SIDA en adoptant des comportements de prévention.

Le résultat probant de ces interventions et programmes montre qu'au moins 90 % des individus âgés de 15 ans et plus dans la plupart des pays savent que le SIDA existe (UNAIDS, UNICEF, & WHO, 2004). Par contre, ils sont peu nombreux ceux qui disposent des connaissances correctes aussi bien sur les modes de transmission que les moyens de prévention du VIH/SIDA (Bankole, Ahmed, Neema, Ouedraogo, & Konyani, 2007; Türmen, 2003). De même et ceci est important, les connaissances erronées des modes de transmission chez les adolescents et les jeunes persistent (Bankole et al., 2007). À titre d'exemple, une étude effectuée auprès des jeunes Malawites en milieu scolaire indique que 15 % d'entre eux pensent que le SIDA se transmet par des piqûres des moustiques (MacLachlan & al., 1997).

Par ailleurs, les études qui traitent de la mesure des connaissances du VIH/SIDA les considèrent comme un ensemble homogène en englobant indistinctement les connaissances correctes et les croyances erronées (London & Robles, 2000). Pourtant, ces dernières peuvent constituer une source de mauvaises décisions et doivent être prises en compte en tant que composante à part entière dans les programmes de lutte contre le VIH/SIDA (Ingham, 1995; VanLandingham, Grandjean, Suprasat, & Sittitrai, 1997). Comprendre les

différentes facettes des connaissances du SIDA en tant que concept multidimensionnel devient essentiel dans la recherche sur les interventions du VIH/SIDA.

De l'autre côté, les résultats empiriques indiquent que des différences selon le genre sont généralement observées en ce qui concerne les connaissances sur le VIH/SIDA (Gwatkin & Deveshwar-Bahl, 2002). Des facteurs culturels et socio-économiques expliqueraient ce décalage du niveau de connaissances du sida entre les hommes et les femmes (Türmen, 2003). Les stéréotypes de genre ancrés dans la plupart des sociétés veulent que femmes soient moins informées et passives sur la sexualité. Celles qui auraient de bonnes connaissances sur la sexualité sont soupçonnées d'être sexuellement hyperactives (Akwara, Madise, & Hinde, 2003; Wingood & DiClemente, 2000). Ces stéréotypes limitent l'accès à l'information des filles alors qu'elles sont les premières victimes des conséquences du VIH/SIDA.

Dans cette quête d'amélioration des connaissances sur le VIH/SIDA, les campagnes de sensibilisation par les médias (radio et télévision) et les pairs ont joué un rôle de premier abord. Par contre, l'influence des parents sur l'amélioration des connaissances sur le VIH/SIDA chez les adolescents et les jeunes est peu documentée (Pequegnat et al., 2001; Pequegnat & Szapocznik, 2000; Perrino, González-Soldevilla, Pantin, & Szapocznik, 2000; Sigelman, Mukai, Woods, & Alfred, 1995; Tinsley & Lees, 2004). Pour justifier cette lacune, la sexualité en Afrique subsaharienne est souvent présentée comme un « sujet tabou » qu'il n'est pas possible de discuter en famille ou entre partenaires sexuels. Dans une étude récente sur les effets d'un programme en santé reproductive en Afrique de l'Ouest, Boileau et collègues sont arrivés à la même conclusion (Boileau, Rashed, Sylla, &

Zunzunegui, 2008). C'est aussi dans ce cadre que se développent plusieurs interventions auprès des parents des adolescents pour les aider à développer les capacités de discuter de la sexualité et du bien-être en général (WHO, 2007a, 2007b) . En effet, les parents doivent jouer un rôle de première importance dans la recherche de l'information correcte sur le SIDA qui doit permettre aux adolescents et aux jeunes de développer les habiletés nécessaires pour se protéger contre le SIDA s'ils sont déjà actifs sexuellement ou à tout le moins, d'en disposer au moment où ils (elles) décident de commencer leur vie sexuelle. La deuxième question vise ainsi à élucider les rôles potentiels des structures familiales sur l'acquisition des connaissances exactes sur le SIDA.

### **Question de recherche n°2**

Quelles sont les influences des structures familiales, de la communication sur la sexualité entre parents/tuteurs-enfant ou avec les pairs sur la connaissance correcte du SIDA chez les adolescents et les jeunes adultes ?

L'acquisition des connaissances correctes implique en effet des interactions soutenues entre les parents et les adolescents et/ou les jeunes. C'est à travers la communication que les parents transmettent à leurs enfants les valeurs et les normes socialement acceptées. Partant, la communication parents - enfants apparaît essentielle tout au long de ce processus de socialisation. Hormis les parents, il est apparu fréquemment dans la recherche et les interventions que les pairs jouent également un rôle non négligeable, en tant que sources d'informations sur le VIH/SIDA (Campbell & MacPhail, 2002). Cette question permettra également de cerner l'importance de la communication des adolescents et des jeunes avec leurs parents ou leurs pairs dans l'acquisition des connaissances reliées au VIH/SIDA. La

communication parents/tuteurs-enfants, ou encore la communication avec les pairs, sont-elles déterminantes dans l'acquisition des connaissances du SIDA ? Quelles sont les familles où les adolescents et les jeunes présentent des niveaux élevés (ou faibles) des connaissances correctes et/ou incorrectes des modes de transmission, et des moyens de prévention du SIDA?

Les adolescents et les jeunes vivent dans un monde en perpétuelle mutation, et dans des conditions socioéconomiques de plus en plus difficiles qui entraînent à leur tour des transformations des structures familiales et des interactions avec leurs parents (Blum, 2007; Marie, 1997). Dans les études des associations entre les structures familiales et les comportements sexuels, le rôle de la pauvreté est apparu essentiel (Madise, Zulu, & Ciera, 2007; Masanjala, 2007; Meekers & Calvès, 1997; Rwenge, 2003). Certaines études indiquent que les comportements sexuels des adolescents et des jeunes en Afrique subsaharienne seraient économiquement motivés (Kuate Defo, 2004; Meekers & Calvès, 1997). Mais en réalité, tous les adolescents et les jeunes ne s'engagent pas nécessairement dans des comportements sexuels à risque malgré les adversités dans lesquelles ils vivent (Michaud, 2006; Rutter, 1993; Rutter & Hay, 1994).

Bien que l'entrée en sexualité soit une partie intégrante du processus normal de développement humain (Rutter, 1993), les études sur les comportements sexuels adoptent souvent l'approche pathogénique (ou modèle déficitaire) qui privilégie le risque en opposant les facteurs de risque et de protection (Deković, 1999; Jessor, 1991; Jessor, Turbin, & Costa, 1998). Si les facteurs de risque sont associés à des comportements socialement réprimés (sexualité précoce/prémaritale, consommation de l'alcool et des

drogues), les facteurs de protection interagissent avec eux en tant qu'amortisseur des risques possibles. Ces deux groupes de facteurs se situent au niveau individuel et/ou familial (Deković, 1999) ou communautaire (Brewster, 1994; Brewster, Billy, & Grady, 1993; Kauffmann, Clark, Manzini, & May, 2004; Stephenson, Baschieri, Clements, Hennink, & Madise, 2007). À l'opposé, Michaud (2006) plaide pour un changement de paradigme en privilégiant l'approche salutogénique. Cette dernière considère les forces, plutôt que les carences, les manques ou les imperfections, qui existeraient dans les environnements sociaux (notamment les familles) où vivent les adolescents et les jeunes, pour les renforcer afin qu'elles constituent un véritable maillon de protection contre les comportements à risque.

Au lieu de considérer les familles comme un ensemble homogène, en opposant les familles stables aux familles instables, ou les familles biparentales aux familles monoparentales, les unes étant des familles de protection et les autres, les familles à risque ; il convient de comprendre que les adversités à la base des comportements à risque existent dans n'importe quel type de familles, bien qu'à des degrés divers. Ceci est d'autant plus vrai dans le contexte généralisé de pauvreté comme en Afrique subsaharienne, où les parents deviennent incapables de contrôler et/ou guider leurs enfants tout simplement parce qu'ils ne peuvent subvenir à leurs besoins primaires (habillement, scolarité, logement, etc.). De ce constat découle la troisième question de recherche.

### **Question de recherche n°3**

La littérature courante présente les familles n'ayant pas les deux parents biologiques comme étant des familles à risque, où les enfants seraient exposés à des risques élevés en



ce qui concerne l'entrée en sexualité, la non-utilisation de la contraception, la consommation des drogues, l'abandon scolaire, et l'appartenance aux gangs de rue. Contrairement à cette vision pathogénique, cette étude vise à répondre à la question suivante : quels sont les facteurs de protection qui peuvent être décelés dans les familles dites à risque et qui peuvent servir des points d'ancrage à développer pour réduire davantage les comportements à risque chez les adolescents et les jeunes, notamment en ce qui concerne la prévention du VIH/SIDA ?

Les études rapportent que les processus familiaux, incluant la communication intra-familiale sur la sexualité, le contrôle parental, le soutien émotionnel et financier, et les styles parentaux sont autant des facteurs qui peuvent être des forces sur lesquels les jeunes peuvent s'appuyer pour vaincre les adversités auxquelles ils sont exposés dans l'enfance ou à l'adolescence (Greeff & van Der Merwe, 2004; Mackay, 2003). Ainsi, il s'agira d'examiner les caractéristiques individuelles, familiales ou communautaires qui peuvent être bénéfiques aux jeunes et qui réduisent leurs comportements sexuels à risque.

## **1.2 Objectifs de l'étude**

La famille est le socle de toute société, et joue un rôle indéniable sur les connaissances du VIH/SIDA et les comportements sexuels des adolescents et jeunes. Et pourtant, les liens étroits qu'elle entretient avec différents aspects de la santé reproductive sont jusqu'ici peu documentés en Afrique subsaharienne. En plus, que ce soit dans les pays du Nord que du Sud, ces études souffrent des limites conceptuelles importantes concernant l'opérationnalisation des structures familiales. Les définitions conceptuelles varient souvent d'une étude à l'autre (Miller, 2002; Schneider et al., 2005).

Certaines études nord-américaines privilégient la dichotomie « familles stables *versus* familles instables » alors que d'autres adoptent une description plus ou moins détaillée. Ces différences méthodologiques et conceptuelles peuvent expliquer, du moins partiellement, les divergences des résultats obtenus dans les différentes études, en même temps qu'elles handicapent la comparaison des résultats.

Cette recherche vise à contribuer de manière plus large à documenter les liens entre les structures familiales et les connaissances des modes de transmission et des moyens de prévention du VIH/SIDA d'une part; et d'autre part, avec les comportements sexuels des adolescents et les jeunes dans le contexte africain. Plus spécifiquement, elle devra:

- (i) Déterminer l'influence des structures familiales sur l'entrée en sexualité des adolescents et des jeunes. En effet, la transition vers la vie sexuelle est un marqueur important dans la vie d'un individu, et en même temps, elle est associée à diverses conséquences sanitaires, économiques et sociales. Il s'avère donc utile de mieux comprendre le rôle que jouerait la famille dans cette transition, d'autant que de plus en plus d'études mettent en exergue les transformations sociales et familiales en Afrique subsaharienne (Blum, 2007; Lloyd & Desai, 1992; Marie, 1997).
- (ii) Déterminer l'influence des structures familiales sur la connaissance du SIDA, celle-ci étant traitée en tant que concept multidimensionnel incluant la transmission et la prévention du VIH/SIDA. Etant donné l'importance des connaissances du SIDA

dans le processus d'adoption des comportements de prévention, le rôle des parents (ou de la famille) en tant qu'agents de socialisation, est primordial.

- (iii) Identifier les facteurs de protection dans les familles dites « à risque » qui pourraient permettre davantage aux adolescents et aux jeunes de se protéger contre les IST et le VIH/SIDA.

## CHAPITRE DEUXIÈME : REVUE DE LITTÉRATURE ET HYPOTHÈSES

De nombreuses études ont été effectuées en vue de comprendre les liens entre les structures familiales et les comportements « déviants », dont la sexualité prémaritale (Albrecht & Teachman, 2004; Karim, Magnani, Morgan, & Bond, 2003; Tamashe & Shapiro, 1996), les naissances hors mariage (Hogan & Kitagawa, 1985; McLanahan, 1988; Wojtkiewicz, 1994), la persévérance scolaire (Heard, 2007), la consommation des drogues et l'appartenance aux gangs de rue (Demuth & Brown, 2004). D'un point de vue théorique, ces études sont basées sur trois principales hypothèses qui constituent le soubassement théorique de la thèse : (i) la socialisation, (ii) le contrôle social, (iii) et l'instabilité et les changements familiaux.

En Afrique subsaharienne, les études ayant abordé les interrelations entre les structures familiales et les comportements sexuels ont adopté une approche anthropologique (Djamba, 2003) ou microéconomique (Cherlin & Riley, 1986; Meekers, 1994). L'approche anthropologique suppose que les comportements sexuels des individus sont tributaires de l'organisation sociale, selon laquelle le système de parenté (matriarcal vs. patriarcal) et la religiosité seraient des éléments importants à considérer si l'on veut comprendre les comportements sexuels des individus (Djamba, 2003). De son côté, l'approche microéconomique met l'accent sur les effets de l'urbanisation et de l'éducation ayant entraîné la désarticulation des sociétés traditionnelles qui à son tour a réduit le contrôle social des aînés sur les cadets (hypothèse de la désorganisation sociale) à cause de la pauvreté croissante (hypothèse d'adaptation rationnelle). L'hypothèse d'adaptation

rationnelle postule que les comportements sexuels sont économiquement motivés. En d'autres termes, les adolescents et les jeunes s'engagent dans des comportements sexuels à risque pour satisfaire leurs besoins matériels et financiers (Meekers, 1994). Ce qui suppose également que la famille en tant qu'environnement social, incapable de répondre aux besoins de sa progéniture, est au cœur des débats. Mais de manière pratique, ces études se sont focalisées sur les caractéristiques individuelles (âge, sexe, instruction) et parfois contextuels (milieu de résidence) pour comprendre les motivations sexuelles des adolescents et des jeunes. Ces facteurs sont importants mais ne laissent que peu de place à l'environnement familial des adolescents et des jeunes. Ainsi, la présente étude privilégie les hypothèses centrées sur la famille pour resituer son rôle au cœur des débats sur les comportements sexuels (à risque). Cela étant, les grands axes de chacune des hypothèses et les évidences qui y sont rattachées sont présentés dans les sections ci-après.

## **II.1 Hypothèse 1 : La socialisation**

Rocher (1968) définit la socialisation comme étant « *le processus par lequel la personne humaine apprend et intériorise tout au cours de sa vie les éléments socioculturels de son milieu, les intègre à la structure de sa personnalité sous l'influence d'expériences et d'agents sociaux significatifs et par là s'adapte à l'environnement social où elle doit vivre* ». Vu sous cet angle, la socialisation intègre deux aspects fondamentaux mais complémentaires, à savoir l'apprentissage et l'intériorisation d'autrui, qui ne peuvent se réaliser que par le truchement d'agents privilégiés, à savoir : la famille, l'école, la religion et d'autres associations diverses (Arnett, 1995).

Cette hypothèse trouve ses racines dans le processus de développement de l'enfant selon lequel les relations entre les parents et les enfants durant la petite enfance et l'adolescence entraînent, à long terme, des conséquences plus ou moins durables sur les comportements à l'âge adulte (Adams, 1989; Atwater, 1988; Prata, Vahidnia, & Fraser, 2005; Wu & Martinson, 1993). En tant que tel, elle s'apparente à la théorie de l'apprentissage social (Bandura, 1977), selon laquelle l'enfant reproduirait à l'âge adulte les modèles parentaux dans lesquels il aura grandi, qui vont influencer également ses manières de penser et d'agir.

De nombreuses études se sont appuyées sur cette hypothèse pour expliquer les comportements sexuels des individus à l'adolescence et à l'âge adulte. Mais du point de vue empirique, les résultats ne convergent pas nécessairement. Ils indiquent que les enfants ayant grandi dans les familles avec deux parents biologiques reproduisent souvent des modèles positifs, ceux-ci étant définis comme « l'externalisation des comportements socialement acceptés ». Ce résultat se retrouve dans bon nombre d'études effectuées aussi bien dans les pays développés (Albrecht & Teachman, 2004; Browning, Leventhal, & Brooks-Gunn, 2005; Langille, Curtis, Hughes, & Murphy, 2002, 2003; Miller, Benson, & Galbraith, 2001; Wu & Thomson, 2001) que dans les pays en développement (Babalola, 2004; Babalola et al., 2005; Kumi-Kyereme, Awusabo-Asare, Biddlecom, & Tanle, 2007; Magnani et al., 2002; Rwenge, 2003; Vukovic & Bjegovic, 2007).

Des études n'ayant pas ciblé principalement la structure familiale au Cameroun (Rwenge, 2003), en République Démocratique du Congo (Kayembe et al., 2008), au Nigeria (Amoran, Onadoko, & Adeniyi, 2005) et en Zambie (Magnani et al., 2002) rapportent également que les adolescents et jeunes vivant avec leurs deux parents biologiques

présentaient un risque faible de sexualité prémaritale par rapport à leurs homologues qui résidaient dans d'autres types de familles.

Par contre, une étude menée à Belgrade (Serbie) auprès des adolescents scolarisés de deux sexes âgés de 15 ans rapporte que la structure familiale n'avait aucun effet statistiquement significatif sur l'entrée en sexualité (Vukovic & Bjegovic, 2007). De même, une étude auprès des adolescentes âgées de 14 à 20 ans en Nouvelle Écosse au Canada indique l'absence d'une association entre la structure familiale et l'utilisation de la contraception (Langille et al., 2002). Néanmoins, cette étude traite indistinctement les familles recomposées et celles ayant deux parents biologiques. Ce qui pourrait influencer de manière erratique les résultats puisque les deux types des familles pourraient avoir des styles parentaux différents.

Pour mieux comprendre l'influence de la famille sur les enfants à travers la socialisation, il est important d'analyser les différentes composantes qui articulent cette hypothèse : les relations parents-enfants, l'absence du père biologique et/ou la monoparentalité, la légitimité des naissances, et le type d'union conjugale.

#### **a) Relations parents-enfants au sein de la famille**

Selon cette perspective, les chercheurs estiment que les interactions quotidiennes peuvent constituer pour les enfants des occasions précieuses d'apprendre, de préparer et d'affiner les capacités qui leur permettent de développer des habiletés sociales, et par conséquent des comportements sociaux dits « normaux » (Parke et al., 2006). Ces interactions débutent tôt dans l'enfance et se poursuivent durant l'adolescence. Elles seraient plus harmonieuses

dans les familles à deux parents biologiques et mariés (Albrecht & Teachman, 2004; Atwater, 1994; Crockett & Raffaelli, 2003; Miller et al., 2001; Miller & Bingham, 1989; Miller, McCoy, Olson, & Wallace, 1986; Miller et al., 1997; Simons, Chen, Simons, Brody, & Cutrona, 2006). À travers ces interactions, les parents transmettent les normes et valeurs socialement acceptées qui guideront plus tard la conduite de l'enfant à l'âge adulte (Clark & Worthington, 1990).

Dans ce processus de socialisation, la communication (aussi bien générale que celle centrée sur les aspects liés à la sexualité) prend toute son importance et détermine substantiellement la qualité des interactions au sein de la famille par le discours et la verbalisation de différents aspects de la vie (Greeff & van Der Merwe, 2004), y compris ceux reliés à la sexualité. C'est aussi à travers une bonne communication que les parents peuvent forger une confiance mutuelle avec leurs enfants, de la sorte que ceux-ci les perçoivent comme des modèles dont ils décident de perpétuer les normes et les valeurs au cours de la vie (Parke et al., 2006). Ceci est également vrai dans le domaine de la sexualité où les adolescents et jeunes accusent des lacunes importantes, et qu'en même temps ils ne peuvent communiquer aisément avec leurs parents.

Dans cette entreprise, les parents sont aidés par les autres membres de famille qui sont les oncles et les tantes, et les grands-parents (Kumi-Kyereme et al. 2007). De même, les frères et sœurs, les cousins et cousines sont une source importante de l'information sur la sexualité en Afrique subsaharienne (Amuyunzu-Myamongo, Biddlecom, Ouedraogo, & Woog, 2005). En effet, le dialogue entre frères ou entre sœurs souffrent de moins de



barrières que celui qui existe entre les jeunes et leurs parents. Cela facilite à bien d'égard l'acquisition des connaissances sur la sexualité à travers cette source.

En dépit de cette importance, les résultats des associations entre la communication parents-enfants et les comportements sexuels divergent. En effet, certaines études indiquent que la communication parents-enfants sur la sexualité diminuent la probabilité des rapports sexuels prémaritaux (Holtzman & Rubinson, 1995; Jaccard, Dittus, & Gordon, 1996) et la fréquence des rapports sexuels non protégés chez les adolescents et des jeunes (Hutchinson, Jemmot, Jemmot, Braverman, & Fong, 2003). D'autres études indiquent par contre qu'elle augmente le risque de la sexualité prémaritale (Davis & Friel, 2001).

Bien que relativement peu nombreuses, certaines études transversales menées en Afrique subsaharienne ont analysé l'association entre la communication parents/tuteurs-enfants et les comportements sexuels des adolescents et des jeunes (Karim et al., 2003; Meekers & Ahmed, 2000). Dans une étude sur les adolescents au Botswana, Meekers et Ahmed (2000) analysent entre autre les effets de l'éducation sexuelle selon différentes sources d'information (parents, autres membres de famille, et pairs). Les auteurs concluent que l'éducation sexuelle donnée par les parents est associée significativement à un risque faible de sexualité prémaritale pour les garçons et à un risque plus élevé mais non significatif chez les filles. Cette étude trouve aussi un résultat qui s'éloigne de la tendance générale des études sur les comportements sexuels, dans la mesure où elle rapporte que 59 % d'adolescentes perçoivent leurs parents comme une importante source d'information en santé reproductive (Meekers & Ahmed, 2000: p. 478). La proportion correspondante chez les garçons est également élevée (31 %). L'explication possible est que les parents ont

effectivement joué un rôle de premier plan dans l'éducation sexuelle de leurs enfants dans le contexte des prévalences élevées du VIH/SIDA dans ce pays en particulier et dans la région. Néanmoins, ce résultat ne peut être généralisé au vu de la situation globale de l'Afrique subsaharienne, mais donne une indication claire du rôle potentiel que pourraient jouer les parents s'ils s'impliquent dans l'éducation sexuelle de leurs enfants.

Dans une étude portant sur les facteurs de risque et de protection chez les adolescents et jeunes adultes au Ghana (12 - 24 ans), Karim et al. (2003) ont analysé l'impact de la communication avec les membres de famille sur la sexualité, incluant les mères (ou tuteurs), les pères (ou tuteurs), les tantes, les oncles ou les frères et sœurs. Lorsque la communication a porté sur la nécessité d'éviter les relations sexuelles, les résultats indiquent que les garçons et les filles sont plus enclins à ne pas avoir expérimenté une relation sexuelle prémaritale. Ce résultat n'est significatif que chez les filles.

Par ailleurs, d'autres études rapportent que les parents communiquent peu avec leurs enfants dans le domaine de la sexualité (Tinsley & Lees, 2004). Il est donc possible que leur contribution à l'amélioration des connaissances sur les IST/VIH/SIDA ou toute autre question en rapport avec la santé reproductive soit modeste à cause du faible niveau de communication sur la sexualité qui est toujours présenté comme un sujet tabou (Boileau et al., 2008).

Bien que la sexualité soit une dimension importante dans le développement de la personne, plusieurs parents prônent encore le maintien des normes traditionnelles rigides en matière de sexualité (« ne pas parler ouvertement de la sexualité ») car l'éducation sexuelle

encourage la débauche et la sexualité prémaritale (Izugbara, 2008). Cette vision contraste avec leur vécu sexuel qui indique que les adolescents et les jeunes ont de plus en plus tôt leurs premières relations sexuelles et s'exposent ainsi aux risques des IST/ VIH/SIDA (Pillai & Gupta, 2000). Pour pallier à cette situation, les amis et les enseignants deviennent des sources importantes d'information sur la sexualité et les préservatifs (Nichols, Ladipo, Paxman, & Otolorin, 1987; Schofield, 1971). Ceci justifie toute l'importance accordée à la stratégie de l'éducation par les pairs dans les interventions en santé reproductive en lieu et place des parents (Fitzgerald et al., 1999; Karim et al., 2003; Kim, Kols, Nyakuru, Marangwanda, & Chibatamoto, 2001; Stanton et al., 1998), mais en même temps ne peut expliquer que les parents soient presque totalement ignorés dans les activités des programmes et interventions sur le VIH/SIDA.

L'autre défi réside dans les connaissances mêmes des parents (Tinsley & Lees, 2004). Pour être capable de servir des mentors ou d'éducateurs des enfants en matière de sexualité, ils doivent posséder suffisamment des connaissances sur la biologie humaine et les IST/VIH/SIDA, notamment en ce qui trait aux modes de transmission et aux moyens de prévention (Parke et al., 2006; Sigelman et al., 1995). En l'absence de telles données, les études posent l'hypothèse simpliste (*du moins dans le contexte de l'Afrique subsaharienne*) que les parents disposent des connaissances nécessaires mais ne veulent pas communiquer ou se gênent de discuter de la sexualité avec leurs enfants. Ceci ne peut être confirmé en l'absence d'études qui établissent des liens directs entre les connaissances des parents et celles de leurs enfants dans le cas du VIH/SIDA.

Étayons la problématique des connaissances du VIH/SIDA chez les adultes à partir des données de l'EDS-2004 du Cameroun. Celles-ci révèlent que les jeunes ont des niveaux des connaissances plus élevés que les adultes (Institut National de la Statistique (INS) & ORC Macro, 2004). En effet, 27 % des filles et 34 % des garçons âgés de 15 - 19 ans possèdent une connaissance complète du VIH/SIDA comparés à 14,4 % des femmes et 27 % des hommes âgés de 40 - 44 ans. Les comportements sexuels des jeunes et des adultes peuvent expliquer ces différences. En effet, les femmes et les hommes âgés de 40 - 44 ans sont en majeure partie mariés. S'ils estiment être fidèles dans leurs relations conjugales, ils (elles) seront moins intéressés au VIH/SIDA et tout ce qui l'entoure. Néanmoins, ceci est un préjudice en ce qui concerne les rôles qu'ils doivent jouer dans l'éducation sexuelle des adolescents et des jeunes. Si leur niveau de connaissance du VIH/SIDA est faible, ils ne seront pas à mesure de contribuer à l'acquisition des connaissances correctes chez les jeunes.

C'est ce qu'affirment en effet Jaccard et al. (2000), qui identifient quatre barrières à une communication effective sur la sexualité. Les parents (i) estiment que les enfants sont très jeunes pour être informés sur la sexualité; (ii) ne savent pas nécessairement ce qu'il faut dire aux adolescents et aux jeunes en matière de sexualité; (iii) n'ont pas les connaissances nécessaires et (iv) ne prennent pas suffisamment de temps pour parler de la sexualité avec les enfants. Encore une fois, le problème se pose avec acuité en Afrique subsaharienne où la plupart des parents sont peu instruits et n'ont que des connaissances factuelles, insuffisantes pour répondre aux préoccupations des adolescents et des jeunes sur la sexualité.

### **b) Absence du père durant l'enfance**

L'absence prolongée du père dans la cellule familiale peut inhiber chez l'enfant le développement de l'identité de genre, les rôles et les comportements qui y sont associés, ou provoquer une faible estime de soi (Albrecht & Teachman, 2004; Caldwell et al., 1993; Carlson, 2006; Wu, 1996), et entraîner subséquemment un risque élevé de sexualité prémaritale à l'adolescence (Hetherington, 1972) ou de grossesse prémaritale (East, Jackson, & O'Brien, 2006). L'absence du père peut aussi créer particulièrement chez les filles un mécanisme de compensation selon lequel elles vont chercher à s'attacher davantage à leurs congénères mâles pour retrouver l'affection du sexe opposé qu'elles ont manqué dans l'enfance (Parke et al., 2006).

D'un point de vue empirique, des études rapportent que les filles issues des familles monoparentales présentent presque toujours des risques plus élevés des relations sexuelles prémaritales par rapport à leurs homologues des familles stables avec deux parents biologiques (Albrecht & Teachman, 2004). Une des explications serait que les enfants des familles monoparentales seraient socialisés de manière à légitimer consciemment ou inconsciemment la sexualité prémaritale (McLanahan, 1988; Thornton & Camburn, 1987). Des études menées en Afrique subsaharienne soutiennent également cette hypothèse (Babalola, 2004; Kayembe et al., 2008; Magnani et al., 2002; Ngom et al., 2003).

### **c) Illégitimité des naissances et influence des mœurs sexuelles**

D'autres études se sont intéressées aux relations entre les comportements sexuels prémaritaux des mères et ceux des jeunes et concluent que les parents, essentiellement les mères ayant eu des naissances hors mariage tendent à développer des attitudes permissives

en ce qui concerne la sexualité de leurs enfants (Albrecht & Teachman, 2004; Lovel, Antwi, & Nottage, 1987). Dans une étude au Bahamas portant sur 113 adolescentes, Lovel et al. (1987) montre que 76 % des filles enceintes sont issues des mères ayant eu un premier enfant à l'adolescence et en dehors du mariage.

#### **d) Type d'union**

La polygamie demeure encore une pratique courante dans la plupart de pays en développement. Ses effets sur le bien-être des enfants dans les pays en développement sont documentés (Elbedour, Bart, & Hektner, 2007; Elbedour, Onwuegbuzie, Caridine, & Abu-Saad, 2002; Omariba & Boyle, 2007); ses liens avec les comportements sexuels sont également établis (Amaran et al., 2005; Slap et al., 2003). En ce qui concerne les comportements sexuels, les résultats indiquent que les adolescents et jeunes vivant dans les familles monogamiques ou polygamiques ont un risque faible d'entrée en sexualité, par rapport à ceux qui résident dans d'autres types de familles (à un seul parent ou avec d'autres membres de famille). Néanmoins, ceux vivant dans les familles monogamiques présentent des risques de sexualité prémaritale plus faibles par rapport à ceux des familles polygamiques (Slap et al., 2003).

Les conflits, le stress affectif, les contraintes financières, et enfin l'absence du père dans les familles polygamiques expliqueraient ces différences (Elbedour et al., 2002). Les conflits entre époux, les tensions internes ainsi que la jalousie au sein des familles polygamiques sont autant des situations stressantes qui peuvent réduire, chez la mère, ses potentialités en termes des soins aux enfants et leur contrôle. En même temps, il est possible qu'à cause de ces tensions, le père quitte souvent ses femmes âgées et leurs enfants pour aller vivre avec

sa plus jeune femme. Il est aussi possible que les femmes en union polygamique soit financièrement plus dépendantes de leurs maris, et que l'abandon par le mari ne pourrait qu'accroître les difficultés économiques et par conséquent entraîner des comportements à risque chez les enfants à cause de la précarité économique (Elbedour et al., 2002).

Néanmoins, cette observation doit être nuancée dans le contexte africain pour deux raisons. Premièrement, les économies sont essentiellement agricoles et les femmes sont plutôt des travailleuses actives que des dépendantes au sens strict. Deuxièmement, la polygamie est plus prégnante en milieu rural qu'en milieu urbain pour que les contraintes financières soient cruciales. Par contre, on pourrait imaginer un effet indirect, dans le sens où les contraintes financières peuvent diminuer la capacité de scolariser les enfants dans une famille polygame. Or un faible niveau de scolarisation peut être un facteur de risque pour les comportements sexuels et constituer en même temps une barrière à l'acquisition des connaissances sur les IST/VIH/SIDA.

## **II.2 Hypothèse 2 : Le contrôle social**

L'hypothèse du contrôle social suggère que les familles stables avec deux parents biologiques, comparées aux familles monoparentales, exercent un plus grand contrôle sur les activités de leurs enfants, y compris dans le domaine de la sexualité (DiClemente & Crosby, 2003; Perkins, Luster, Villarruel, & Small, 1998; Small & Luster, 1994). Les familles recomposées auraient pour leur part peu de contrôle parce qu'un des parents jouit d'une faible légitimité en termes d'autorité parentale comparativement aux parents biologiques (Djamba, 1997; Thompson, McLanahan, & Curtin, 1992; Thornton & Camburn, 1987).

En ce qui concerne les styles parentaux, définis comme la gestion des relations parents-enfants au sein de la famille, les études révèlent que le risque de l'activité sexuelle à l'adolescence est plus élevé dans le cas d'un contrôle parental excessif (Miller et al., 1986) ou lorsque les parents sont intrusifs dans la vie des adolescents et jeunes (Upchurch, Aneshensel, Sucoff, & Levy-Storms, 1999). Noller et Callan (1991) rapportent qu'un contrôle faible ou excessif est associé aux comportements déviants et socialement réprimés, dont notamment la consommation de la drogue ou de l'alcool et la sexualité prémaritale. De même, la manière dont les adolescents et jeunes perçoivent le contrôle et les attitudes des parents sur la sexualité prémaritale influencent leurs comportements sexuels (Parke et al., 2006).

En Afrique subsaharienne<sup>1</sup>, le niveau du contrôle social sur la sexualité des adolescents et des jeunes varie selon les ethnies (Meekers & Calvès, 1999; Rwenge, 1999). L'affaiblissement du contrôle social sur la sexualité serait exacerbé par la montée de la scolarisation et de l'urbanisation dans les pays de l'Afrique subsaharienne (Bauni, 1992) et

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<sup>1</sup> En Afrique subsaharienne, de nombreuses études sur les comportements sexuels des adolescents et jeunes sont basées sur une variante du contrôle social, que les auteurs qualifient de modèle de désorganisation sociale (Cherlin & Riley, 1986; Meekers, 1994). Selon ce modèle, les comportements sexuels des adolescents résultent de l'affaiblissement du contrôle social des jeunes par les aînés et de l'intensification d'un comportement orienté vers une satisfaction personnelle et une gratification émotionnelle plutôt qu'une responsabilité familiale. Il rejoint dans ce sens la tendance moderniste selon laquelle l'urbanisation croissante, la scolarisation prolongée, le passage de l'économie traditionnelle non monétarisée à l'économie moderne capitaliste ont conduit à la déstructuration des sociétés traditionnelles africaines qui jadis exerçaient un contrôle sur la sexualité des adolescents et des jeunes, et le passage à l'âge adulte.



qui, par la suite, ont réduit l'importance qui était jadis accordée à la virginité des filles (Rwenge, 2004). La scolarisation et l'urbanisation offrent aux hommes et aux femmes de nouvelles opportunités économiques qui leur permettent d'être en contact avec de nombreuses personnes et d'évoluer durant une bonne partie de la journée en dehors de la sphère familiale. En même temps, ils réduisent l'impact des structures familiales sur le contrôle social des adolescents et des jeunes, et favorisent les changements culturels par un grand accès à l'information et aux médias. Finalement, ils augmentent le pouvoir de décision des individus en ce qui concerne l'entrée en sexualité et les comportements sexuels.

D'autres études soulignent l'importance de la présence d'autres adultes et/ou des grands-parents qui pourrait être utile pour réduire le risque associé à la structure familiale, notamment dans les cas des familles monoparentales (Demuth & Brown, 2004; Hayley, 2005), par une augmentation de la capacité de superviser les adolescents et les jeunes. D'autres recherches ont analysé l'influence potentielle des grands-parents dans le contexte africain, et soulignent le rôle d'éducateurs qui leur est dévolu (Cattell, 1994). Ce rôle néanmoins a diminué au fil des années même si les grands-mères continuent à donner des soins à leurs petits-enfants. Il arrive aussi que les adolescents et les jeunes aillent dormir chez leurs grands-parents, dont les relations avec leurs petits-fils/petites-filles sont plutôt amicales, affectueuses et souvent horizontales. Dans ce cas, il est difficile qu'ils jouent un rôle déterminant dans la supervision des enfants et servir de catalyseur pour réduire les comportements sexuels à risque. De même, il n'est pas certain que les grands-parents discutent de la sexualité avec leurs petits-fils ou leurs petites-filles. Advenant cela, ils

peuvent ne pas disposer les connaissances nécessaires dans un domaine aussi complexe que celui de la sexualité.

Finalement, l'hypothèse de socialisation et du contrôle social présentent-elles des similitudes ou des différences? En termes d'approche, l'hypothèse de contrôle social met l'accent sur la structure familiale à l'adolescence contrairement à la socialisation qui privilégie la situation familiale durant les premières années de vie, à l'enfance. Ainsi, l'hypothèse de contrôle social explique les effets des situations familiales récentes sur les comportements sexuels actuels. De l'autre côté, l'hypothèse de socialisation cherche à comprendre les effets des situations familiales antérieures sur les comportements sexuels actuels (Albrecht & Teachman, 2004).

### **II.3 Hypothèse 3 : L'instabilité et le changement des structures familiales ou l'hypothèse du déséquilibre homéostatique**

Le divorce et/ou le remariage, le décès d'un parent entraînent des modifications importantes des structures familiales qui sont susceptibles d'affecter le développement psychologique ou émotionnel de l'enfant (Amato, 1987; Wight, Williamson, & Henderson, 2006). Ces mutations peuvent entraîner des conséquences négatives à court et long-terme chez les enfants (Cherlin et al., 1991; Edwards, 1987; Hetherington, Camara, & Featherman, 1983), dont notamment l'entrée en sexualité prémaritale.

L'autre facteur associé à l'instabilité et du changement des structures familiales est le changement des conditions socioéconomiques du ménage dans lequel l'adolescent ou le jeune vit (Wu, 1996). Trois évidences peuvent être invoquées à ce sujet. Premièrement, la

rupture d'union des parents est généralement associée avec la mobilité résidentielle des enfants ou à tout le moins un changement de la composition familiale. Deuxièmement, elle accroît la probabilité pour les enfants de vivre dans une famille monoparentale souvent dirigée par une femme avec un statut socioéconomique plus faible que celui de la famille d'origine. Troisièmement, elle réduit les chances de scolarisation des enfants et du coup, réduit à long terme leur capital social avec la possibilité d'entraîner un état de pauvreté circulaire (Berglund, Liljestrang, De Maria Marin, Salgado, & Zelaya, 1997). Dans ce type de familles, le cycle de pauvreté passe des parents (souvent la mère) aux enfants à cause du faible niveau d'éducation qui limite leur accès à l'emploi et réduit leur mobilité professionnelle. L'instabilité conjugale a été observée dans plusieurs pays en Afrique subsaharienne (Caldwell et al., 1993; Kauffmann, Lesthaeghe, & Meekers, 1989), mais ses effets sur le développement de l'enfant n'a reçu que très d'attention à ce jour.

Si l'on s'en tient aux conclusions d'Antoine et Nanitelamio (1990), la désarticulation des modèles traditionnels de formation des unions, à savoir les mariages arrangés et les unions consensuelles par la montée de la scolarisation et l'urbanisation croissante favorisent l'instabilité conjugale en milieu urbain et créerait des conditions propices pour des comportements sexuels à risque chez les enfants issus de ces unions. Caldwell et al. (1983) soulignent l'existence de l'instabilité conjugale, particulièrement en milieux urbains, auquel cas les enfants sont élevés souvent par leurs mères, leurs tantes, ou leurs grands-mères.

En Afrique subsaharienne, quelques études ont examiné cette hypothèse en mettant l'emphase sur le décès des parents (Chatterji et al., 2005; Tambashe & Shapiro, 1996; Thurman et al., 2006). Dans une étude portant sur 2 400 femmes âgées de 13 - 49 ans à

Kinshasa en République Démocratique du Congo, Tambashe et Shapiro (1996) ont analysé l'association entre la survie des parents et l'entrée en sexualité. Les résultats indiquent que le décès d'un parent à l'âge de 15 ans est associé à un risque faible d'entrée en sexualité, comparé à ceux dont les deux parents étaient en vie, alors que le décès de deux parents augmente la probabilité d'avoir des relations sexuelles prémaritales. Par contre, une étude ayant porté sur 12 pays de l'Afrique subsaharienne (Chatterji et al., 2005) et une autre sur l'Afrique du Sud (Thurman et al., 2006) indiquent que le décès d'au moins un parent est associé à une probabilité plus élevée des comportements sexuels à risque.

## **II.4 En résumé**

Bien que les résultats ne convergent pas nécessairement, la littérature reconnaît aux structures familiales un rôle indéniable en ce qui concerne leurs associations avec les comportements sexuels des adolescents et des jeunes d'une part, et d'autre part, avec les connaissances correctes du VIH/SIDA. Grandir (ou vivre) dans une famille avec deux biologiques serait associé à des probabilités plus faibles des comportements à risque en général, et des comportements sexuels à risque en particulier. En plus, les études démontrent que les familles polygamiques peuvent être des familles à risque comparativement aux familles monogamiques, compte tenu des conflits internes et des contraintes financières qui peuvent y exister.

Un des mécanismes les plus importants qui médiatisent la relation entre la structure familiale et les comportements sexuels des adolescents et des jeunes est la communication entre les parents et les enfants. Cette dernière constitue la courroie de transmission à travers laquelle les parents communiquent les normes et les valeurs pouvant entraîner l'émergence

des comportements socialement acceptés. Une bonne communication suppose que les parents forment auprès de leurs enfants un climat de confiance de la sorte qu'ils soient capables non seulement de les écouter mais aussi de comprendre leurs messages et de les intérioriser. En d'autres termes, les jeunes pourraient considérer leurs parents comme des modèles. Aussi bien au Nord qu'au Sud, les parents ne communiquent pas assez souvent avec leurs enfants même si le manque est plus criant dans le domaine de la sexualité. Ainsi, il n'est pas surprenant que l'influence des structures familiales sur les connaissances du VIH/SIDA soit limitée car celles-ci sont acquises par un dialogue permanent, clair et précis.

## CHAPITRE TROISIÈME : SOURCES DES DONNÉES

Les données des enquêtes sur la famille et la santé au Cameroun, réalisées par l'observatoire de population en épidémiologie socio-clinique (*de l'anglais* Population Observatory in Socio-clinical Epidemiology : POSE) en 1996/97 et en 2002 à Bandjoun servent de base empirique pour les questions et les hypothèses de recherche. Ce chapitre présente le site de l'étude, les données, et une évaluation critique portant sur la fiabilité et la validité des données.

### III.1 Site de l'étude

#### III.1.1 Géographie et démographie de Bandjoun

Du point de vue géographique, Bandjoun est situé à l'ouest de Cameroun à environ 300 kilomètres de la capitale économique (Douala), et est limitrophe aux localités de Bafoussam, Bayangam, Bawang, Bamendjou, Bameka, Bangou, Bamougoum, Batoufam, et la rivière Noun (Kuate Defo, 1998b). Cette préfecture est majoritairement peuplée des Bamilékés. Le territoire de Bandjoun s'étend sur une superficie de 275 kilomètres carrés.

Le territoire de Bandjoun a vu sa population croître au fil des années. De 30 000 habitants en 1930, il en comptait 66 000 selon le recensement de 1987. En plus, Bandjoun dispose d'une forte densité qui se chiffrait à 240 habitants au kilomètre carré. Selon les estimations de 1999, Bandjoun se caractérisait par une fécondité élevée et une mortalité en baisse, entraînant ainsi une population en hausse qui se chiffrait à près de 91 000 habitants, une densité de 330 habitants au kilomètre carré. L'important développement des infrastructures

socio-sanitaires et l'immigration vers Bandjoun expliqueraient en partie l'augmentation de la population observée dans cette région.

### **III.1.2 Contexte socioculturel de Bandjoun**

Les comportements sexuels chez les jeunes, y compris la primo-sexualité, sont empreints des normes sociales et des valeurs prégnantes de l'environnement dans lequel ils se développent. Le contexte socioculturel permet de mieux comprendre les comportements (sexuels) des adolescents et des jeunes qu'il modèle selon les contraintes sociales (les normes et valeurs) souvent extérieures à l'individu (Rwenge, 2003; Songué, 1998). L'étude des comportements sexuels ne peut donc être dissociée de l'environnement social et culturel dans lequel évoluent les jeunes. C'est ce qui justifie le fondement même de la socialisation et du contrôle social, en tant que mécanismes de transmission intergénérationnelle des normes et valeurs dans lesquels les individus doivent s'insérer au risque d'être marginalisés. Dans ce cas, les spécificités des populations vivant dans un cadre géographique deviennent un élément important dans la construction des modes de pensée et de manières d'agir.

Vu sous l'angle de la composition ethnique, la préfecture de Bandjoun possède une homogénéité culturelle, dans la mesure où elle est peuplée de près de 98 % des Bamiléké selon les données de l'observatoire en Épidémiologie socio-clinique. Les normes sexuelles y sont très rigides; elles valorisent la virginité des garçons et les filles; et restreignent la sexualité dans le seul cadre du mariage. Cette rigidité est perceptible dans les sanctions sociales que la communauté des Bamiléké réserve aux coupables. Par exemple, une personne qui commettait l'adultère pouvait être lapidé ou chassé du village (Bouwa, 2006).

La fécondité hors mariage est mal perçue chez les Bamilékés contrairement à leurs voisins Béti (Kandem Kamgno, 2007; Rwenge, 2004). Les filles Bamilékés qui tombent enceintes en dehors du mariage sont stigmatisées alors que cela constitue un gage de fécondité chez les Béti (Kandem Kamgno, 2007). On peut constater actuellement que certains facteurs tendent à modifier l'environnement socioculturel traditionnel, au point que les dérapages sexuels (adultère, fornication) deviennent fréquents chez les jeunes et les adultes. Certains auteurs pensent que l'urbanisation croissante a entraîné le relâchement du contrôle social des parents, des aînés et de la société vis-à-vis des adolescents et des jeunes (Gueye, Castle, & Kani Konate, 2001). D'autres estiment que les contraintes économiques traduites par la montée croissante de la pauvreté en Afrique subsaharienne (Delaunay, 2001; Ferry, 2001) sont autant des facteurs qui désarticulent les systèmes culturels traditionnels.

La rigidité des normes et valeurs évoquée ci-haut influence naturellement la communication sur la sexualité chez les jeunes. Dans le modèle culturel ancien au Cameroun en général et à Bandjoun en particulier, les stratégies d'éducation sexuelle dans les principaux groupes ethniques étaient beaucoup plus l'œuvre des aînés au sein des groupes homogènes de même sexe plutôt que celle des parents. Cela suppose un espace propice qui permet aux jeunes de participer aux rites initiatiques. Les transformations sociales, notamment l'urbanisation, rendent de plus en plus indisponible ce précieux espace. Les parents se voient donc obligés de s'occuper, malgré eux, de l'éducation sexuelle de leurs enfants. En même temps, la culture du silence ou du tabou sexuel est encore prégnant chez les Bamiléké. Par conséquent, les parents sont incapables de discuter de la sexualité avec leurs enfants par manque des connaissances adéquates ou par inconfort culturel.



La polygamie est un autre trait qui caractérise la société Bamiléké; les chefs en sont les prototypes. Le nombre de leurs femmes se comptent par dizaines. Chez les Bamiléké, la polygamie est synonyme de richesse et de prestige. Une telle pratique peut avoir des conséquences sur le développement et le bien-être des enfants.

Du point du capital humain, les Bamiléké valorisent depuis les temps anciens l'éducation. Ainsi, ils investissent les moyens nécessaires pour assurer aux enfants une éducation de qualité. C'est ainsi qu'on retrouve à Bandjoun deux universités (Dschang et Bandjoun). Le taux de scolarisation est l'un des plus élevés au Cameroun. Parmi les enfants de 6 à 15 ans, ce dernier avoisine 84 % (Bouwa, 2006). Les données de l'EDS du Cameroun en 2004 indiquent que le taux net de fréquentation scolaire parmi les enfants de 6 - 11 ans s'élève à 78 % au niveau national, alors qu'il est de 95 % dans la province de l'Ouest. Ceci prouve toute l'importance que les parents accordent à la scolarisation des enfants dans la province de l'Ouest du Cameroun. C'est aussi ce qui explique en partie le niveau élevé de scolarisation observé chez les adolescents et les jeunes à Bandjoun.

### **III.2 Contexte des enquêtes sur la famille et la santé à Bandjoun**

Après de nombreuses études en santé reproductive menées à travers le monde depuis l'apparition du SIDA au cours des années 80 et la tenue de conférence internationale sur la population et le développement (CIPD) au Caire en 1994, ainsi que les efforts conjugués par la communauté internationale pour la mobilisation des fonds de recherche et d'intervention, la tentation est grande de conclure que la problématique de la santé

reproductive en général et particulièrement celle des adolescents et jeunes *n'est pas nouvelle*.

Pourtant, les résultats enregistrés à ce jour renforcent l'idée que les défis à relever restent nombreux, étant donné la persistance des comportements sexuels à risque chez les adolescents et les jeunes dans le contexte particulier de l'Afrique subsaharienne. L'observatoire de population en épidémiologie socio-clinique à Bandjoun (Cameroun) propose qu'il est plus approprié d'aborder la santé reproductive dans une perspective holistique, en intégrant aussi bien les individus, les familles et les communautés dans le but ultime de l'amélioration et la promotion de la santé, en plus de favoriser une prise en charge effective de la santé par les communautés locales.

Pour répondre à ce principe, ces enquêtes ont permis de collecter des informations détaillées sur les structures familiales d'une part, et d'autre part sur l'environnement immédiat de la famille (caractéristiques communautaires). Ces enquêtes poursuivaient les objectifs suivants :

- (i) Recueillir les informations sur les caractéristiques socio-démographiques et socio-économiques de la population;
- (ii) Explorer le niveau de connaissance, d'accessibilité et d'utilisation par la population locale (et particulièrement les jeunes garçons et filles de 10 - 29 ans) des services de santé modernes, traditionnels ou informels;
- (iii) Identifier les conditions d'encadrement des hommes et des femmes de 10 - 29 ans au cours de leur vie, particulièrement durant l'enfance et à l'adolescence;
- (iv) Comprendre et cerner l'emploi du temps des jeunes garçons et filles.

De manière spécifique, les données de ces enquêtes permettent d'identifier les facteurs associés au premier rapport sexuel, aux grossesses précoces et prénuptiales, aux IST/VIH/SIDA, à l'utilisation des services de santé reproductive et le recours à la contraception. Il est aussi possible d'analyser les facteurs de risque et de protection à différents niveaux (individuel, familial et communautaire).

### **III.3 Méthodologie et questionnaires**

#### **III.3.1 Échantillonnage**

L'objectif du programme CAREH est de développer et mettre en place, à long terme, des structures et services socio-sanitaires pour la promotion de la santé reproductive des adolescents et jeunes à Bandjoun. Les quartiers ont été regroupés selon leur proximité à un (ou plusieurs) centre(s) de santé d'un quartier de référence ou quartier focal (Kuate Defo & Lepage, 1997). Puis, en considérant les caractéristiques socio-économiques et l'offre des services de santé, Bandjoun a été découpée en douze régions socio-sanitaires qui tiennent compte de la position géographique par rapport aux établissements scolaires, aux églises, aux centres et places des marchés.

La base de sondage, composée de la population de Bandjoun en 1987, a été constituée en respectant les deux précautions suivantes : (i) chaque quartier appartient à une seule région socio-sanitaire; et (ii) chaque région socio-sanitaire comporte au moins une infrastructure sanitaire et une population totale d'au moins 5 000 habitants au recensement de 1987.

Bien que ces détails aient été globalement respectés, la méthode de l'enquête de 1996/1997 est légèrement différente de celle de 2002 en ce sens qu'un seul individu était tiré au hasard en 1996/1997 alors qu'en 2002, une fois que le ménage était tiré, tous les individus éligibles (âgés de 10 ans et plus) étaient interviewés. En d'autres termes, l'enquête de 1996/1997 diffère de celle de 2002 au niveau de l'échantillonnage par le mode de sélection des individus dans le ménage. Ainsi, un tirage sans remise a été effectué en 1996/1997 en utilisant la méthode des boules, ce qui contrôle pour la corrélation des observations au sein du ménage. En 2002, certaines observations peuvent être corrélées plusieurs individus peuvent être enquêtés au sein d'un même ménage.

Le plan d'échantillonnage prévoit cinq niveaux, à savoir (i) les régions socio-sanitaires; (ii) les quartiers; (iii) les ménages; (iv) le double classement selon le sexe et l'âge, et (v) les répondants. Concrètement, seuls les niveaux inférieurs (iii - v) ont véritablement fait l'objet d'un échantillonnage puisque toutes les régions socio-sanitaires et tous les quartiers ont été enquêtés en vue d'assurer la représentativité de la population-cible d'une part; et d'autre part, en vue de permettre une analyse des résultats selon les sexes. Un nombre de ménages a été tiré proportionnellement à la taille de la région socio-sanitaire et du quartier, et dans lesquels les personnes éligibles (10 ans et plus) ont été enquêtées.

### **III.3.2 Les questionnaires**

En utilisant des questionnaires similaires dans les deux enquêtes, des informations sur les attributs individuels et familiaux, les cadres de vie des individus, les caractéristiques socioéconomiques et infrastructurelles des ménages et quartiers, les histoires médicales et les signes cliniques, notamment la tension artérielle et le rythme cardiaque ont été

recueillies en 1996/1997 et en 2002 (Kuate Defo, 2005). En vue de collecter les informations nécessaires, quatre questionnaires ont été utilisés respectivement au niveau du quartier, du ménage et au niveau individuel. Il est important de noter que les questionnaires quartier et ménage n'ont été utilisés qu'en 2002. Le questionnaire du quartier visait principalement à collecter les caractéristiques socio-économiques du quartier, à savoir la principale route d'accès, les principales activités économiques et la disponibilité des commodités (téléphone, approvisionnement en eau potable, écoles, hôpitaux et centres de santé, loisirs, nombre de guérisseurs traditionnels, services disponibles dans les institutions sanitaires, etc.). Un seul questionnaire a été adressé à chacun des quartiers dont les informations étaient recueillies auprès du Chef de quartier ou de son représentant.

Trois autres questionnaires ont permis de collecter les données du ménage : le questionnaire-ménage, le questionnaire ménage-individus et le questionnaire individuel. Le questionnaire-ménage a recueilli les informations sur la possession des biens du ménage (radio, télévision, réfrigérateur), sur les caractéristiques du logement (nature des murs, du toit, du plancher, nombre de pièces, etc.), sur l'approvisionnement en eau potable et le type de toilettes. Le questionnaire ménage-individus a permis de collecter les caractéristiques socio-démographiques des membres du ménage. Enfin, à l'aide d'un questionnaire très détaillé, les individus de 10 ans et plus ont fait l'objet d'une enquête approfondie sur la sexualité, la vie reproductive, la contraception, les IST/VIH/SIDA, l'encadrement et l'environnement familial ainsi que la connaissance du programme d'intervention.

### **III.3.3 Évaluation critique des données**

Toute opération de collecte des données statistiques comporte une marge d'erreur qui est fonction de l'échantillonnage ou de la cueillette d'informations proprement dite. Il est dès

lors utile de s'assurer de la qualité des données avant de procéder aux différentes analyses. Tel est l'objet de cette section.

Les estimations provenant d'une enquête de sondage sont sujettes à deux types d'erreurs : les erreurs de mesure et les erreurs de sondage (Kuate Defo & Lepage, 1997). Les erreurs de mesure sont imputables à la méthodologie de mise en œuvre de la collecte et de l'exploitation des données telles que l'omission des unités sélectionnées, la compréhension et l'interprétation des questions de la part de l'enquêteur ou de l'enquêté, ou encore les erreurs de saisie des données. Il est souvent difficile d'éviter ce type d'erreurs ou de les évaluer, en dépit de toute la minutie qui entoure la préparation de l'enquête. Néanmoins, certaines techniques, telle que la cohérence interne des données effectuée à l'étape de la vérification des questionnaires provenant du terrain, permettent de les réduire mais ne les élimine pas complètement. En plus, la saisie intelligente des données, qui consiste à introduire des contrôles dans le masque de saisie permet également de les minimiser. En ce qui concerne les enquêtes sur la famille et la santé à Bandjoun, les erreurs liées à la collecte des données ont été également minimisées; d'une part, grâce à la qualité des enquêteurs qui devaient remplir trois critères principaux :

- (i) le niveau d'instruction. Pour être retenu comme enquêteur, il fallait détenir le niveau de base équivalent à celui du baccalauréat de l'enseignement du second degré;
- (ii) avoir des connaissances et/ou pratiques dans le domaine de la santé;
- (iii) avoir la maîtrise de la langue « Bandjoun » ou tout autre langue de l'ouest du Cameroun proche de Bandjoun;

et d'autre part, grâce à une formation soutenue assurée par le chercheur principal, Professeur Kuate Defo qui maîtrise les nuances relatives à chaque question ainsi que la

compréhension qu'elle exige et l'information recherchée. Un test de classement a été organisé à l'issue de la formation. Les cinq meilleurs candidats ont été retenus comme contrôleurs des opérations de terrain et se sont joints à l'équipe de supervision de l'enquête.

Les erreurs de sondage peuvent être évaluées statistiquement. Pour être comparables, les estimations utilisées dans cette section sont basées sur des échantillons de 1 740 et 3 249 individus âgés de 10 - 49 ans, en 1996 et 2002 respectivement. Ce choix est motivé par le fait que ce sont les individus de 10 - 49 ans qui ont répondu aux sections du questionnaire sur la santé reproductive (vie reproductive, contraception et IST/VIH/SIDA) et la section sur l'environnement familial (réservée exclusivement aux individus de 10 - 29 ans).

Les enquêtes ont collecté plus de 1 500 variables en 1996 et plus de 700 variables en 2002. Il n'est donc pas possible d'évaluer l'ensemble de variables. Seules quelques unes d'entre elles sont retenues dans cette section. Les autres variables sont définies, évaluées et critiquées dans les chapitres ultérieurs de la thèse. Par ailleurs, étant donné que des enquêtes similaires n'ont pas encore été organisées dans la préfecture de Bandjoun pour servir de base de comparaison, celle de Bali (la zone de contrôle) organisée également par l'observatoire POSE, sera utilisée à cette fin. Selon Kuate Defo, Bali est culturellement proche de Bandjoun dans la mesure où les coutumes et croyances se ressemblent (Kuate Defo, 1998b).

Quelle que soit la méthode de collecte utilisée, les informations doivent répondre aux critères de fiabilité et de validité (Golfshani, 2003; Kirk & Miller, 1986). La fiabilité traduit le degré selon lequel les mesures d'une variable peuvent être répliquées à travers le temps

ou dans des conditions analogues. Dans le cas présent, il est question de voir dans quelle mesure les différents échantillons produisent des résultats similaires ayant utilisé le même instrument de collecte (Tableau 1). Le tableau 1 montre que les estimés obtenus à partir des échantillons de 1996/1997 et 2002 à Bandjoun et celui de 2003 à Bali produisent des résultats assez similaires. Cela permet de conclure que les données peuvent être répliquées et sont fiables. En effet, en considérant l'échantillon des femmes âgées de 10 - 49 ans au moment de l'enquête, les résultats indiquent qu'au moins 80 % d'entre elles avaient déjà eu leurs premières règles au moment de l'enquête. Dans les trois cas, l'âge médian aux premières règles oscille autour de 15 ans.

La validité renvoie à la valeur intrinsèque du construit. Celle-ci doit être basé sur le concept et/ou l'hypothèse de recherche qui détermine les données les plus appropriées pour obtenir la meilleure mesure (Golfshani, 2003). En d'autres termes, jusqu'à quel point les informations disponibles mesurent-elles le concept qu'elles sont supposées représenter? Pour mesurer la validité interne des données, il est possible de recourir aux erreurs de sondage. Pour ce faire, on suppose que l'échantillon réel utilisé dans cette enquête ne représente qu'une des possibilités d'échantillonnage dans la population étudiée. Chacun des échantillons possibles aurait conduit à des résultats qui soient plus ou moins différents, mais qui ne s'écarteraient pas statistiquement de ceux de l'échantillon actuel.

Une des propriétés importantes dans ce cas est de calculer un estimé pour chaque variable pour ensuite en déterminer l'intervalle de confiance à 95 %. L'intervalle de confiance est interprété comme étant l'étendue de variation de l'estimé dans 95 % d'échantillons



possibles de mêmes tailles et des caractéristiques identiques<sup>2</sup>. L'erreur-type est particulièrement importante dans ce cas pour mesurer l'erreur de sondage d'un paramètre (moyenne, proportion ou taux). Elle est estimée à partir de la variance des réponses dans l'échantillon. Connaissant la valeur de l'estimée et son erreur-type, il est possible de calculer l'erreur relative comme étant le rapport de l'erreur-type par son estimé (voir Tableaux 2 et 3 & 4). Des erreurs relatives faibles indiquent les données provenant de l'échantillon sont précises.

Les tableaux 3 et 4 permettent de tirer des conclusions sur la qualité des données recueillies sur un certain nombre de variables. Les résultats indiquent globalement que les erreurs-types relatives sont faibles en 1996/1997 et en 2002. Les données de l'enquête peuvent être jugées fiables. À titre d'exemple, l'erreur-type de la proportion d'individus de 10 - 49 ans ayant vécu une expérience sexuelle est 0.021 et 0.018 en 1996/1997 et 2002, respectivement.

Étant donné l'intervalle de confiance, et en admettant une marge d'erreur de 5 %, la vraie valeur de la proportion d'individus de 10 - 49 ans ayant déjà connu une expérience sexuelle se situe entre 0.535 et 0.582 en 1996/1997, et entre 0.372 et 0.399 en 2002. De même, la proportion des individus ayant utilisé une méthode contraceptive parmi celles ayant déjà une expérience sexuelle varie entre 0.194 et 0.246 en 1996/1997, et entre 0.132 et 0.164 en 2002. Parmi les individus de 10 - 49 ans, la proportion ayant entendu parler du VIH/SIDA s'élève entre 0.831 et 0.866 en 1996/1997, et entre 0.925 et 0.942 en 2002.

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<sup>2</sup> Cette méthodologie est utilisée dans les enquêtes démographiques et de santé.

Tableau 1: Comparaison de quelques variables d'enquête à Bandjoun et à Bali

Variables	Bandjoun		Bali
	1996/1997	2002	2003
A déjà eu ses premières règles	81.0 (910)	81.6 (2 048)	83.0 (1 012)
Âge médian aux premières règles	13.3 (910)	15.0 (2 048)	15.0 (1 012)
A déjà eu des rapports sexuels	56.0 (1 740)	54.9 (3 479)	64.0 (1 895)
Âge au premier rapport sexuel	17.9 (1 740)	19.0 (3 479)	18.0 (1 895)
Âge à l'enquête	21.2 (1 740)	23.3 (3 479)	23.8 (1 895)
A entendu parler du VIH/SIDA	84.9 (1 740)	93.4 (3 479)	94.1 (1 895)

Sources : CFHS (1996/1997, 2002, 2003)

Entre parenthèses, la taille de l'échantillon ayant servi à évaluer la fiabilité de l'estimé à Bandjoun et à Bali.

Tableau 2: Estimés pour l'évaluation de la qualité des données

Variabes	Estimés	Population
Âge au moment de l'enquête	Moyenne	10 ans et plus
A déjà eu des rapports sexuels	Proportion	10 - 49 ans
Âge au premier rapport sexuel	Moyenne	10 - 49 ans
A utilisé la contraception au premier rapport sexuel	Proportion	10 ans et plus, ayant une expérience sexuelle
A déjà été marié	Proportion	10 - 49 ans
Nombre de partenaires sexuels au cours de 12 derniers mois	Moyenne	10 ans et plus, ayant une expérience sexuelle
A utilisé le condom au cours du dernier rapport sexuel	Proportion	10 ans et plus, ayant une expérience sexuelle
A déjà entendu parler du SIDA	Proportion	10 - 49 ans
Modes de transmission du SIDA		
Rapports sexuels non protégés	Proportion	10 ans et plus, ayant entendu parler du VIH/SIDA
Échange des seringues/matériel médical souillé	Proportion	10 ans et plus, ayant entendu parler du VIH/SIDA
Transfusion sanguine	Proportion	10 ans et plus, ayant entendu parler du VIH/SIDA
Transmission mère-enfant	Proportion	10 ans et plus, ayant entendu parler du VIH/SIDA
Piqûres des moustiques	Proportion	10 ans et plus, ayant entendu parler du VIH/SIDA
Contact occasionnel avec une personne infectée	Proportion	10 ans et plus, ayant entendu parler du VIH/SIDA
Moyens de prévention du SIDA		
Abstinence sexuelle/chasteté	Proportion	10 ans et plus, ayant entendu parler du VIH/SIDA
Fidélité à un partenaire	Proportion	10 ans et plus, ayant entendu parler du VIH/SIDA
Encourager le partenaire sexuel à rester fidèle	Proportion	10 ans et plus, ayant entendu parler du VIH/SIDA

Tableau 2 (suite)

Variabes	Estimés	Population
Éviter les transfusions sanguines	Proportion	10 ans et plus, ayant entendu parler du VIH/SIDA
Utiliser correctement le condom à chaque rapport sexuel	Proportion	10 ans et plus, ayant entendu parler du VIH/SIDA
Ne pas échanger les seringues	Proportion	10 ans et plus, ayant entendu parler du VIH/SIDA
Éviter les prostituées	Proportion	10 ans et plus, ayant entendu parler du VIH/SIDA
Éviter les partenaires sexuels	Proportion	10 ans et plus, ayant entendu parler du VIH/SIDA
Variables des structures familiales à l'enquête		
Vit avec le père	Proportion	10 - 29 ans
Vit avec la mère	Proportion	10 - 29 ans
Vit avec frère/sœur	Proportion	10 - 29 ans
Vit avec cousin(e)	Proportion	10 - 29 ans
Vit avec oncle/tante	Proportion	10 - 29 ans
Vit avec grand-père/grand-mère	Proportion	10 - 29 ans
Vit avec petit-fils/petite-fille	Proportion	10 - 29 ans
Vit avec coépouse	Proportion	10 - 29 ans
Vit avec enfant confié	Proportion	10 - 29 ans
Vit avec ami(e)	Proportion	10 - 29 ans
Vit avec camarade	Proportion	10 - 29 ans
Vit dans une institution	Proportion	10 - 29 ans
Vit seul(e)	Proportion	10 - 29 ans

Tableau 3: Estimés pour l'évaluation de la qualité des données en 2002

Variables	Estimé (R)	Erreur-type (ET)	Erreur relative (ET/R)	95 % IC		N
				R-2*ET	R+2*ET	
Âge au moment de l'enquête	35.019	0.299	0.009	34.431	35.606	4 950
A déjà eu des rapports sexuels	0.386	0.007	0.018	0.372	0.399	4 950
Âge au premier rapport sexuel	17.8	0.071	0.004	17.671	17.945	1 910
A utilisé la contraception au premier rapport sexuel	0.148	0.008	0.054	0.132	0.164	1 910
A déjà été marié	0.226	0.006	0.027	0.214	0.238	4 950
Nombre de partenaires sexuels au cours de 12 derniers mois	1.771	0.093	0.052	1.589	1.953	1 910
A utilisé le condom au cours du dernier rapport sexuel	0.245	0.009	0.037	0.225	0.264	1 910
A déjà entendu parler du SIDA	0.934	0.004	0.004	0.925	0.942	3 479
<b>Modes de transmission du VIH/SIDA</b>						
Rapports sexuels non protégés	0.909	0.005	0.006	0.899	0.919	3 249
Échange des seringues/matériel médical souillé	0.703	0.008	0.011	0.687	0.719	3 249
Transfusion sanguine	0.757	0.008	0.011	0.741	0.771	3 249
Transmission mère-enfant (TME)	0.568	0.009	0.016	0.551	0.585	3 249
Piqûres des moustiques	0.167	0.006	0.036	0.144	0.170	3 249
Contact occasionnel avec une personne infectée	0.108	0.005	0.046	0.098	0.120	3 249
<b>Moyens de prévention du VIH/SIDA</b>						
Abstinence sexuelle/chasteté	0.773	0.007	0.009	0.759	0.788	3 249
Fidélité à un partenaire	0.621	0.009	0.014	0.604	0.638	3 249

Tableau 3 (suite)

Variables	Estimé (R)	Erreur-type (ET)	Erreur relative (ET/R)	95 % IC		N
				R-2*ET	R+2*ET	
Encourager le partenaire sexuel à rester fidèle	0.476	0.009	0.019	0.458	0.493	3 249
Éviter les transfusions sanguines	0.493	0.009	0.018	0.476	0.511	3 249
Utiliser correctement le condom à chaque rapport sexuel	0.595	0.009	0.015	0.578	0.612	3 249
Ne pas échanger les seringues	0.492	0.009	0.018	0.475	0.509	3 249
Éviter les prostituées	0.383	0.009	0.023	0.366	0.400	3 249
Éviter les partenaires sexuels occasionnels	0.175	0.007	0.040	0.162	0.189	3 249
Vit avec le père	0.479	0.010	0.021	0.459	0.499	2 461
Vit avec la mère	0.6111	0.009	0.015	0.592	0.630	2 461
Vit avec frère/sœur	0.351	0.009	0.026	0.332	0.370	2 461
Vit avec cousin(e)	0.069	0.005	0.072	0.059	0.080	2 461
Vit avec oncle/tante	0.087	0.006	0.069	0.076	0.098	2 461
Vit avec grand-père/grand-mère	0.189	0.008	0.042	0.173	0.205	2 461
Vit avec petit-fils/petite-fille	0.006	0.002	0.333	0.003	0.010	2 461
Vit avec coépouse	0.000	0.000	n/a	n/a	n/a	2 461
Vit avec enfant confié	0.008	0.002	0.250	0.005	0.012	2 461
Vit avec ami(e)	0.002	0.001	0.500	0.001	0.005	2 461
Vit avec camarade	0.001	0.001	1.000	0.000	0.004	2 461
Vit dans une institution	0.000	0.000	n/a	0.000	0.002	2 461
Vit seul(e)	0.009	0.002	0.222	0.006	0.014	2 461

Source : CFHS, 2002

Tableau 4: Estimés pour l'évaluation de la qualité des données en 1996/1997

Variables	Estimé (R)	Erreur-type (ET)	Erreur relative (ET/R)	95 % IC		N
				R-2*ET	R+2*ET	
Âge au moment de l'enquête	32.976	0.441	0.013	32.111	33.841	2 377
A déjà eu des rapports sexuels	0.559	0.012	0.021	0.535	0.582	1 740
Âge au premier rapport sexuel	16.813	0.094	0.006	16.628	16.997	972
A utilisé la contraception au premier rapport sexuel	0.220	0.013	0.059	0.194	0.246	972
A déjà été marié	0.260	0.011	0.042	0.240	0.282	1 740
Nombre de partenaires sexuels au cours de 12 derniers mois	1.362	0.048	0.035	1.268	1.456	972
A utilisé le condom au cours du dernier rapport sexuel	0.337	0.015	0.045	0.308	0.368	972
A déjà entendu parler du SIDA	0.849	0.009	0.011	0.831	0.866	1 740
Variables des structures familiales à l'enquête						
Vit avec le père	0.489	0.013	0.027	0.462	0.515	1 445
Vit avec la mère	0.585	0.012	0.021	0.559	0.610	1 445
Vit avec frère/sœur	0.511	0.013	0.025	0.485	0.537	1 445
Vit avec cousin(e)	0.142	0.009	0.063	0.125	0.162	1 445
Vit avec oncle/tante	0.082	0.007	0.085	0.069	0.098	1 445
Vit avec grand-père/grand-mère	0.133	0.009	0.068	0.116	0.151	1 445
Vit avec petit-fils/petite-fille	0.008	0.002	0.250	0.004	0.014	1 445
Vit avec coépouse	0.012	0.002	0.167	0.007	0.019	1 445
Vit avec enfant confié	0.004	0.001	0.250	0.002	0.009	1 445
Vit avec ami(e)	0.008	0.002	0.250	0.004	0.014	1 445
Vit avec camarade	0.002	0.001	0.500	0.000	0.006	1 445
Vit dans une institution	0.002	0.001	0.500	0.000	0.006	1 445
Vit seul(e)	0.042	0.005	0.119	0.032	0.054	1 445

Source : CFHS, 1996/1997

Quant aux variables qui ont permis de reconstituer les structures familiales, les résultats indiquent que les erreurs-types relatives sont faibles et que les données sont de bonne qualité. On peut par exemple observer qu'au moment de l'enquête, la proportion des personnes de 10 - 29 ans qui vivrait avec leur père biologique varie entre 0.462 et 0.515 en 1966/1997, alors qu'elle se situe entre 0.459 et 0.499 en 2002. Les proportions correspondantes des personnes qui vivent avec leur mère varient entre 0.559 et 0.610 en 1996/1997, et entre 0.592 et 0.630 en 2002.

Néanmoins, il existe des variables pour lesquelles les erreurs relatives sont élevées. Il s'agit des variables des structures d'encadrement et de l'environnement social, tel que vivre avec (i) petit-fils/petite-fille, (ii) coépouse, (iii) enfant confié, (iv) ami(e), (v) camarade, (vi) ou dans une institution. D'une part, les proportions d'individus de 10 - 29 ans ayant déclaré qu'ils vivaient avec ces personnes ou dans telles structures est faible, et n'atteint pas 5 % dans la plupart des cas; et d'autre part, il est possible que les individus de cette tranche d'âge n'aient pas encore des liens de ce type. Étant donné les proportions négligeables de ces catégories, il s'ensuit que les typologies des structures familiales construites ultérieurement sur la base de ces questions dichotomiques n'en sont pas affectées.

### **III.3.4 Les structures familiales : source des données disponibles, limites et comparabilité des statistiques**

#### **a) Sources des données**

Les informations sur les structures familiales proviennent essentiellement de deux sources : les recensements et les enquêtes. Dans les deux cas, la question « quel est votre lien de



parenté avec le chef de ménage (CM) » permet d’approcher la construction des structures familiales. Cette variable contient des limites sérieuses. Bien que la relation de l’individu avec le CM soit connue, elle ne permet pas d’identifier si l’enfant vit avec ses deux parents biologiques dans le ménage. Conscient de cette limite, les enquêtes démographiques et de santé (EDS) ont ajouté quatre questions supplémentaires pour mieux comprendre la situation familiale de l’enfant dans le ménage :

1. Est-ce que la mère biologique de (NOM de l’enfant) est toujours en vie?
2. Si en vie, est-ce que la mère biologique de (NOM) vit dans ce ménage?
3. Est-ce que le père biologique de (NOM de l’enfant) est toujours en vie?
4. Si en vie, est-ce que le père biologique de (NOM) vit dans ce ménage?

En couplant ces différentes informations, il est possible de connaître les enfants qui vivent avec leurs deux parents biologiques au moment de l’enquête. Ces informations ont été recueillies pour les enfants de moins 15 ans en 1996 et en 1998, et pour ceux de moins de 18 ans pour l’EDS de 2004. Par contre, l’usage de ces informations dans les études ayant pour centralité l’influence des structures est limité. Premièrement, on sait que les jeunes continuent à vivre avec leurs parents biologiques au-delà de 15 ans. Deuxièmement, la possibilité de disposer des informations sur la santé sexuelle et reproductive dans les EDS est restreinte aux individus de 15 ans et plus, pour lesquelles les données sur les structures familiales ne sont pas complètes.

Toutes ces limites ont guidé la collecte des données sur les structures familiales dans les enquêtes sur la famille et la santé de l’Observatoire de Population en Épidémiologie socio-clinique. L’adolescent et le jeune est placé au cœur de la collecte de l’information. C’est

lui-même qui rapporte les informations sur la famille dans laquelle il vit (vivait). Ces informations portent sur l'ensemble des personnes qui peuvent habiter à un moment donné dans un ménage en tenant compte du contexte africain. Pour ce faire, les enquêtés âgés de 10 - 29 ans répondent à la question suivante : « Avec qui viviez-vous à l'âge de [6 ans, 12 ans et au moment de l'enquête]? » Principalement, la liste prend en compte les personnes suivantes : père, mère, frères/sœurs, cousins/cousines, oncles/tantes, grand-père/grand-mère, amis, camarades, institution ou seule. Ces différentes informations ont permis de constituer les structures familiales en privilégiant bien entendu la présence des parents biologiques, étant donné qu'ils sont les premiers acteurs de la socialisation des enfants et les garants de leur bien-être.

#### **b) La comparabilité des informations**

Ce problème se pose essentiellement dans le cas des données rétrospectives pour les personnes âgées de 10 - 29 ans au moment de l'enquête. Prenons les extrêmes de cette tranche d'âge. Un individu âgé de 10 ans en 1996 (moment de l'enquête) avait 6 ans en 1992 (soit 4 ans avant l'enquête). Par contre, il faut remonter à 1973 pour un individu âgé de 29 ans au moment de l'enquête pour avoir des données comparables des structures familiales à 6 ans. Les comparaisons ont été faites en tenant compte de ces limites dans le temps. L'étendue géographique est aussi un facteur à prendre en compte dans ces comparaisons. En effet, les EDS sont représentatives à l'échelle et ne permettent pas nécessairement de comprendre les spécificités locales.

Le tableau 5 présente la distribution des enfants à 6 ans et à 12 ans selon différentes sources des données. La proportion des enfants vivant avec leurs deux parents biologiques n'a pas

trop changé dans le temps, et tourne autour de 60 %. Par contre, le pourcentage des enfants vivant avec leurs deux parents biologiques à 12 ans a changé, en passant de 55 % en 1991 à 45 % en 2004. En regardant les données de Bandjoun, on pourrait penser que la situation en ce qui concerne les structures familiales est différente de celle du pays : 75 % et au moins 60 % d'adolescents et jeunes à Bandjoun vivent avec leurs parents biologiques à 6 ans et 12 ans, respectivement.

L'analyse des données des EDS indiquent que le décès des parents n'explique pas ces disparités (Institut National de la Statistique (INS) & ORC Macro, 2004). Bon nombre d'enfants qui ne vivent pas avec leurs parents biologiques au moment de l'enquête ont leurs deux parents en vie. On atteint facilement des proportions semblables pour les enfants de 6 - 9 ans, et ceux de 10 - 14 ans si on ne tient pas compte de la situation résidentielle : respectivement 72 % et 66 % d'enfants de ces groupes d'âge ont les deux parents biologiques en vie au moment de l'enquête (Institut National de la Statistique (INS) & ORC Macro, 2004). Il est donc possible que la fréquentation scolaire explique les disparités entre Bandjoun et les données des EDS. En tant que zone semi-urbaine, Bandjoun jouit d'un privilège en termes des infrastructures scolaires. Les enfants peuvent donc rester avec leurs parents durant ces âges de scolarisation. Alors que d'autres régions, les parents sont obligés d'envoyer leurs enfants auprès des membres de famille pour être scolarisés.

Tableau 5: Structures familiales au Cameroun et à Bandjoun

Sources des données <sup>a</sup>	6 ans					12 ans				
	Deux parents	Mère	Père	Aucun parent	N <sup>b</sup>	Deux parents	Mère	Père	Aucun parent	N <sup>b</sup>
CDHS – 1991	62.3	14.7	5.0	18.0	735	54.6	12.9	10.8	21.6	550
CDHS – 1998	61.2	17.7	7.1	14.0	863	51.9	17.0	9.6	21.5	791
CDHS – 2004	59.8	17.3	6.9	16.0	1 644	45.2	17.5	12.6	24.8	1 540
CFHS – 1996	74.7	7.1	5.0	13.3	1 445	60.8	8.8	6.0	24.4	1 445
CFHS - 2002	74.6	7.7	2.3	15.4	2 461	65.8	9.8	2.7	21.6	2 461

<sup>a</sup> Données pondérées pour les EDS.

<sup>b</sup> Dans le cas des EDS, il s'agit du nombre d'enfants âgés exactement de 6 ans et 12 ans au moment de l'enquête. Dans le cas de CFHS, ce sont les adolescents et jeunes âgés de 10 à 29 ans au moment de l'enquête qui rapportent leur situation familiale à 6 ans et 12 ans.

### **III.3.5 En résumé**

Ce chapitre a présenté les sources des données utilisées dans la partie empirique de la thèse, ainsi que les instruments de collecte et les méthodes d'échantillonnage. En plus, certaines variables ont été évaluées pour déterminer la fiabilité et la validité des informations recueillies en utilisant la technique qui consiste à calculer des estimés et leurs erreurs-types, et déterminer ensuite les intervalles de confiance à 95 %. Il s'en dégage que les données sont fiables et valides. En effet, les analyses ont montré que pour les variables sélectionnées, les erreurs-types relatives sont faibles. Ceci démontre que les informations recueillies dans les différentes enquêtes sur la famille et la santé à Bandjoun (ouest du Cameroun) sont précises.

**CHAPITRE QUATRIÈME: EFFECTS OF FAMILY STRUCTURE ON  
PREMARITAL SEXUAL INTERCOURSE**

**Zacharie Tsala Dimbuene and Barthelemy Kuate Defo**

**PRONUSTIC Research Laboratory and Department of Demography**

**University of Montreal (Quebec), Canada**

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## **Abstract**

This study has examined the effects family structure, parental marital status, family processes and family changes on the risk of premarital sexual intercourse, using unique unusual longitudinal retrospective data among 10 - 29 years-olds from two surveys ( $N = 1,445$  in 1996 and  $N = 2,465$  in 2002) and an integrative theoretical framework. Findings showed that youths who resided in nuclear two-parent families, reported higher levels of parental monitoring and good parent-child relationships had lower rates of premarital sexual intercourse. By contrast, polygamous families, parent-child communication, household socioeconomic status, change in family structure, and orphanhood increased significantly the risk of premarital sexual intercourse.

**Keywords: Family structure; Family processes, Adolescence and youth; Premarital sexual intercourse**

The linkages between family environment and child outcomes are no longer in question in western countries. Recent studies have underscored the protective role of two-parent families on early sexual initiation (Albrecht & Teachman, 2004; Wu & Thomson, 2001), premarital birth (Wu, 1996), school performance (Heard, 2007) and child health (Gage, 1997; Omariba & Boyle, 2007; Wen, 2008). Research has also identified family processes or psycho-social mechanisms (e.g., parental conflict, parental modeling, parent-child relationships) that contribute to family experiences and affect subsequent outcomes (Davis & Friel, 2001; Miller et al., 2001). For instance, good parent-child relationships are associated with late sexual debut, low frequency of sexual intercourse and fewer sexual partners (McBride et al., 2005; Miller et al., 2001; Regnerus & Luchies, 2006). Furthermore, they have established that family socialization and parental supervision/monitoring play significant roles in sexual initiation among young people (Dittus & Jaccard, 2000; Jaccard et al., 1996). These studies assume that parent-child communication (Dittus & Jaccard, 2000; Garriguet, 2005), parental control/supervision (DiClemente & Crosby, 2003), and family support (Wight et al., 2006) are associated with lower rates of premarital sexual intercourse.

Until recently, little is known in developing world, especially in sub-Saharan Africa about how family structure and family processes are associated premarital sexual intercourse. Based mainly on cross-sectional data, few exceptions have tempted to examine these links but do not utilize family environment as the focal independent variables (Diop-Sidibé, 2005; Djamba, 2003; Kumi-Kyereme et al., 2007; Ngom et al., 2003; Tambashe & Shapiro, 1996; Thurman et al., 2006). Cross-sectional data have serious drawbacks because they



explain past sexual experiences (first sexual intercourse) by current family structures, then making impossible any inference.

There are justifiable rationales to address the interplay between family environment and premarital sexual intercourse. First, premarital sexual intercourse can result in adverse health, social and economic consequences for youths and their families (Kuate Defo, 1998c). Indeed, heterosexual and unprotected sexual relations remain the major transmission route of HIV in sub-Saharan Africa. Coupled with low levels of condom use, they constitute a double jeopardy for young people. Second, parents and other family members appear to be the most influential figures especially at adolescence when young people begin to consider the importance of sexual behaviors in their life (Cohen et al., 2005).

This study extends previous research in sub-Saharan Africa by using a larger age span (10 - 29 years) of both genders rather than 15 - 24 years age-group, and examines the influences of family structure and family processes on premarital sexual intercourse to retrieve findings that are comparable because they are based on two representative samples from populations of the same region in Cameroon. One rationale to include this large age span stems on the increasing age at first marriage in sub-Saharan Africa while age at first intercourse is stalling (Mensch, Grant, & Blanc, 2006). Hence, there is evidence of an estimated lag between first sex and marriage ranging from two years for women (Adair, 2008) to eight years for men (Bankole, Singh, Woog, & Wulf, 2004).

The remainder of the paper is organized as follows. Section two presents the theoretical foundations and hypotheses. Section three describes data and methods used in the research. Results are presented in section four. The final section is a discussion and concluding remarks.

## **IV. 1 Theoretical perspectives and hypotheses**

### **Family structure, family processes and sexual initiation**

Three explanations typically are invoked to understand the effects of family structure on premarital sexual intercourse in western countries which are also relevant to Africa settings. These are the socialization perspective, social control perspective and family change perspective (Albrecht & Teachman, 2004; Wu & Thomson, 2001). In any society, family is the primary socializing agent for children: it provides guidance and supervision. Through socialization and social control, young people learn and internalize normative patterns that are socially acceptable. But families also change over time as a result of a number of factors such as divorce, remarriage, and parental death. This study draws on the literature about child development and lifecourse to conceptualize the process through which family structure shapes young people's sexual debut in African settings.

#### **IV.1.1 Socialization**

This perspective emphasizes the role of parents who are viewed as the prime socializing agents in each society (Arnett, 1995). The predominant patterns of social norms, sexual mores, and the values the parents convey within the family shape the attitudes and behaviors of their children about sexuality (Kouinche & Tagne, 1998). For instance, studies showed that children who grew up in two-parent families are less likely to engage in

premarital sexual intercourse compared with those in other families (Albrecht & Teachman, 2004; Wu & Thomson, 2001). Researchers argue that two-parent families, compared with other types of families, provide a high emotional support and a strong parental modeling (Pearson, Muller, & Frisco, 2006). In fact, parental involvement explains at least partly the link between family structure and first sexual intercourse. Studies in United States (Miller et al., 2001) suggested that two-parents families are more involved in children activities than do single or stepfamilies. In addition, research indicates that when parents are involved, it is often the mother (Dittus & Jaccard, 2000). In African settings, parental involvement in child development is poorly documented. Our knowledge of the ground indicates that the same patterns are observed in sub-Saharan Africa. In general, fathers spend much time with other men while mothers are caring about children. This idea is reinforced by fathers' attitudes if something wrong happens within the family when for instance their daughter becomes pregnant. In many cases, dads condemn moms who failed in her duties to oversee adolescents.

Another argument stems on father absence (East et al., 2006; Ellis et al., 2003). In a recent literature review, East et al. (2006) showed that the absence of a biological father in the home was associated with higher rates of premarital intercourse. Additionally, socialization theory holds that youths whose parents are not married are more likely to believe that premarital sexual intercourse is acceptable and therefore are more likely to engage in early sexual debut (Wu & Thomson, 2001). Finally, scholars argue that economic deprivation can hasten premarital intercourse, especially in single-parent families (often mother-only) that are generally poor (Upchurch, Levy-Storms, Sucoff, & Aneshensel, 1998; Wu, 1996). Drawing on the economic deprivation, some researchers arguably stated that sexual

behaviors among youths in sub-Saharan Africa are economically motivated (Jewkes, Vundule, Maforah, & Jordaan, 2001; Kuate Defo, 2004; Luke, 2003). Indeed, economic vulnerability that is more salient in one-parent families can influence premarital sexual intercourse in many and complex ways, including the exchange of sex for money, housing, food, school fees, as well as exposure to multiple sexual partners (National Research Council & Institute of Medicine, 2005).

The impact of father presence on sexual debut was also found in African settings. For instance, living in family structure other than two-parent or father-only families correlated significantly with higher risks of sexual initiation for girls in Rwanda but not for boys among youths aged 15 - 24 years (Babalola, 2004). Ngom et al. (2003) have examined the effects of parental presence on reproductive health outcomes in the slums of Nairobi (Kenya) among adolescents girls aged 12 - 19 years. They found that father presence was associated with lower rates of early sexual initiation and other risky behaviors such as frequency of sexual intercourse and unintended pregnancies. Another study in Ivory Coast found that living with biological father in the same household decreased significantly the likelihood of first sex for females but not for boys (Babalola et al., 2005). Two cross-sectional studies in Ghana addressed the associations between family structure and youth sexual behavior. Using a 1998 nationally-representative survey data from 12-24 year olds, Karim et al. (2003) showed that living with both parents, compared with other living arrangements, was associated with lower rates of first sex for adolescent females, but not for males. In a small sample of 704 youths aged 12-24 year-old of both sexes in three Ghanaian towns, young people living with a parent or relative have a lower, but not

significant, risk of sexual initiation compared to those living alone or with friends (Glover et al., 2003).

Parent-child communication and the quality of parent-child connectedness have been found as central in child socialization. Youths who report high levels of parent-child communication about sexuality are less likely to report premarital sexual intercourse (Dittus & Jaccard, 2000). In African settings, social scientists report that parents are less likely to teach their children about sexuality (Boileau et al., 2008). Existence literature about the link between parent-child communication and youth sexual behavior reports a weak relationship with sexual initiation (Karim et al., 2003) and current sexual activity (Kumi-Kyereme et al., 2007), or no relationship at all (Fatusi & Blum, 2008). Connectedness between parents and their children is another link that explains the association between family structure and youth sexual behavior (Barber & Schluterman, 2008; Townsend & McWhirter, 2005). There is also evidence that youths who reported higher levels of connectedness (Kumi-Kyereme et al., 2007; Slap et al., 2003) and good parent-child relationships (Lenciauskiene & Zaborskis, 2008; Regnerus & Luchies, 2006) are less likely engage in premarital intercourse or current sexual activity.

#### **IV.1.2 Social control**

Also called parental supervision or monitoring during adolescence, this perspective assumes that young people are naturally inclined toward deviance, but that bonds to conventional society cause most individuals to refrain from such behavior (Crockett, Bingham, Chopak, & Vicary, 1996). Researchers assume implicitly that, compared with one- or neither-parent families, two biological parents are more likely to supervise their

children, especially during adolescence when children begin to gain sense of self and independence. During this period, parents and other family members are critically influential on the decisions they make in sexual matters (Cohen et al., 2005). In practice, even vigilant parents are not able to fully supervise their children. Other studies had emphasized the role of a second caregiver (*often the father*) at adolescence when mother's authority begins to compete with extra-familial factors, including peer influences and community opportunities (Roche et al., 2005; Simons et al., 2006). These studies conducted mainly in western countries assume that youths in two-parent families are better supervised and then are less likely to engage in premarital intercourse. In the western context, supervision or monitoring over children is done solely by parents and really, parental absence may be detrimental for young people.

In African traditional societies, guidance and supervision of young people were a social and collective task, in which parents play the most important role (Verhoef, 2005). Consequently, parents and other adult members (uncles, aunts, grandparents, older siblings) in the home are expected to ensure children's supervision and are socially authorized to do so. Like in western countries, higher levels of parental supervision and jointly associated lower rates of premarital sexual intercourse are expected to be found in two-parent families compared with other families. The Ghanaian study by Kumi-Kyereme and colleagues was also interested in the protective effect of parental control on the current sexual activity (Kumi-Kyereme et al., 2007). They reported that higher levels of parental monitoring were negatively and significantly associated with current sexual activity. However, African societies exhibit different expectations for girls and boys about sexuality, in such way that premarital sexuality is prohibited for females while it is sometimes encouraged or not

sanctioned for boys (Kuate Defo, 1998c). Parental supervision generally decreases with age. Thus, it is expected its effects to vary with age and gender.

#### **IV.1.3 Family change perspective**

Family changes following divorce, remarriage, or parental death affect the likelihood of first sexual intercourse (Albrecht & Teachman, 2004; Wu & Martinson, 1993). Authors have argued that young people who resided in stepfamilies were more likely to experience conflicts and stressful events, which thereafter can lead to early sexual debut (Wu & Martinson, 1993). The parental death had been found to be a strong, traumatic and stressful event which is associated with negative outcomes for young people like school dropouts (Case, Paxson, & Ableidinger, 2004; Gertler, Levine, & Ames, 2004). This explanation was also supported in African settings where South African female and male orphans reported early sexual initiation compared with non-orphans (Thurman et al., 2006).

Taken together, it has been conjectured that the three perspectives discussed above can be viewed fruitfully as complementary rather than competing (Wu & Thomson, 2001). In other words, divorce or parental are often accompanied with stressful events for both parents and children that affect parent-child bounds. For instance, frequent changes in family environment may decrease the effectiveness of social control due to the family conflict that can arise within a new home environment between stepfather/stepmother and stepson/stepdaughter. Although this phenomenon is less common in Africa, an increasing number of orphans is currently observed as a result of AIDS (Bicego, Rutstein, & Johnson, 2003; Sarker, Neckermann, & Müller, 2005; Thurman et al., 2006). In either case, a new family environment leads necessarily to a new adaptation emotionally, psychologically or

economically, then hindering socialization processes especially when these events have occurred in early childhood.

#### **IV.1.4 Parental marital status and sexual initiation**

One argument of socialization holds that parental marital status is important to understand the association of family structure and youths' sexual behavior, and assumes that young people from not married parents are at higher risks of premarital sexual intercourse (Wu & Thomson, 2001). This is more obvious in a context of an extensive polygamy, where parental conflict and rivalries between spouses appear to be detrimental for child development. In fact, and although inter-country differences are highly variable, many men are sometimes simultaneously married to many women and this proportion ranged between low levels (4 % in Madagascar) to higher levels (more than half) in Burkina Faso and Guinea (Westoff, 2003).

Marital status of parents can be linked to the theoretical framework developed above in this way. According to socialization, it is expected that youths in both monogamous and polygamous families will be less likely to engage in premarital sexual intercourse compared with those in one-parent or neither-parent families. Research shows that the increasing number of women in polygamous unions increases the number of children, and accordingly reduces the per capita resources available in the home (Omariba & Boyle, 2007). Thus, drawing on economic deprivation, youths from polygamous families are expected to be at higher risk of premarital sexual intercourse than those from monogamous families, as found in a Nigerian study (Amoran et al., 2005; Slap et al., 2003). In a social control view, it is possible that parents, especially the father, lack time to supervise children due to an



elevated number of homes and children to supervise. Because mothers ensure solely the supervision of children even in polygamous families when the father is away home, a lack of authority and clear rules from her especially in sexual matters can be detrimental in polygamous two-parent families as well as in one- and neither-parent families. Finally, according to family turbulences, Elbedour et al. (2007) have noted that family conflict that arises in polygamous unions is one of the mechanisms that explain at least partly why youths from this type of families exhibit poor outcomes (including early sexual initiation) compared with those from monogamous families.

#### **IV.1.5 Hypotheses**

Drawing on this literature, it is expected that young people from two-parent families experience premarital sexual intercourse later compared with those who resided in other families. In a socialization perspective, youths who reported good parent-child relations and higher levels of parent-child communication are also less likely to report premarital sexual intercourse. Social control perspective posits that better supervised youths and those receiving pocket money from parents in order to meet their personal needs are less likely to ever experienced early sexual debut. Finally, it is expected that youths who experienced changes in family structure or parental death are more likely, relative to those with two parents alive, to initiate first sex before marriage.

### **IV.2 Method**

#### **IV.2.1 Data and Samples**

Data are drawn from two random and representative samples of the Cameroon Family and Health Surveys (CFHS) carried out, in 1996 and 2002, under the auspices of the Population

Observatory in Socio-clinical Epidemiology (POSE) in Bandjoun, a semi-urban zone in the province of west Cameroon among individuals aged of 10 years and older in 75 localities in Bandjoun (Kuate Defo, 2005). Each locality used probability samples in which all individuals aged 10 years and older have a nonzero chance of inclusion, designed to produce comparable locality-level estimates for the general population. The CFHS employed self-weighted proportional design, with the proportions of randomly sampled households in all 75 localities forming the Bandjoun in the sample equal to the same proportion in the general population. A total of 2,377 and 4,950 men and women were interviewed using forced-choice questions and face-to-face technique in 1996 and 2002, respectively. The present study used two sub-samples of 1,445 in 1996 and of 2,461 young people in 2002 of both sexes, aged 10 - 29 years. Surveys collected retrospective data on family histories at ages 6 and 12 that represent two important transitions for youths in Cameroonian society. The former is referred to as the inception of primary school while the later represents the emerging adolescence as well as the transition from primary school to high school in addition of beginning puberty for many youths. Using these two markers makes it possible to address the recall bias inherent in retrospective data.

#### **IV.2.2 Measures**

*Dependent variable: Timing of premarital sexual intercourse.* The dependent variable is the waiting time to premarital sexual intercourse. It is measured by the respondents' age at first intercourse (recorded in years). From an event history perspective, the occurrence of premarital sexual intercourse at each age is defined as a single event and the nonoccurrence of first sexual initiation is defined as censoring in the last interval (e.g., young people who are not sexually experienced at the time of interview but might experience transition to

sexual initiation in the future). In practice, the probability of sexual debut in each interval of time (a year) is estimated using a binary variable taking the values 1 if the premarital intercourse occurred and 0 otherwise. Respondents were asked the questions “have you ever had sexual intercourse?” and, if so, “how old were you when you had first sexual intercourse?” Because premarital sexual intercourse is of interest in the paper, additional information about age at first marriage was used to determine whether first sexual intercourse occurred within or before marriage. The following questions addressed this issue: “have you ever been married?” and “how old were you when you first got married?” Preliminary results showed that 13 % and 10.1 % of young people were married at the time of the survey in 1996 and 2002, respectively. Among those ever married, 76 % and 68 % experienced their first sexual intercourse before marriage in 1996 and 2002, respectively.

*Family structure.* Defining and/or measuring family structure has been a subject of debate, and the resulting ambiguity in terminology has nurtured confusions about its effects on young people’s sexual behaviors (Popenoe, 1993). Family structures were constructed by placing emphasis on parents which differ from other aspects of family structure such as family size, number of siblings, and the number of generations present in household. The major rationale is that these aspects may be probably far easy to reconstitute due to recall biases and respondent’s self-reported information about family when he/she was younger. A total of ten dichotomous questions were used to capture the family structure at a given age  $t$  (referred to as age 6 and age 12) about the potential members of a typical African family in rural, semi-rural and urban areas: “With whom did you live at [age  $t$ ]?” Responses included father, mother, brother/sister, cousins, uncle/aunt, grandfather/grandmother, friend, playmate, in institution, and alone. However, frequencies of some questions showed

only few cases. Subsequently, six out of ten questions were used to build five mutually exclusive categories of the most common types of families, including nuclear one-parent, extended one-parent, nuclear two-parent, extended two-parent and other type of families for those living with relatives (brother/sisters, uncles/aunts, grandparents). It is important to note that one-parent families (mother-only and father-only) were collapsed in the same category due to small cases, as well as for the “other relatives”. Table 1 shows the distribution of the sample in the two surveys at age 6 and age 12.

#### *Parental marital status*

Respondents were also asked “what was the marital status of the parents or guardians” at age  $t$ ? Responses included single, married monogamous, married polygamous, separated, divorced, widowed. A new variable was created that distinguishes young people who lived in monogamous and polygamous families, or other (single, separated, divorced, and widowed). In the text, this variable is referred to as parental marital status including parents or guardians.

#### *Family processes and other correlates*

Family processes previously identified as mediators of the effects of family structure on sexual initiation are described below.

*Quality of parent-child relationships at age  $t$*  was captured through the question “How did you see the quality of your relationships with your parents/guardian at age  $t$ ?” Responses ranged from 1 = *very good* to 5 = *difficult or bad*. This variable was reversely recorded.

*Parent-child communication.* Five yes/no questions captured parent/guardian-communication: “Did you ever have conversations with your parents/guardians about puberty, sexual education, STDs and HIV/AIDS, pregnancies, and alcohols or drugs at age  $t$ ?” These items were summed and the score ranged from 0 to 5 (Cronbach- $\alpha$  ranged from .64 and .86 in the two-surveys).

*Parental monitoring.* The study used direct measures of parental supervision at age  $t$ , which indicated whether parents had control over the young people’s activities outside home using the question “Were your parents or guardians controlling your leisure at age  $t$ ?” Responses ranged from 1 = *a lot* to 5 = *not at all*. Responses were reversely recorded to obtain a gradient, higher score indicating higher levels of parental monitoring at each age.

*Source of pocket money* was captured using the question “Who was giving you most of your pocket money at age  $t$ ?” Responses (yes/no) to the question included: father and mother, mother, father, grandmother/grandfather, brother/sister/uncle/aunt, cousin, parents’ friend, respondents’ friend, institution, oneself, or other. In the study, parental financial support is a dummy variable coded 1 if adolescents received financial support from at least one biological parent and 0 otherwise.

*Family changes* were measured by comparing family structures at age 6 and 12, using a dichotomous variable coded 1 if young people experienced a change. Obviously, this is a crude measure of family changes because multiple changes can have occurred between ages 6 and 12, and between age 12 and the age at which young people experienced first sexual intercourse.

*Migratory status.* In addition to family changes, previous also emphasized the role of residential mobility as stressful event that can lead to early sexual initiation. This study

tests this effect by accounting for residential mobility between native and non-native. The variable was coded 0 for natives and 1 for non-natives.

*Parental survival.* The question “What was the main reason why you weren’t living with your biological parents at age  $t$ ?” captured the parents’ survival status. Responses were: mother and father died, father died, mother died, school, and other. This variable was coded 1 if at least one parent was dead and 0 otherwise.

*Economic deprivation* is a set of three variables. First, “What was the lighting type that you were using in the home at age  $t$ ?” Responses were electricity, lamp, candle and other. This variable was coded 1 if the lighting mode was electricity and 0 otherwise. Second, the presence of radio or television at home captured by the question “Did you have a radio or a television at home at age  $t$ ?” coded 1 = *yes* and 0 = *otherwise*. Third, the educational attainment of parents/guardians was measured by the question “What was the education level of the person in charge of you at age  $t$ ?” Responses were recorded as follow: 0 = *none*, 1 = *primary*, 2 = *high school* and 3 = *university*. The three items were summed to obtain a proxy of socioeconomic status (SES) of the household (range 0 - 5), a higher score indicating higher economic situation.

*Other variables* included age (in years) and gender (male vs. female).

### **IV.2.3 Analysis plan**

Bivariate and multivariate analyzes were performed. Kaplan-Meier life tables were used to determine the median age at premarital intercourse and the estimated probabilities of sexual initiation at each age. For comparison between 1996 and 2002, probabilities of sexual debut at each age were standardized, using direct standardization technique. For multivariate analyzes, discrete-time hazard modeling was used because the timing of premarital

intercourse can be viewed as an age-dependent process. Using the person-age observation (in a person-year file) as the unit of analysis, multivariate discrete-time models using logistic function (Allison, 1984), were fitted to capture the effects of family structure, parental marital status and family processes during childhood and adolescence on the risk of premarital intercourse. The log-odds of premarital sexual intercourse can be parameterized with a general formulation as follows:

$$\log \text{it}\left(\frac{p}{1-p}\right) = \alpha_{(ti)} + \beta * FS_{(ti)} + \psi * MS_{(ti)} + \delta * X_{(ti)} + \xi * Z$$

where  $p$  represents the risk of premarital sexual intercourse at age  $t$  given that the individual  $i$  has not yet experienced a first sexual intercourse before age  $t$ ;  $\beta$  designs the effect of family structure,  $\psi$  is the effect of parental marital status,  $\delta$  is a vector of parameters corresponding to time-varying covariates  $X$  which are referred to as potential mechanisms and control variables in each hypothesis;  $\xi$  is a vector of parameters corresponding to time-invariant covariates  $Z$ , and  $\alpha$  represents the specific effect of being in a given age interval. The logit coefficients represent the effects that being in the estimated variable category has on the odds of having a premarital intercourse relative to remaining virgin. This analytic strategy is appropriate because the events occurred in discrete time intervals, since premarital sexual was captured in completed years. First, gross effects were estimated using bivariate logit models. Second, four models were fitted to test the hypotheses enunciated above. Model 1 - 3 display the effect the key independent variables in the presence of the variables associated with socialization, social control and family instability, respectively. Model 4 captures the effects of family structure, net of control of the six mechanisms and all other variables. Additional analyzes were also performed to check gender and age

variations of the effects of family structure, quality of parent/guardian-child relationships, parent/guardian-child communication, and parental supervision.

## **IV. 3 Results**

### **IV.3.1 Descriptive results**

Table 1 provides descriptive statistics of the samples for family structure, family processes and demographic characteristics at ages 6 and 12. The distribution of family structures at different ages indicates that nuclear as well as extended two-parent families predominate with some variations across surveys. For instance, young people were mostly living in extended two-parent families at age 6 (54 %) and 12 (44 %) in 1996. By contrast, most of youths were living in nuclear two-parent families in 2002 (42 % at age 6 and 36 % at age 12). Although one-parent families are only marginal in our samples, more than one out of ten of youths were living with other relatives at age 6 and 12.

Most of parents/guardians (over 85 %) were married in both monogamous and polygamous unions. Results support the fact that polygamy is not uncommon in Bandjoun: about one-third of parents/guardians are married polygamously. This is in line with national trends about polygamy showing that about 30 % of married women lived in polygamous unions. As the age increased, the likelihood to live in a household headed by an unmarried parent/guardian also increased because the probability of experiencing parental death increases with age. Panel B in Table 1 about family processes associated with socialization and social control perspectives showed interesting features. Many youths reported higher levels of their relationships with parents/guardians (e.g.,  $M = 3.96$  at age 6 in 2002;  $range = 0 - 5$ ). However, the levels of parent/guardian-child communication were quite low (e.g.,  $M$



= .36 at age 12 in 2002; *range* = 0 - 5). Additionally, household socioeconomic status obtained by summing the scores on parent/guardian education, possession of a radio or TV and whether household used electricity (*range* from 0 to 5) was only moderate with average varying from 1.62 to 2.11. This reflects the semi-rural characteristic of the study setting.

On average, parental monitoring was high with mean values ranging from 3.8 to 3.9. Although previous studies have consistently reported that parental monitoring or supervision could vary with age, findings show quietly no important variations as young people grow. For instance, in 1996, the average level of parental monitoring was 3.89 at age 6, compared with 3.87 at age 12. Similar figures are observed in 2002. These results suggest that parental monitoring not only is a collective task in the setting but and meanwhile, youths' self-reports about parental monitoring means that they are aware parents are watching over their whereabouts.

Turning on family changes and residential mobility, findings indicate that about one-fifth of young people (26 % in 1996 and 18 % in 2002) have experienced a change in family structure and a meanwhile proportion of them are non-native of Bandjoun. As age increased, the proportion of one- or double-orphans increased. Finally, demographic characteristics indicate similarities between the two surveys composed of 52 % and 57 % of females in 1996 and 2002, respectively, and the mean age was 17.8 years and 17.1 years. Table 1 also displays the percentage of young people who ever had premarital intercourse in 1996 and 2002. To be comparable, these percentages were standardized using direct standardization technique adjusting for age composition.

Table 1: Description of the variables by survey year

Variables	1996 (N = 1,445)				2002 (N = 2,461)			
	Age 6		Age 12		Age 6		Age 12	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
<b>Panel A: Family structure and Marital status</b>								
Family structure								
Nuclear one-parent family	.07	.18	.08	.19	.07	.26	.08	.27
Extended one-parent family	.05	.20	.07	.25	.03	.16	.05	.21
Nuclear two-parent family	.21	.40	.17	.38	.42	.49	.36	.48
Extended two-parent family	.54	.49	.44	.50	.33	.47	.30	.46
Other type of family	.13	.38	.24	.45	.15	.36	.22	.41
Marital status of P/G								
Married monogamous	.59	.49	.53	.50	.65	.48	.63	.48
Married polygamous	.37	.48	.33	.47	.27	.44	.28	.45
Other (single/separated/divorced/widowed)	.04	.20	.14	.34	.08	.27	.09	.29
<b>Panel B: Family processes and family changes</b>								
<i>Socialization mechanisms</i>								
Quality of parent-child relationships	3.13	.69	3.07	.71	3.96	1.21	3.91	1.19
Parent-child communication	.11	.53	.40	1.08	.18	.59	.36	.87
Socioeconomic status of HH	1.69	1.32	1.62	1.30	2.08	1.33	2.11	1.34

Table 1 *Continued*

Variables	1996 (N = 1,445)				2002 (N = 2,461)			
	Age 6		Age 12		Age 6		Age 12	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
<b><i>Social control mechanisms</i></b>								
Parental monitoring	3.89	1.30	3.87	1.30	3.85	1.41	3.79	1.37
Source of pocket money (father, mother or both)	.84	.37	.73	.44	.80	.40	.75	.43
<b><i>Family changes mechanisms</i></b>								
Number of changes	.26	.44			.18	.38		
Parental survival (% lost at least one parent)	.04	.20	.20	.39	.06	.24	.10	.29
Migration (% born out of Bandjoun)	.29	.45			.48	.49		
<b>Panel C: Other correlates</b>								
Female gender	.52	.50			.57	.49		
Age	17.8	4.7			17.1	4.8		
<b>Panel D: Premarital sexual intercourse</b>								
Standardized percentage of youths who ever had sex	.42				.35			
Median age at premarital sexual intercourse (in years)	16.9				17.7			

Source: CFHS - 1996 and CFHS - 2002

Overall, 42 % and 35 % of young people ever had premarital intercourse in 1996 and 2002, respectively. This denotes a significant decline of 7 % ( $t = 6.90$ ;  $p < 0.001$ ). Median age at premarital intercourse rises from 16.9 years in 1996 to 17.7 years in 2002. These figures do not differ significantly from the national trends. Indeed, findings from CDHS-1998 and CDHS-2004 suggest that age at sexual initiation among young adults aged 20 – 29 years-old ranged between 15.9 years and 18 years.

#### **IV. 3.2 Multivariate Results**

Tables 2 - 3 present estimated coefficients of discrete-time logit models. Examining gross effects or unadjusted coefficients (column 2) shows results in the expected directions except for parent/guardian-child communication, household socioeconomic status and the source of pocket. In fact, compared to youths who resided in nuclear two-parent families, those in other types of families were at higher risk of premarital sexual intercourse in the two surveys although there were some differences in magnitude. In 1996, youths who resided in extended one-parent family were 1.90 times (or  $e^{.64}$ ) more likely to be at risk of premarital sexual intercourse than their counterparts in nuclear two-parent families.

In 2002 and compared with nuclear two-parent families, living in nuclear one-parent families, in extended two-parent families and in other types of families was positively and significantly associated with higher risk of premarital sexual intercourse. Furthermore, parental marital status showed that living in polygamous households or other type of unions were positively associated with higher rates of premarital sexual intercourse, relative to monogamous families.

Table 2: Logit estimates of the effects of family structure, marital status and family processes on premarital sexual intercourse (CFHS-1996)

Variable	Unadjusted coefficients	Model 1	Model 2	Model 3	Model 4
<b>Family structure (Ref. : <i>Nuclear Two-parent</i>)</b>					
Nuclear one-parent family	.42 (.26)	.33 (.25)	.36 (.27)	.39 (.24)	.32 (.26)
Extended one-parent family	.64*** (.19)	.55*** (.20)	.57*** (.20)	.51*** (.21)	.52** (.21)
Extended two-parent family	.26* (.16)	.21* (.13)	.29** (.14)	.27* (.14)	.22* (.13)
Other type of family	.25 (.16)	.15 (.09)	.32* (.16)	.20 (.15)	.24 (.17)
<b>Marital status (Ref : <i>Married monogamous</i>)</b>					
Married polygamous	.15 (.11)	.20* (.11)	.15 (.10)		.20* (.11)
Other (single/separated/divorced/widowed)	.26 (.18)	.10 (.19)	.10 (.19)		.08 (.19)
<b>Socialization</b>					
Parent/guardian-child relationships	-.17** (.07)	-.16** (.06)			-.17** (.07)
Parent/guardian-child communication	.16*** (.03)	.14*** (.04)			.15*** (.04)
HH Socioeconomic status	.14*** (.04)	.13*** (.04)			.13*** (.04)
<b>Social control</b>					
Parental monitoring	-.19** (.07)		-.15** (.07)		-.12** (.06)
Source of pocket money (Ref: <i>Other relatives</i> )	.29** (.12)		.13 (.12)		.19 (.13)

Table 2 *Continued*

Variable	Unadjusted coefficients	Model 1	Model 2	Model 3	Model 4
Family instability					
Number of changes	.25** (.11)			.20** (.07)	.16** (.08)
Parental survival (Ref : <i>Both parents alive</i> )	.62** (.29)			.51** (.26)	.40** (.19)
Migration (Ref.: <i>Born in Bandjoun</i> )	.19** (.09)			.21** (.10)	.16* (.09)
Demographic characteristics					
Female (Ref. : <i>Male</i> )	-.13 (.09)	-.18* (.10)	-.12 (.10)	-.13 (.10)	-.18* (.10)
Age	.81*** (.03)	.83*** (.13)	.82*** (.13)	.83*** (.13)	.82*** (.13)
Age <sup>2</sup>	...	-.04** (.02)	-.04** (.02)	-.04** (.02)	-.04** (.02)

Statistical significance levels: \*p < .10. \*\*p < .05. \*\*\*p < .01.

Source: CFHS - 1996 and CFHS - 2002

Table 3: Logit estimates of the effects of family structure, marital status and family processes on premarital sexual intercourse (CFHS-2002)

Variable	Unadjusted coefficients	Model 1	Model 2	Model 3	Model 4
<b>Family structure (Ref. : <i>Nuclear Two-parent</i>)</b>					
Nuclear one-parent family	.38** (.17)	.35** (.16)	.31** (.15)	.29* (.16)	.28* (.16)
Extended one-parent family	.10 (.24)	.09 (.24)	.13 (.24)	.19 (.29)	.21 (.25)
Extended two-parent family	.21** (.09)	.15** (.08)	.15** (.09)	.15 (.10)	.15 (.11)
Other type of family	.44*** (.12)	.41*** (.12)	.43*** (.14)	.25** (.12)	.26** (.13)
<b>Marital status (Ref : <i>Married monogamous</i>)</b>					
Married polygamous	.12** (.06)	.09** (.04)	.13** (.06)		.11** (.05)
Other (single/separated/divorced/widowed)	.21** (.08)	.18** (.09)	.12** (.06)		.12** (.06)
<b>Socialization</b>					
Parent/guardian-child relationships	-.41** (.19)	-.39** (.18)			-.36** (.17)
Parent/guardian-child communication	.24** (.11)	.29** (.14)			.37** (.18)
HH Socioeconomic status	.12*** (.03)	.10*** (.03)			.07** (.03)
<b>Social control</b>					
Parental monitoring	-.59** (.29)		-.55** (.26)		-.35** (.17)
Source of pocket money (Ref.: <i>Other relatives</i> )	.18* (.10)		.15* (.08)		.10 (.06)

Table 3 *Continued*

Variable	Unadjusted coefficients	Model 1	Model 2	Model 3	Model 4
Family instability					
Number of changes	.40** (.19)			.22** (.11)	.20** (.09)
Parental survival (Ref : <i>Both parents alive</i> )	.27** (.13)			.20** (.10)	.19** (.09)
Migration (Ref.: <i>Born in Bandjoun</i> )	.29** (.13)			.19** (.10)	.18** (.09)
Demographic characteristics					
Female (Ref.: <i>Male</i> )	-.12 (.09)	-.10 (.08)	-.11 (.09)	-.12 (.09)	-.12 (.09)
Age	.83*** (.07)	.82*** (.12)	.83** (.12)	.82*** (.12)	.82*** (.12)
Age <sup>2</sup>	...	-.02** (.01)	-.02** (.01)	-.02** (.01)	-.02** (.01)

Statistical significance levels: \*p < .10. \*\*p < .05. \*\*\*p < .01.

Source: CFHS - 1996 and CFHS - 2002



In contrast, the effects of parent-child communication, household socioeconomic status, and the source of pocket money went in the opposite direction. Possible explanations for these findings are discussed later.

Turning to Models 1 - 3 (Tables 2 and 3) that examine the effects of family structure, parental marital status, family processes and family changes relatively to the theoretical framework. Globally, findings are similar to those observed in previous models. However, the effects of family structure and marital status were attenuated, thus suggesting that family processes and family changes are important mediators that explain at least partly how family structure influence premarital sexual intercourse among young people. Importantly, when socialization variables are introduced in Model 1 for 1996-Data especially, the detrimental effect of polygamous families increased and become somewhat significant.

Models 2 indicate that only one variable (e.g., parental monitoring) was negatively associated with the risk of premarital sexual intercourse in the two surveys, thus supporting the social control argument that youths who are well supervised are less likely to initiate premarital sexual intercourse. Models 3 also support arguments about family turbulences. In effect, Models 3 show that change in family structure and parental survival are associated with higher risks of premarital sexual intercourse. Youths who have experienced changes in family structure are 1.22 times ( $e^{.20}$ ) in 1996 and 1.24 times ( $e^{.22}$ ) in 2002) more likely to ever had premarital sexual intercourse compared with their counterparts who never experienced family changes. Likewise, loosing at least one parent increased by 67 %  $[(100*(1-e^{-.51}))]$  and 22 %  $[(100*(1-e^{-.20}))]$  the risk of premarital sexual intercourse in 1996 and 2002, respectively. Another interesting finding indicates that migratory status, a proxy of residential mobility, is

positively associated with higher rates of premarital sexual intercourse ( $b = .19; p = .05$  and  $b = .29; p = .05$  in 1996 and 2002, respectively).

Finally, Models 4 (Tables 2 and 3) show that the effects of family structure, parental marital status, family processes, and family changes observed previously in Models 1 - 3 persist and that these factors are meanwhile to understand why young people engage in premarital sexual intercourse in this setting. Models 4 also provide support that all these mechanisms explain youth's engagement in premarital sexual intercourse.

#### **IV. 5 Discussion and concluding remarks**

This study has examined the effects family structures, parental marital status, family processes (parent-child relationships, parent-child communication, household socioeconomic status, parental monitoring), family changes (number of changes, parental survival) on the timing of premarital sexual intercourse, using unique unusual longitudinal retrospective data among 10 - 29 years-old and an integrative theoretical framework never tested in African settings. Overall, several findings have emerged.

Compared with young people from two-parent families, those in one-parent families (both nuclear and extended), extended two-parent families, and other types of families were as far as more likely to ever initiated premarital sexual intercourse and these effects persisted after controlling for all putative mechanisms that can explain youth's involvement in premarital sexual intercourse. This is in lines of previous research both in developed countries (Albrecht & Teachman, 2004; Wu & Thomson, 2001) and developing countries (Babalola, 2004; Rwenge, 2003). In a socialization view, it is obvious that nuclear two-parent families provide a better environment, a strong emotional and psychological support for youths compared to other types of families

(Pearson et al., 2006). Nevertheless, research on family traits that make families strongly protective have been poorly examined in Africa and further research are needed. Although it is a precondition, a family is not protective or at risk because of the number of the parents present in the home. It must meet a number of criteria (cohesion, commitment, adaptability, communication, spirituality, connectedness, efficacy) to improve its protective effect (Greeff & van Der Merwe, 2004).

Monogamous families were associated with lower rates as reported in a Nigerian study (Slap et al., 2003). It is possible that polygamous families provide an environment that is less appropriate for youth development and which in turn heightens their involvement in premarital sexual intercourse. Findings indicate the quality of parent/guardian-child relationships is strongly and negatively associated with lower risks of premarital sexual intercourse. In a similar way, Slap et al. (2003) found that sexually inexperienced youths reported higher levels of parent-child connectedness. These two constructs are not exactly identical but they are tied and arguably the quality of parent-child relationships is a promising avenue for youth-oriented interventions to delay sexual initiation.

By contrast, parent-child communication and household socioeconomic status provided intriguing results since most western studies reported a negative association with sexual initiation. Findings showed that parent-child communication increased significantly the rates of premarital sexual intercourse. Nevertheless, literature on the association between parent-child communication and sexual initiation provided mixed findings with some reporting a positive effect (DiIorio et al., 2002) or found no association at all (Huebner & Howell, 2003), while others reported that youth who talked with their parents have lower rates of sexual behaviors (DiClemente et al., 2001). Measures used

to capture parent-child communication differ across studies and explain partly these discrepancies. In African settings, Adu-Mireku (2003) found no significant relationship between family communication about HIV/AIDS and sexual initiation while it increased significantly the use of condom at last sex. These results suggest that further research is needed to enhance understanding about the relationships between parent-child communication and sexual initiation, and to move beyond the common view that parents do not talk with their children about sexuality. Such studies are lacking in sub-Saharan Africa, yet young people identify parents as important source of information about sexuality. What is said and the content, frequency, and lasting of such conversations are not well documented. When talking with their children, parents generally adopt fear tactics to avoid HIV/AIDS and other STDs, unwanted pregnancies but do not explain straightly how youths can manage sexual mating in various circumstances.

Another intriguing finding, with respect to a western view, is the positive association of household socioeconomic status as studies in developed countries revealed the benefit of better-off homes. Although it is argued that poverty of parents generally increases risky sexual behaviors among young people, another regard is possible especially in African settings. Higher socioeconomic status provides higher social status among young people, and popularity. Hence, youths from better-off households are more attractive for girls, and have many opportunities to rely with sexual initiation. In addition, dating is often accompanied with gift and party in which youths from advantaged household have more opportunities than their counterparts from poor households. One might expect that economic hardship is more detrimental for girls than boys. The interaction between household socioeconomic status and gender was tested.

However, the multiplicative term was significant; then suggesting the existence of gender differences, but the global test was not significant.

It is also in this sense that findings relying from social control perspective can be understood: youths who received pocket money from their parents are somewhat more likely to ever initiated premarital sexual intercourse. A UK longitudinal study revealed that a higher spending of money among teenagers was positively associated with sexual initiation for both males and females (Wight et al., 2006). As expected, parental monitoring was associated with lower rates of sexual intercourse as in previous studies (Kumi-Kyereme et al., 2007). Two interactions have been tested in subsequent analyses assuming that parental monitoring can vary by gender and age, but the interactive terms were not significant.

In a family instability perspective, findings showed significant effect of family structure and further, the three variables that proxy changes in family structure are positively and significantly associated with premarital sexual intercourse. In fact, parental death is a stressful event which has been showed to be associated with sexual initiation and subsequent sexual behaviors (Thurman et al., 2006). Although other adults care about youths after the death of one or two parents, it is obvious that they cannot provide the amount of affection and psychological support than do biological parents. As youths have experienced changes in family structure, as the risk of premarital sexual intercourse is higher. Similarly, change in residential mobility heightened the risk of sexual initiation. These two factors have similar explanations in such ways that they lead to changes in family environment and/or physical environment. Thus the amount of adaptation following these changes may have negative effects on youth development and subsequently may lead to premarital sexual intercourse.

In spite of their notable contribution, limitations of many previous studies were addressed. For instance, Wu & Thomson (2001) noted that they do not observe several crucial intervening elements implied by the theoretical framework which are probably the proximate determinants of the observed effects of family structure and family change. In this way, this paper provided important contribution in this field since it has integrated a strong theoretical framework and included the intervening elements that explain the effects of family structure and family change on premarital sexual intercourse. The paper found that the effects of family structure and parental marital status remained significant when the proximate variables (family processes) are included in the analyses. Some of these elements referred to as family processes, include parent-child relationships, parental supervision/monitoring, and household socioeconomic status. This also means that family, and especially parents must be an important component that needs to be addressed in reproductive health programs targeting youths in sub-Saharan Africa (WHO, 2007b).

#### **IV. 6 Potential limitations**

First, youths in Bandjoun received a risk-reduction intervention. This issue was not addressed here but explains the decline of sexually experienced youths between 1996 and 2002. Second, it is widely recognized that parent-child communication, parental monitoring, and the quality of parent-child relationships are complex and multidimensional concepts. The shortcomings are obvious in many studies even in developed countries (Rai et al., 2003). These factors are all-important components of effective family environment but are less addressed in sub-Saharan Africa. As such, this study can serve as a benchmark to develop better instruments that capture family processes, and no definitive statement can be made regarding their influences on sexual

initiation. In this paper, parent-communication has been captured using yes/no items about five topics (sexual education, puberty, pregnancy, STDs/HIV/AIDS, and alcohol/drug use). Yet, a Likert scale could provide much wide variation. Third, the study reported youths' perceptions about family processes. Further research should assess both parents and youths perceptions about family processes to gather a more accurate description of their influences on sexual ignition.

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**CHAPITRE CINQUIÈME: INFLUENCES OF FAMILY  
STRUCTURE, FAMILY/PEER COMMUNICATION, AND SOCIO-  
DEMOGRAPHIC CORRELATES ON ACCURATE HIV  
KNOWLEDGE OF TRANSMISSION ROUTES AND PREVENTIVE  
STRATEGIES AMONG YOUNG PEOPLE**

**Zacharie Tsala Dimbuene and Barthelemy Kuate Defo**

**PRONUSTIC Research Laboratory and Department of Demography**

**University of Montreal (Quebec), Canada**

**Paper submitted for publication**

## **Abstract**

Theoretically, parents and peers are, among others, the most socializing agents for young people. Moreover, communication with parents/guardians and peers has been found to be very influential for knowledge acquisition, especially about HIV/AIDS. Collapsing these three issues, the main objective of paper was designed to assess associations between family structure, family/peer communication about sexuality and accuracy of HIV/AIDS knowledge of transmission routes and preventive strategies, referred to as the complete knowledge of all transmission and prevention items, using cross-sectional data from 2 028 youths aged of 10 – 29 years. The major findings are that young people significantly reported concurrently accurate and inaccurate knowledge of HIV transmission modes and preventive strategies, and family structure as well as family and peer communication are key explanatory variables on which HIV education and prevention efforts should be directed at, among other putative correlates previously documented, including age, education, being sexually experienced, migration, and socioeconomic status.

**Key words: Family structure, family/peer communication, accurate and inaccurate HIV/AIDS knowledge, Africa**

## V.1 Introduction

In many respects, young people in sub-Saharan Africa are typical of those in other developing countries, with a mixture of correct and incorrect knowledge about HIV/AIDS and STDs (Bankole et al., 2004). Yet, a better understanding of how HIV can be transmitted and how it can be prevented is vitally important for the control of the disease among young people. In fact, misconceptions can prevent individuals from making choices, decisions and taking preventive strategies. While still controversial, research suggests that sufficient knowledge regarding AIDS is a necessary, albeit insufficient, first step toward effective AIDS prevention and intervention efforts (Li et al., 2004; Meekers & Klein, 2002; Peltzer & Promtussananon, 2005; Pequegnat et al., 2001; Perrino et al., 2000). In this vein, the first generation of HIV interventions and individual-based studies aimed mainly to increase HIV/AIDS knowledge which thereafter is expected to foster safer sexual behaviors (Cleland, Boerma, Carael, & Weir, 2004).

As a result, AIDS awareness is widespread around the world: at least 90 % of people ever heard from AIDS. However, after two decades since the first case of AIDS and despite many HIV interventions, people around the world do not have a fully accurate HIV/AIDS knowledge of transmission routes and preventive strategies. For instance, Cameroon Demographic Survey carried out in 2004 (CDHS-2004) showed that full knowledge of HIV/AIDS (defined as the knowledge of all HIV transmission routes) was very low among young people. Only 27 % of females 15 - 24 years-old and 35 % of their male counterparts knew all HIV transmission routes. Similar figures were found in Congo-Brazza in 2005 (35.3 % for males vs. 25.6 % for females). In contrast, these figures among Cameroonian youths are very high compared to Chad in 2004 (19.9 % for males vs. 7.5 % for females).

Evidence on low levels of accurate HIV/AIDS knowledge was found in other developing countries. A sample of 259 Chinese students showed that less than half (47.3 %) answered correctly the statements about HIV transmission routes (Tan, Pan, Zhou, Wang, & Xie, 2007). This study found that misconceptions about HIV transmission routes were not uncommon. As high as 40.3 % students believed mosquitoes are vectors of HIV and 9.3 % thought that sharing public swimming pools with infected people is risky.

The role of contexts has been widely recognised in HIV-related literature. One of the most salient and universal context is the family (Pequegnat et al., 2001), but parents have been identified as an underutilized resource (Perrino et al., 2000), while other studies reported parents are often less involved in sexual education for their children (Meekers & Ahmed, 2000). Two rationales advocate for the inclusion of parents and other family members for a better understanding of HIV/AIDS knowledge among youths. Firstly, according to socialization perspective, parents and adults are, or should be the primary socializing agents for their children, and are theoretically an important source of information about HIV/AIDS because of their potential influences on children's attitudes and behaviors about sexuality. They are expected to convey values and norms about sexuality, and may be a strong channel to sustain accurate knowledge about HIV/AIDS. To fulfill this role, parent/guardian-youth communication is central in teaching children. Secondly, the exclusion of family and community contexts when HIV interventions started explains at least partly why increasing HIV/AIDS knowledge has only poorly influenced sexual behaviors. Understanding the associations between family environment and the accuracy of HIV/AIDS knowledge is crucial and helpful to promote safe sexual behaviors among young people.

Besides family structure, a number of studies using a developmental perspective have found that, during adolescence and emerging adulthood when peer influences increases, perceptions of peers' attitudes and behaviors predict sexual risk behaviors for youths (Lefkowitz, Boone, & Shearer, 2004). Drawing on these assumptions, many HIV interventions in sub-Saharan Africa have adopted peer education as a leading strategy aiming to increase HIV/AIDS knowledge of transmission modes and preventive strategies (Speizer et al., 2003), while other studies have questioned its relevance in HIV interventions (Lesko, 2007).

The present study was designed to examine associations between family structures, family and peer communication on the accuracy of HIV/AIDS knowledge of transmission routes and preventive strategies which are lacking empirical evidence in sub-Saharan Africa. To the best of our knowledge, no study in African settings has already addressed this issue. A study in Côte d'Ivoire has tempted to address this point (Zellner, 2003), however, accuracy of HIV/AIDS knowledge was used as a key independent variable rather than an outcome.

Even in developed countries, studies that addressed the potential influences of parents on HIV/AIDS knowledge, neither focused on family structure nor addressed its thorough accuracy (Sigelman, Derenowski, Mullaney, & Siders, 1993; Sigelman et al., 1995). These two studies addressed the links between parents' and children's HIV knowledge in the United States but found any significant association. Overall, they found that age was the strongest predictor of children's HIV/AIDS knowledge. In the next section, literature review puts emphasis on the linkages between family structure, family and peer communication, sexual behaviors, and socio-demographic correlates on

HIV/AIDS knowledge, respectively, and closing with a conceptual framework that guides empirical models.

## **V.2 Literature review**

### **V.2.1 Family structure and HIV/AIDS knowledge**

Many aspects of family structure can be associated with the acquisition of HIV/AIDS knowledge among young people. These include the configurations of the home (two biological parents or one) or other family structures such as neither-parent families, and the role of parents and/or other adults in the homes (uncles, aunts, brothers or sisters, grandparents), and family communication about sexuality.

*Parents.* In all societies, family environment is the most important setting for children socialization. Traditionally, researchers contend that two biological parents provide better guidance and socialization than do one-parent families (Davis & Friel, 2001). However, parents are generally confronted with traditional values and norms regarding sexuality when it comes the time to teach their children about sexual health and HIV-related issues (Kouinche & Tagne, 1998). In practice, parents do not discuss sexuality with their children (Boileau et al., 2008; Meekers & Klein, 2002). Hence, the culture of silence can hinder the potential influences of parents on children's accuracy knowledge of HIV by reducing the magnitude of parent-child interactions. For instance, Meekers and Klein (2001) reported, in a sample of urban and unmarried youths aged 15-24 years-olds, that Cameroonian parents do not communicate with their children about sexual issues. Yet, more than two-thirds of respondents said their parents were supportive of young people's condom use which predicted significantly its utilization. Studies in African settings had never examined how two-, one-parent or neither-parent families affect children socialization about sexual topics. Furthermore, all these families

are anchored in the same cultural environment where sexuality is expected to be a taboo topic. Thus, differentials in two-, one- or neither-parent families will strongly depend on the values and attitudes that are conveyed in the homes.

*Fathers.* Fathers have gotten short shrift in the research on families that has focused primarily on mothers as primary caregivers (Nsamenang, 2000). Like in other sub-Saharan countries, Cameroonian society sanctions the authority of father over other members in the home. They are significant figures in their children's lives, even when they are absent. Nevertheless, the increasing levels of poverty in many African countries have brought a drift from the traditional values and norms about sexuality in the broader society in general, and within the family in particular (Cohen et al., 2005). Hence, many fathers have become unable to meet children's needs; they are powerless to impose clear rules about youth's conduct, especially regarding sexuality.

*Aunts, uncles and grandparents.* Although parents play the more significant role in children's life, other adults in the homes can also contribute towards inculcating positive normative patterns of sexual issues to youths (Njikam Savage, 2005). As extended family is the dominant pattern in Cameroonian society (Nsamenang, 2000), it is obvious that other adults live in the home (such as uncles, aunts and grandparents). They tend to play an important role in child socialization, a collective enterprise in the Cameroonian society; and their role is reinforced by the culture of silence, particularly among the Bamiléké compared with the Beti (Rwenge, 2004). As noted earlier, parents solely discuss sexuality with their children. Youth were taught about sexual education through initiation rites, songs and stories by adults of the extended family (Bouwa, 2006). These formal but often unclear messages are not very helpful for youth to acquiring a strong basis of accurate knowledge about HIV/AIDS.

In addition, the kind of relationships between these adults, particularly grandparents may be less efficient in practice. For instance, in a series of qualitative studies in the Abaluyia ethnic (Kenya), Cattell (1994: p.165) observed that relationships between grandmothers and granddaughters are characterized by informal behavior, affectual warmth and love, friendly teasing, and grandmothers' indulgences. Although grandmothers served often as mentor in sexual education, as she instructs and advises her granddaughter about sexuality and marriage, there is no evidence that grandparents may be a good source of information. In fact, human biology and reproductive health issues are quite complex. Grandmothers are often illiterate or less educated. Thus, they cannot provide sufficient and correct information about HIV/AIDS to their grandchildren. The presence of other adults such as grandparents may be necessary for child socialization in one-parent families. However, they can undermine accurate HIV/AIDS knowledge among young people if they send controversy messages.

### **V.2.2 Family communication and HIV/AIDS knowledge**

Besides family structures, family communication has been found to be influential in child socialization (Kotchick, Shaffer, & Forehand, 2001): what are parents saying and are their children listening? General communication is a key component in the process of knowledge acquisition (Perrino et al., 2000). This is particularly important in sexual matters where sexual communication, defined as the direct, open, and clear interactions, is prominent to determine the role of parent-child communication regarding the acquisition of accurate HIV knowledge among young people. Through sexual communication, parents instruct and transfer family values and norms about sexuality and behaviors to their children. As stated above, the common pattern of parent-child communication in most African settings is the "cultural silence": sexuality is taboo. In



fact, studies in sub-Saharan Africa reported consistently poor parent-child communication about sexual topics (Boileau et al., 2008). Parents and other adults often felt reluctant to provide information about sex because raising such issues might encourage undesirable behaviors among young people (Eaton, Flisher, & Aarø, 2003; Jewkes, Levin, & Penn-Kekana, 2003). Yet, adolescents and youths preferred parents and close relatives to be their first source of sexual information. A study carried out in three urban sites (Namisi et al., 2008): one in Dar-es-Salaam (Tanzania), and two South-Africa (Cape Town and Mankweng), showed that most females and most males preferred to be informed by mothers and fathers, respectively. The reluctance was also found in previous studies. In the study by Odimegwu et al. (2001), 74 % of males and 60 % of females had never talked with their parents about sexual issues. There is limited evidence of the impact of parent-child communication on HIV knowledge. However, we expect that family communication about sexuality increases accurate while it decreases inaccurate HIV/AIDS knowledge about transmission routes. Further, it increases the knowledge about HIV/AIDS preventive strategies.

### **V.2.3 Peer-to-peer communication and HIV/AIDS knowledge**

During adolescence and emerging adulthood, the influences of peers is also increasing especially about sexual topics, including HIV and AIDS (Campbell & MacPhail, 2002; Lefkowitz et al., 2004; Pequegnat et al., 2001; Perrino et al., 2000; Speizer et al., 2003; Whitaker & Miller, 2000). While discomfort generally hampers sexual discussions between parents and children (Kouinche & Tagne, 1998), conversations with friends about sexuality appear in the context of a horizontal relationship (Lefkowitz et al., 2004), and not surprisingly friends are mostly cited as the main source of information about HIV/AIDS (Meekers & Ahmed, 2000). Evidence from peer-to-peer interactions in rising HIV knowledge among young people has also been found in urban Cameroon

(Meekers, Agha, & Klein, 2005; Meekers & Klein, 2002). Drawing on previous studies, it is expected that higher levels of peer-to-peer communication is positively associated with accurate HIV/AIDS knowledge about transmission routes and preventive strategies.

#### **V.2.4 Sexual behaviors and HIV/AIDS knowledge**

Associations between HIV knowledge and sexual behavior have been widely documented (Akwaru et al., 2003; Maswanya et al., 2000; Meekers & Ahmed, 2000). Such studies aimed to seek how increasing HIV knowledge influence safe sexual behavior, and have concluded to inexistent or only weak associations. There are rationales to expect a reverse association that sexual behaviors influence HIV knowledge. In fact, studies had shown that sexually experienced youths are more knowledgeable about HIV/AIDS compared with sexually inexperienced ones (London & Robles, 2000; Silver & Bauman, 2006; Song, Richters, Crawford, & Kippax, 2005). Because sexual intercourse is the main route spreading AIDS in sub-Saharan Africa, it is possible that youths who are not sexually experienced are distancing themselves from HIV and AIDS. In other words, they are less likely to seek information about HIV and AIDS. In contrast, sexually experienced youths will be more likely to seek information about AIDS through media, readings or HIV campaigns, and hence are more knowledgeable about HIV/AIDS.

#### **V.2.5 Socio-demographic correlates of HIV knowledge**

Individual-based studies have provided evidence on the associations between socio-demographic attributes and HIV/AIDS knowledge. These include age, education, gender, religious affiliation, and migration. For instance, the levels of correct knowledge of HIV transmission routes increased with age among El Salvadorian

women (London & Robles, 2000) and Burkinabe women (Sarker, Milkowski et al., 2005), and with educational attainment (Snelling et al., 2007). Previous studies also revealed gender differences, with males being more knowledgeable than women (Türmen, 2003). The effect of religious affiliation on HIV knowledge and adolescent sexual behavior is documented (Agha et al., 2006). Young people affiliated in religious groups which promote only abstinence but are reluctant to talk openly about AIDS transmission and prevention might be less knowledgeable than those engaged in the fight of AIDS. Protestants are expected to be more knowledgeable about HIV/AIDS, compared with Catholics who are more conservative about sexual matters such as contraception and condom use. The relationships between migration and HIV knowledge had also been examined (Lalou & Piché, 2007). This study reported that Senegalese internal and international migrants were not better informed about HIV/AIDS than the non-migrant population in their origin area. However, it is expected migrants more likely to report accurate knowledge of HIV routes of transmission and HIV preventive strategies for at least two reasons: migrants are generally better-educated, and the rural-urban predominance of African migrations provides an additional asset due to more effective media exposure than in rural origin areas.

Household socioeconomic status (HHSES) seemed to be positively associated with HIV knowledge. As the HHSES increased, children's HIV knowledge tend to increase (Isiugo-Abanihe & Oyedirani, 2004; Kalichman et al., 2006). This relationship can be mediated by parent-child communication and parental education. In fact, parental education provides parents with strong skills and competence to educate their children about accurate knowledge of HIV transmission routes and preventive strategies. In other words, being father or mother per se is not enough to provide accurate knowledge of HIV transmission routes or preventive strategies. Better-educated parents are often more

knowledgeable about HIV/AIDS and more likely to report greater frequency of parent-child communication about sexuality and HIV than do parents with low levels of education (Schonfeld, 2000; Tinsley & Lees, 2004). Hence, adolescents and youth from better-educated parents or guardians will be more likely to report accurate knowledge about HIV transmission routes and preventive strategies. Conversely, they will be less likely to endorse misconceptions about HIV/AIDS.

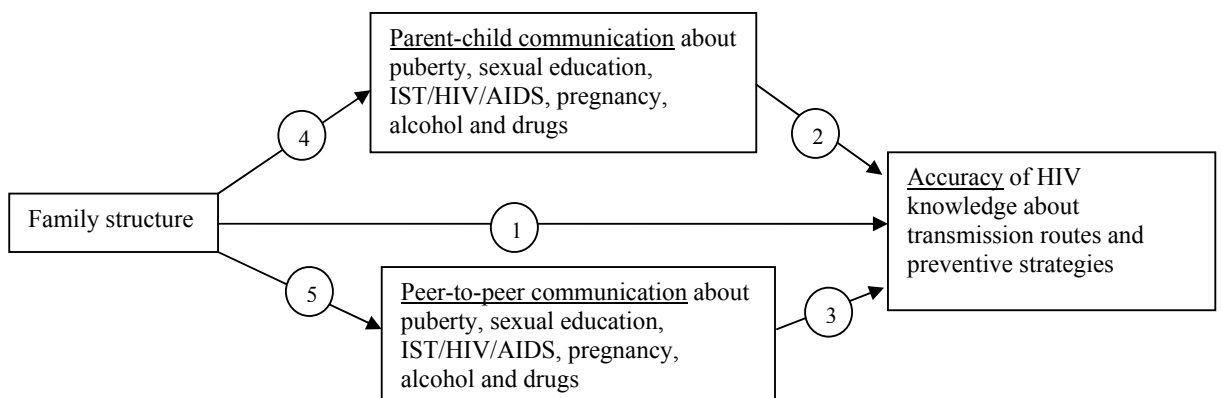
It is also expected a positive association between the community socioeconomic status (CSES) and the outcomes. In fact, youths from disadvantaged settings are often ill informed than their counterparts from rich areas. This relationship can be reinforced by the respondent's education level and media exposure. Young people in poor settings are generally less educated and have limited access to media. Finally, rural-urban differences on HIV/AIDS knowledge had been observed in many African countries, with urban residents showing high levels of HIV/AIDS knowledge. However, a study in Tanzania found no significant difference between rural and urban communities on knowledge about HIV/AIDS (Nkya, Sindato, Mcharo, & Kibona, 2006).

### **V.3 Conceptual model**

Literature review has shown that a myriad of factors are associated with HIV/AIDS knowledge. Importantly, family communication appeared as a strong channel through which parents and other adults in the home teach children and spread accurate information about HIV/AIDS. Drawing on socialization perspective, it is assumed that family structure, family/peer communication about sexuality have independent direct effects on the accuracy of HIV/AIDS knowledge of transmission routes and preventive strategies. In addition, family structure can exert indirect effects on HIV/AIDS knowledge through communication. By contrast, the indirect link between family

structure and HIV/AIDS knowledge via peer-to-peer communication is less obvious. Nonetheless, researchers often report the increasing and influential role of peers during adolescence and early adulthood, especially when parents are less involved in children sexual education as it is the case in most sub-Saharan countries. If so, thus peer-to-peer communication will capture the overall direct effect of family structure on HIV knowledge. If the effect of family structure persists in the presence of peer-to-peer communication, this means that the role of parents and other adults is still important despite the increasing peer influence during adolescence and early adulthood.

Figure 1: Conceptual model



## V.4 Data and Methods

### Study setting and sampling design

Data used come from Cameroon Family Life and Health Survey (CFHS) carried in Bandjoun (Cameroon) in 2002 by the Population Observatory in Socio-clinical Epidemiology (POSE). The CFHS collected information on a random and representative sample of 4 950 people aged 10 years and over living in 1 765 randomly selected households, 75 localities in Bandjoun, west Cameroon (Kuate Defo, 2005). Using face-to-face interviews, three types of questionnaires (neighborhood, household

and individual) were administrated. Data for this study is based on a sub-sample of 2 461 female and male youths aged 10 - 29 years.

### **Variables measurement and specification**

#### **Dependent variables: Accurate vs. inaccurate HIV/AIDS knowledge of transmission routes, and knowledge of HIV preventive strategies.**

AIDS knowledge included *yes/no* items on how AIDS can be transmitted (6 items) and how it can be prevented (8 items). HIV/AIDS transmission knowledge consisted of 4 items, that pertained accurate HIV/AIDS knowledge (i.e. true or probable transmission routes) and 2 items that pertained inaccurate HIV/AIDS knowledge (i.e. routes through which AIDS is not transmitted). To assess accurate HIV/AIDS knowledge of the transmission routes, respondents were asked if AIDS can be transmitted through (i) unprotected sexual intercourse, (ii) blood transfusions, (iii) mother-to-child transmission (MTCT), or (iv) by sharing needles/ unclean medical equipment. Accurate knowledge of HIV knowledge of routes of transmission was defined as a binary variable coded 1 if young people reported four correct responses out of 4 and 0 otherwise.

To assess inaccurate HIV/AIDS knowledge of the transmission routes, respondents were asked if AIDS can be transmitted by (i) mosquito and other insect bites and (ii) casual contact with infected person. In the same vein, inaccurate HIV/AIDS knowledge was defined as a binary variable coded 0 if youths rejected the two misconceptions (mosquito/insect bites and casual contact with an infected person) and 1 otherwise.

HIV/AIDS preventive strategies include (i) sexual abstinence or chastity, (ii) staying faithful to partner, (iii) encouraging partner to stay faithful, (iv) avoiding contaminated blood transfusions, (v) condom use at every sexual intercourse, (vi) not sharing needles,

(vii) avoiding commercial sex workers and (viii) avoiding casual partners. Herein, knowledge of HIV/AIDS preventive strategies is a binary variable coded 1 if respondents reported eight correct responses out of 8, and 0 otherwise.

Cronbach's alpha was used to assess the reliability (internal consistency) for the two constructs of HIV/AIDS knowledge of transmission routes and HIV/AIDS knowledge of prevention strategies. These items showed adequate reliability for both HIV/AIDS transmission (Cronbach's  $\alpha = .74$ ) and prevention (Cronbach's  $\alpha = .81$ ).

#### *Key independent variables*

*Family structure.* One of the key independent variables in the analysis is family structure. Family structure is assessed through a set of (*yes/no*) questions about the potential members of a typical African family in rural, semi-rural and urban areas that asked with whom respondent lived at the time of the survey. Responses include father, mother, brother/sister, cousins, uncle/aunt, grandfather/grandmother, friend, playmate, in institution, and alone. We attempted to make the family structure pure in the sense that the presence of biological parents was emphasized. For instance, youths living with brothers/sisters/cousins, uncles/aunts, grandparents cannot live at the same time with biological parents. Drawing on the roles of family members who are expectedly involved in children socialization, six family types were built: (i) two biological parents; (ii) father-only; (iii) mother-only; (iv) brother/sister/cousin; (v) uncles/aunts; and (vi) grandparents.

*Family/peer communication.* Ontologically, knowledge acquisition is a dynamic process (Piaget, 1976). For Piaget, knowledge is neither innate nor contained in objects; on the contrary, it is dynamically created by interactions between the human and these objects.

In this sense, knowledge is considered as an active and operative assimilation. Hence, what is the relevant period of the life that might be considered when addressing the influences of family/peer communication on HIV/AIDS knowledge is a question of interest. Is the communication at adolescence (age 12) or the time of the survey? To account for the cumulative property of knowledge acquisition, the paper built an index of family/peer communication including communication at age 12 and at the survey. Parent-child (*PCC*) and peer-peer communication (*PPC*) consisted of five topics in yes/no formats, indicating whether young people ever had talked with parents/guardians and peers at age 12 and at the time of the survey about (a) puberty, (b) sexual education, (c) IST/HIV/AIDS prevention, (d) pregnancy prevention, (e) alcohol and drugs. Responses were summed in two scales of parent-child and peer-peer communication which ranged from 0 to 10. For the two scales, Cronbach's  $\alpha$  was .94 and .95, respectively.

#### *Other correlates*

At the individual-level, variables included gender (male vs. female), age, education (in years completed), ever had sexual intercourse (yes/no), migration (migrant vs. non-migrant), religion (catholic vs. protestant, and others). Family-level variables include HHSES as a proxy of socioeconomic status and educational attainment of the parent/guardian. At the neighborhood-level, two variables were considered, including community development index (CDI) and place of residence (urban vs. rural).

HHSES was constructed using household's possessions (electricity, radio, TV, refrigerator, bicycle, a lot of earth, cat/cheap, commercial culture), the main source of drinking water, the type of toilet facilities, and household's materials (walls, roof and floor). Likewise, CSES included the main access in the neighborhood, the economic



activities (such as agriculture, livestock, fishing, commerce, manufacturing/handicraft) and the availability of commodities in the neighborhood (telephone, elementary school, high school, university, local market, post office, recreational centre, public transportation, movie theater/movie centre, health centre, hospital, youth centre, and sports playing field). Methodologically, HHSES (13 items) and CDI (18 items) indexes were built using principal component analysis (PCA). This statistical technique transforms linearly an original set of variables into a substantially smaller, more coherent set of uncorrelated variables (*factors*) that capture most of the information through maximizing the variance accounted for in the original variables, thus resolving the problem of multicollinearity between the variables.

## V.5 Statistical Methods

Firstly, the links between family structure and family/peer communication and HIV/AIDS knowledge of transmission routes are examined. The paper argues that estimating the influences of family structures on accurate and inaccurate HIV/AIDS knowledge of transmission routes using two independent equations is inefficient because it ignores the correlation between the two dependent variables reported in previous studies (Boer & Emons, 2004; London & Robles, 2000). Thus, bivariate probit models are more efficient to account for this correlation (Greene, 2003). The formulation of bivariate models is as follows.

The ACCURATE equation is:

$$Y_A^* = \beta_A' * FS + \xi_A * PCC + \gamma_A * PPC + \psi_A * Z + \varepsilon_A, \text{ if } Y_A = 1, \text{ and } 0 \text{ otherwise} \quad (1)$$

where FS, PCC and PPC represent family structure, parent-child communication, peer-to-peer communication, respectively, and Z a vector of factors influencing the accuracy of HIV transmission routes, and  $\varepsilon_A$  the disturbance term. Then, the probability for young

people to report accurate knowledge of HIV transmission routes can be computed as follows:

$$\text{Prob}[Y_A = 1] = \Phi[\beta_A * FS, \zeta_A * PCC, \gamma_A * PPC, \psi_A * Z] \text{ and}$$

$$\text{Prob}[Y_A = 0] = 1 - \Phi[\beta_A * FS, \zeta_A * PCC, \gamma_A * PPC, \psi_A * Z].$$

Similarly, the INACCURATE equation is:

$$Y_I^* = \beta_I' * FS + \xi_I * PCC + \gamma_I * PPC + \psi_I * Z + \varepsilon_I, \text{ if } Y_I = 1, \text{ and } 0 \text{ otherwise} \quad (2)$$

where  $\varepsilon_I$  is the disturbance term. The disturbances terms ( $\varepsilon_A$  and  $\varepsilon_I$ ) are assumed to have

a bivariate normal distribution (BVN) with a mean vector  $\begin{pmatrix} 0 \\ 0 \end{pmatrix}$  and covariance

matrix  $\begin{pmatrix} 1 & \rho \\ \rho & 1 \end{pmatrix}$ . The parameter  $\rho$  captures the correlation that youths endorse

simultaneously accurate and inaccurate knowledge of HIV/AIDS transmission routes.

Under the null hypothesis, it is assumed that  $\rho = 0$  and two independent probit equations

will provide unbiased estimates. The bivariate probit estimated coefficients  $\beta_A$  and  $\beta_I$

provide a suitable means of comparing the influences of family structure, family and

peer communication, socio-demographic correlates and sexual-related behaviors on the

two dependent variables under the alternative hypothesis  $\rho \neq 0$ .

Secondly, logistic regression was used to determine the influences of family structures

on the accuracy of HIV/AIDS preventive strategies, given the dichotomous nature of

this response variable. Estimated coefficients are reported although odds ratio (OR) may

also be used for the interpretation. The reference category for a variable (e.g., family

structure) has an estimated coefficient of zero (or alternatively an OR = 1). An

estimated coefficient greater than zero (less than zero) indicates a positive (or negative)

association with accurate HIV/AIDS knowledge of preventive strategies and is

associated with an OR greater (or lesser) than unity.

## V. 6 Findings

### V. 6.1. Descriptive results

Although HIV/AIDS is widely known, 7.7 % of among young people in Bandjoun (189 cases out of 2 461 individuals) had never heard from HIV/AIDS. Of those who had never heard from HIV/AIDS, 11 % were sexually experienced and most of them (51.9 %) were males. On average, they had 5.5 years of educational attainment. Using logistic regression, I assessed the relative importance of selected characteristics on “ever heard from HIV/AIDS”. Findings showed that older ( $\beta = - .270$ ;  $SD = .038$ ;  $p < .000$ ) and more educated youths ( $\beta = - .098$ ;  $SD = .023$ ;  $p < .000$ ) are less likely to be unaware of HIV/AIDS. These youths did not answer HIV/AIDS-related questions. They were excluded along with married youths for whom family structure was no longer meaningful. The final sample consisted of 2 028 unmarried youths (54.1 % of females).

Table 1 describes the phrasing of HIV/AIDS transmission routes and HIV preventive strategies. The mean score of the total knowledge of HIV/AIDS transmission routes is .715 (range 0 - 1). About one-third of respondents reported correct answers about the six HIV transmission routes. Meanwhile, a higher percentage of youths were aware about the possible or correct HIV transmission routes (Panel A.1 of Table 1): unprotected sexual intercourse (88.3 %), sharing needles or unclean medical equipment (69.2 %), blood transfusions (74.1 %) and mother-to-child transmission (54.6 %). Taken together, the mean score is .716 (range 0 – 1). Overall, 41.6 % had correctly identified the four HIV/AIDS transmission routes. By contrast, about 8 % of them did not identify any possible (or correct) HIV transmission route. Confusion was also found concerning improbable routes through which HIV cannot be transmitted (Panel A.2 of Table 1): 21.1 % of young people misbelieved that HIV is transmitted through mosquito bites and/or non-sexual contact with an infected person. The mean score is .123 (range 0 - 1).

Strong variations were also found on how youths are knowledgeable about the HIV/AIDS preventive strategies (Panel B of Table 1). Percentages of correct answers were as follows: sexual abstinence/chastity (76.1 %), using condoms correctly at every sexual intercourse (61.4 %), stay faithful to partner (58.5 %), avoid sharing needles (49.6 %), avoid blood transfusions (48.5 %), encourage partner to stay faithful (44.3 %), avoid commercial sex workers (36.9 %) and casual sexual partners (15.8 %). Taken together, close to 8 % of young people do not know any HIV preventive strategies. Although the remainder identified at least one HIV/AIDS preventive strategies, only 9 % reported satisfactorily the eight HIV/AIDS preventive identified in Table 1. The mean score of HIV/AIDS preventive strategies is .488 (range 0 - 1).

Table 2 describes the selected independent variables into three blocks: individual factors, family environment and community characteristics. At the individual level, the sample consisted of 54 % female youths and a mean age of 16.5 years (range 10 – 29 years). Most of them have completed primary school, with an average of 8.1 years while nearly a half was born out of Bandjoun (49 %). In examining religious affiliation, findings show that more than two-thirds are Catholics and one-quarter are Protestants. About one-third of young people have already experienced sexual intercourse at the time of the survey. The distribution of the sample by family environment indicates that 48.7 % of young people lived with two biological parents while more than one-fifth was living with only one biological parent at the time of the survey, often the mother (17 %). Nearly one-tenth was living with people of same generation (brother, sister or cousin), and another 6 % lived with other relatives including aunts or uncles. Another important feature of family structure is the meanwhile percentage of young people living with their grandparents (14 %). One-third of young people are living in poor households.

Table 1: HIV/AIDS Knowledge among adolescents and young people in Bandjoun (Cameroon)

Variables	Range	Number of items	Cronbach's alpha	Correct answer	Frequency of correct (or incorrect) answers	%	Mean (SD)
<b>A. Knowledge of HIV transmission routes</b>	0-6	6	.74				.715 (.314)
<b>A.1 Accurate knowledge of HIV transmission routes</b>	0-4	4					.716 (.310)
Unprotected sexual intercourse				Yes	1 791	88.3	
Sharing needles/unclean medical equipment				Yes	1 403	69.2	
Blood transfusions				Yes	1 503	74.1	
Mother-to-child transmission				Yes	1 107	54.6	
% Accurate knowledge of HIV transmission routes						41.6	
<b>A.2 Inaccurate knowledge of HIV transmission routes</b>	0-2	2					.123 (.252)
Mosquito or other insect bites				No	296	14.6	
Casual contact with infected person				No	201	9.9	
% Inaccurate knowledge of HIV transmission routes						21.1	
<b>B. Knowledge of HIV prevention strategies</b>	0-8	8	.81				.488 (.308)
Sexual abstinence/chastity				Yes	1 543	76.1	
Stay faithful to partner				Yes	1 186	58.5	
Encourage partner to stay faithful				Yes	898	44.3	
Avoid contaminated blood transfusions				Yes	984	48.5	
Use condoms correctly at every sexual intercourse				Yes	1 245	61.4	
Avoid not sharing needles				Yes	1 006	49.6	
Avoid commercial sex workers				Yes	748	36.9	
Avoid casual partners				Yes	320	15.8	
% Accurate knowledge of HIV preventive strategies						9.0	

Source: CFHS-2002 (Bandjoun, Cameroon)

Educational attainment of parents/guardians is relatively high because only 30 % of them were illiterate, while 40 % and 30 % reported primary or at least secondary level, respectively. Of importance is the parent-child communication, as a channel through which parents or guardians teach their children about HIV transmission routes and preventive strategies.

As expected, the mean score is quite low ( $M = 1.566$ ;  $SD = 2.019$ ). Another important factor is the peer-to-peer communication about HIV as a proxy of peer influences. As with parent/guardian-child communication, an index was constructed assessing the communication with peers at age 12 and the time of the survey, and findings show an average score of 2.142 ( $SD = 2.259$ ). As regards with community characteristics, only 17 % of young people live in urban areas, and portrays the semi-rural characteristic of Bandjoun. One-quarter of young people are living in poor or disadvantaged settings.

## **V. 6. 2. Multivariate results**

### **V.6.2.1 Co-occurrence of accurate and inaccurate knowledge of HIV transmission routes**

Table 3 presents the estimates of bivariate probit models between accurate and inaccurate knowledge of HIV transmission routes, starting with the gross effects of each independent variable on accurate and inaccurate knowledge of HIV transmission routes. Stated differently, the gross effects allow determining the direct link between FS, PCC and PPC and the outcomes, among others. Models 1 and 2 report the effects of family structure in the presence of parent/guard-child communication and peer-to-peer communication, respectively. Finally, Model 3 displays the estimated bivariate probit coefficients for the selected variables.

Table 2: Description of the variables (Mean values and standard deviation)

Variables	Mean	Standard deviation
<b>Individual factors</b>		
Gender Male	.459	.498
Age (in years)	16.5 (range 10 - 29)	4.2
Education (in years completed)	8.1 (range 0 - 24)	2.9
Sexually experienced (% YES)	.320	.466
Migratory status (% Migrant)	.485	.499
Religion		
Catholics	.681	.466
Protestants	.263	.440
Other	.056	.229
<b>Family environment</b>		
Family structure		
Two-parent	.487	.499
Father-only	.050	.219
Mother-only	.172	.378
Brother/Sister	.095	.294
Uncle/Aunts	.056	.228
Grandparents	.140	.347
HWI (40 % poorest)	.299	.458
Parent/guardian-child communication	1.566 (range 0 – 10)	2.019
Education of parent/guardian		
None	.303	.460
Primary	.402	.490
Secondary & +	.295	.456
<b>Peer influences</b>		
Peer-to-peer communication	2.142 (range 0 – 10)	2.259
<b>Community characteristics</b>		
CDI (40 % poorest)	.250	.433
Urban Residence	.174	.379
Sample size	2 028	...

Source: CFHS (2002).

The parameter of primary interest is the correlation between the disturbance terms ( $\varepsilon_A$  and  $\varepsilon_I$ ) in equations (1) and (2). It measures the extent to which accurate and inaccurate knowledge of HIV/AIDS transmission routes are correlated after controlling for observed factors such as family structure, parent/guardian-child communication and peer-to-peer communication, other characteristics. The parameter shows a positive correlation which differs significantly from zero. It means that young people who, for some reasons not observed in the data, have a higher likelihood to report accurate knowledge of HIV transmission routes tend also to exhibit higher levels of misconceptions about HIV/AIDS.

It is possible that within communities, factors shaping accurate and inaccurate HIV knowledge are correlated. Indeed, popular perceptions about HIV infection and the true or false transmission routes are probably determined by the same values and norms in general populations. For instance, if common sense within the community spreads that AIDS is a God's punishment, then it is possible that young people also believe falsely so. Finally, the fact that the correlation  $\rho$  is statistically significant calls for a need to consider estimations of the effects of family structure, parent/guardian communication and peer-to-peer communication, and other correlates derived from bivariate probit models instead of separated and independent equations. Associations between family structure, parent/guardian-child communication, and peer-to-peer communication showed interesting results. In examining the gross effects of family structure on accurate and inaccurate knowledge of HIV transmission routes (Path 1 of the conceptual model), findings indicate that, compared with young people living with their grandparents, those who lived with two biological parents or at least one parent, and those who lived with brother/sister were significantly more likely to report accurate knowledge of HIV transmission routes.



Table 3: Estimated coefficients of bivariate probit models for accurate and inaccurate knowledge of HIV transmission routes among young people in Bandjoun (Cameroon)

Variables	Gross effects		Model 1		Model 2		Model 3	
	Accurate	Inaccurate	Accurate	Inaccurate	Accurate	Inaccurate	Accurate	Inaccurate
<b>Family environment</b>								
Family structure (Ref.: <i>Grandparents</i> )								
Two-parent	.201**(.085)	-.147(.089)	.175**(.087)	-.169*(.092)	.193**(.087)	-.160*(.092)	.138**(.069)	-.146(.102)
Father-only	.387***(.107)	-.005(.114)	.388**(.148)	-.006(.156)	.328**(.146)	-.024(.156)	.226*(.121)	-.041(.168)
Mother-only	.175*(.099)	-.314**(.110)	.119(.103)	-.369**(.114)	.138(.102)	-.359**(.114)	.065(.109)	-.297**(.119)
Brother/Sister	.329**(.114)	-.212*(.126)	.338**(.119)	-.193(.129)	.367**(.119)	-.179(.129)	.204**(.099)	.171(.136)
Uncle/Aunts	.174(.139)	-.326**(.159)	.132(.145)	-.409**(.165)	.151(.144)	-.399**(.165)	.115(.151)	-.378**(.170)
HWI (Ref.: <i>middle/rich</i> )	-.238***(.048)	.078(.053)					-.162**(.069)	.069(.072)
Parent/guardian-child communication	.118***(.014)	-.041**(.014)	.116***(.015)	-.041**(.016)			.048**(.018)	-.039**(.019)
Education of P/G (Ref. : <i>none</i> )								
Primary	.104(.065)	.016(.071)					.086(.074)	.047(.081)
Secondary & +	.192**(.068)	-.149*(.077)					.112*(.061)	-.102(.093)
<b>Peer influences</b>								
Peer-to-peer communication	.081***(.012)	.022(.014)			.079***(.013)	.024*(.014)	.066**(.032)	.007(.017)
<b>Individual factors</b>								
Gender Male (Ref.: <i>Female</i> )	-.056(.056)	.027(.063)					.023(.045)	.021(.064)
Age (in years)	.112***(.002)	.040*(.021)					.052***(.011)	.021*(.011)
Education (in years completed)	.105***(.008)	-.095**(.048)					.082**(.013)	-.053***(.013)
Sexually experienced (Ref.: <i>NO</i> )	.413***(.045)	.141**(.049)					.103**(.041)	.134*(.068)
Migratory status (Ref.: <i>non-migrant</i> )	.166***(.044)	.084*(.049)					.043*(.024)	.039(.068)

Table 3 *Continued*

Variables	Gross effects		Model 1		Model 2		Model 3	
	Accurate	Inaccurate	Accurate	Inaccurate	Accurate	Inaccurate	Accurate	Inaccurate
Religion (Ref.: <i>Catholic</i> )								
Protestants	.030 (.049)	-.029(.055)					.021(.068)	-.025(.074)
Other	-.046(.089)	-.025(.099)					-.025(.130)	-.036(.139)
<b>Community characteristics</b>								
CDI (Ref. : <i>middle/rich</i> )	-.084*(.051)	.143**(.058)					-.051(.071)	.111**(.052)
Type Residence (Ref. : <i>rural</i> )	.127**(.058)	-.162**(.062)					.086*(.048)	-.152**(.067)
$\rho$ (Rho)				.238***		.235***		.261***
Log-likelihood				-2 351.814		-2 366.474		2 224.502

Source: CFHS (2002)

Models 1: Family structure + parent-child communication; Model 2: Family structure + peer-to-peer communication; Model 3: Full model.

\*\*\*  $p < .001$  (two-tailed test); \*\*  $p < .05$  (two-tailed test); \*  $p < .10$  (two-tailed test)

In contrast, living with mother, brother/sister or with uncles/aunts was significantly associated with lower likelihood of endorsing misconceptions about HIV transmission routes. In other words, they were significantly less likely to believe that HIV is transmitted through mosquito or insect bites and casual contact with an infect person.

Parent/guardian-communication increases significantly the probability of accurate knowledge of HIV transmission while it decreased significantly the probability of inaccurate knowledge of HIV transmission routes as it was expected (Path 2). Peer-to-peer communication also affects positively and significantly and the probability of accurate knowledge of HIV transmission routes (Path 3). Nonetheless, and although statistically non significant, it showed a positive effect on inaccurate knowledge of HIV transmission routes. This means that peer influences on HIV knowledge are no longer in question as peers are an important source of information about HIV/AIDS but messages or information obtained from peers can have mixed effects as it is shown here.

Many other factors showed significant association with accurate knowledge of HIV transmission routes at family, individual and community levels. At individual level, age, education, being sexually experienced, and non-natives are positively and significantly associated with the probability to report accurate HIV transmission routes among young people at  $p < 1\%$ . While education decreased significantly the likelihood of inaccurate knowledge of HIV transmission among young people, three other variables (age, being sexually experienced and non-native) showed positive and significant effects. This reinforces the hypothesis that young people endorse simultaneously both accurate and inaccurate knowledge of HIV transmission routes.

At family and community levels, findings show that living in poor households and poor neighborhoods have negative and significant effects on accurate knowledge of HIV transmission routes. Importantly, living in poor neighborhoods increases significantly the probability of inaccurate knowledge of HIV transmission routes and then supports the hypothesis that youths in disadvantaged settings are generally ill-informed about HIV/AIDS. Parents or guardians who reported higher levels of education (secondary or more) and the place of residence increase significantly the probability of accurate knowledge of HIV transmission routes while they also show negative effect on HIV transmission routes ( $p < 10\%$ ).

In Models 1 (Path 4) and 2 (Path 5), the effects of family structure decreased slightly when parent/guardian-child communication and peer-to-peer communication are included but did not substantially modify the statistical significance observed previously. The final model (Model 3) also confirmed the effect of family structure, parent/guardian-child communication, and peer-to-peer communication on accurate knowledge of HIV transmission routes. In addition, the effects of individual factors such as age, education, and sexual experience remained significant. Examining inaccurate knowledge of HIV transmission routes, Models 1 - 2 showed similar results as for gross effects. Finally, Model 3 showed that living with mother or with uncles/aunts, ever talked with parents/guardians about sexuality, education, and living in urban areas decrease significantly the probability of inaccurate knowledge of HIV transmission routes. By contrast, living in poor neighborhoods has a positive and significant effect on inaccurate knowledge of HIV transmission routes. This later finding suggests the persistence of inequalities in access to information about HIV/AIDS and health-related topic and support the hypothesis that youths in

disadvantaged neighborhoods are generally ill informed relative to their counterparts in better-off settings.

#### **V.6.2.2. Knowledge of the HIV preventive strategies**

Table 4 displays logistic coefficients of the effects of family structures, parent/guardian-child communication, peer-to-peer communication, and other correlates on the accuracy of HIV preventive strategies, referred to as the full knowledge of eight HIV preventive strategies addressed in the paper. After the gross effects between each independent variable and the accurate knowledge of HIV preventive strategies were examined, Models 1 and 2 assess the effects of family structure accounting for parent/child communication and peer-to-peer communication, respectively.

Finally, Model 3 displays the effects of the variables of interest accounting for individual, household and community factors. Findings show that family configurations, parent/guardian-child communication and peer-to-peer communication are significantly associated with the probabilities of accurate knowledge of HIV preventive strategies. For instance, living in two-parent ( $\beta = .160$ ;  $p < .05$ ; OR =  $\exp(\beta) = 1.17$ ) or father-only families ( $\beta = .664$ ;  $p < .05$ ; OR = 1.94), or living with brother/sister ( $\beta = .469$ ;  $p < .05$ ; OR = 1.60) are associated with higher probabilities of accurate knowledge of HIV preventive strategies relative to youths living with grandparents. Likewise, results show that parent/guardian-child communication ( $\beta = .286$ ;  $p < .001$ ; OR = 1.33) and peer-to-peer communication ( $\beta = .234$ ;  $p < .001$ ; OR = 1.26) show significant and positive effects.

Table 4: Logistic coefficients of HIV/AIDS knowledge of preventive strategies among young people in Bandjoun (Cameroon)

Variables	Gross effects	Model 1	Model 2	Model 3
<b>Family environment</b>				
Family structure (Ref.: <i>Grandparents</i> )				
Two-parent	.160**(.071)	.157**(.69)	.147**(.65)	.073**(.35)
Father-only	.664**(.234)	.480**(.245)	.559**(.221)	.359**(.159)
Mother-only	.225(.166)	.106(.169)	.142 (.164)	.102 (.131)
Brother/Sister	.469**(.191)	.362**(.189)	.421**(.198)	.227**(.101)
Uncle/Aunts	.264(.229)	.185(.242)	.151 (.237)	.191 (.213)
HWI (Ref.: <i>middle/rich</i> )	-.525***(.103)			-.217**(.112)
Parent/guardian-child communication	.286***(.025)	.283***(.025)		.115***(.029)
Education of P/G (Ref. : <i>none</i> )				
Primary	.208**(.099)			.240*(.129)
Secondary & +	.293**(.104)			.189*(.084)
<b>Peer influences</b>				
Peer-to-peer communication	.234***(.022)		.232***(.023)	.108***(.027)
<b>Individual factors</b>				
Gender Male (Ref.: <i>Female</i> )	-.217**(.091)			-.121(.102)
Age (in years)	.143***(.012)			.089**(.039)
Education (in years completed)	.254***(.019)			.160***(.024)
Sexually experienced (Ref.: <i>NO</i> )	.930***(.098)			.275**(.134)
Migratory status (Ref.: <i>non-migrant</i> )	.217**(.110)			.137(.108)

Table 4 *Continued*

Variables	Gross effects	Model 1	Model 2	Model 3
Religion (Ref.: <i>Catholic</i> )				
Protestants	.091(.104)			.122(.117)
Other	.063(.201)			.014(.225)
<b>Community characteristics</b>				
CDI (Ref. : <i>middle/rich</i> )	-.315**(.107)			-.131**(.058)
Type Residence (Ref. : <i>rural</i> )	.387**(.118)			.320**(.131)
Log-likelihood	...	-1 285.056	1 294.152	1 181.146

Source: CFHS (2002)

Models 1: Family structure + parent-child communication; Model 2: Family structure + peer-to-peer communication; Model 3: Full model.

\*\*\*  $p < .001$  (two-tailed test); \*\*  $p < .05$  (two-tailed test); \*  $p < .10$  (two-tailed test)

Other variables appeared to be strongly associated with accurate knowledge of HIV preventive, including age, education, sexual experience, migratory status, parent/guardian's education, and place of residence which show positive and significant effects. Surprisingly, gender male showed negative and significant effect ( $\beta = -.217$ ;  $p < .05$ ; OR = .81). As expected, living in poor households ( $\beta = -.525$ ;  $p < .001$ ; OR = .59) and poor neighborhoods ( $\beta = -.315$ ;  $p < .05$ ; OR = .73) decrease significantly the odds of accurate knowledge of HIV preventive strategies.

Models 1 and 2 show that family structure has significant direct and indirect effects on accurate HIV/AIDS preventive strategies, and family/peer communication significantly increase the odds of accurate HIV/AIDS knowledge of preventive strategies among young people. Turning on Model 3, findings show that a number of factors increased, while others decreased, the odds of accurate knowledge of HIV/AIDS preventive strategies. For instance, and as observed in previous models, living with two biological parents, with a biological father or with brother/sister/cousins in one hand, and in other hand, family/peer communication are substantively associated with higher odds of accurate knowledge of HIV preventive strategies.

Age, education, sexual experience and migratory status appeared to be strong predictors of accurate knowledge of HIV/AIDS preventive strategies at individual level. In addition, youths in urban areas are significantly more knowledgeable about HIV/AIDS preventive strategies compared with their rural counterparts. By contrast, household and neighborhood socioeconomic statuses are detrimental for young people. Indeed, these variables showed a negative and significant effect on accurate knowledge of HIV/AIDS preventive strategies.



## **V.7 Summary and discussion**

Theoretically, parents are expected to be the prime socializing agents for their children. In addition, peer influences during adolescence and early adulthood is widely recognized. According to socialization perspective, communication with parents/guardians and peers is very influential among young people. Integrating these three points, the main objective of paper was to address associations between family structure, family/peer communication about sexual topics and the accuracy of HIV/AIDS transmission routes and preventive strategies, referred to as the complete knowledge of all the transmission and prevention items addressed in the study.

The main findings are that young people significantly report concurrently accurate and inaccurate knowledge of HIV transmission modes and preventive strategies, and family structure as well as family and peer communication are key explanatory variables on which HIV education and prevention efforts should be directed at, among other putative influences identified in this study that have been documented in other studies, including age, education, being sexually experienced, migration, and socioeconomic status (SES) of households and neighborhoods.

Despite the high levels of HIV/AIDS awareness in the study setting, only 8 % of young people had never heard of AIDS, suggesting that a meaningful proportion of young people are not reached by media campaigns and HIV interventions or are still ignorant. Accurate and inaccurate HIV knowledge of transmission routes showed significant correlation, and provides evidence about the co-occurrence of accurate and inaccurate knowledge of

transmission routes among young people in Bandjoun, as reported in previous studies in Thailand (Boer & Emons, 2004) and El Salvador (London & Robles, 2000).

Net of controls, the paper provided new insights that family structure has independent effect on HIV/AIDS knowledge of transmission routes and preventive strategies. In spite of the common view that presents African societies as those in which sexual topics are taboo and parents do not teach their children, recent studies indicate some changes. For instance, parents and other family members are among others, an important sources of information about HIV, STDs or contraceptive methods (Bankole, Biddlecom, Guiella, Singh, & Zulu, 2008). In other words, parents can act as sexual communicators and educators for their children. In this case, parent/guardian-child communication appears to be very important. Importantly, parent/guardian-youth communication about sexual topics showed a positive and significant effect on accurate knowledge of HIV transmission routes and preventive strategies, although descriptive results indicated quietly low levels of communication between parents/guardians with their children. Thus the challenge is not only to increase communication about sexuality between parents and children but first and foremost, to establish or provoke this communication in order to break the cultural silence and discomfort about sexuality that can be detrimental for young people in the era of AIDS.

Although family structures appeared to be influential on the accuracy of HIV/AIDS knowledge, including transmission and prevention of the disease, these findings may represent only indirect paths that measure the influences of family-related influences on children's HIV/AIDS knowledge. The most obvious way to determine direct influences is to measure parents' or guardians' knowledge about AIDS and thereafter determine how it correlates with children's HIV/AIDS knowledge. Nonetheless, our findings provide

insightful evidence that certain families and not others are more likely to provide a context of HIV education and prevention through accurate knowledge of HIV transmission routes and prevention strategies.

Previous research has addressed peer influences, and stated that compared with parental communication, conversations with peers about sexuality may be more open and horizontal (Lefkowitz et al., 2004). In African settings, friends are also cited as a main source of information about HIV/AIDS (Bohmer & Kirumira, 2000; Buseh, Glass, McElmurry, Mkhabela, & Sukati, 2002; Meekers & Ahmed, 2000). This paper demonstrated that the peer-to-peer communication has a positive and significant effect on accurate knowledge of HIV transmission modes and preventive strategies. However, further research is needed to deeply understand the content of messages delivered by peers because peer-to-peer communication showed a positive (but not significant) association with inaccurate HIV/AIDS knowledge of transmission routes. That said, messages or information from peers may be contradictory about what is (or maybe) known about HIV and AIDS.

Another important issue of the paper is the influence of sexual behavior on HIV/AIDS knowledge of transmission routes and preventive strategies. Our findings are consistent with previous studies, with sexually inexperienced youths being less knowledgeable compared with sexually experienced counterparts (Silver & Bauman, 2006). The lower probability of accurate knowledge observed among sexually inexperienced youths means that youths respond differently to HIV messages depending on whether they are sexually experienced or not. One possible explanation is that inexperienced sexually youths are distancing about HIV/AIDS. Since sexual intercourse is the main route spreading HIV in sub-Saharan Africa, it is important for youth-oriented programmes to increase accurate

knowledge of HIV transmission routes and preventive strategies to reduce the potential vulnerability of young people, especially those who are virgins.

Findings underlined the gap in HIV/AIDS knowledge between youths living in better-off and disadvantaged households and neighborhoods remains wide, with the former reporting higher probabilities of accurate knowledge. The SES of households and neighborhoods decreased the likelihood of HIV/AIDS knowledge of transmission routes and preventive strategies while increasing the occurrence of misconceptions about HIV/AIDS transmission routes. A possible explanation is that socioeconomic deprivation is associated with a broad array of factors like access to media and education that can thereafter influence the accuracy of HIV/AIDS knowledge.

## **V.8 Limitations of the study**

This paper has used a novel approach and extended previous research with a better and restrictive conceptualization of HIV/AIDS knowledge. Nevertheless, some limitations need to be addressed. First, the paper demonstrated that family and peer communication predicted strongly accurate HIV/AIDS knowledge of transmission routes and preventive strategies. Nonetheless, content, frequency and comfort of communication between parents/guardians and their children, and between peers and youths on the other hand were not examined in the study. This calls for more in-depth work. Previous research has reported discomfort about sexual communication between parents and children (Lefkowitz et al., 2004; Perrino et al., 2000). This paper did not address this issue due to data limitations. In effect, the observed low levels of parents/guardians-child communication

may result from this discomfort. If so, HIV interventions that aim to increase open sexual communication especially between parents/guardians and their children are needed.

A second limitation stems from the self-reported data from young people. So far, it was suggested that a better way to address the influences of family structure on the accuracy of HIV/AIDS knowledge about transmission routes and preventive strategies is to use a direct measure of parental knowledge about HIV and AIDS to be sure that associations observed between family structure and the outcome are not an artifact (Sigelman et al., 1995). HIV/AIDS and in general sexuality domain is too complex for parents to interact easily with their children. Only a positive correlation between parents' HIV/AIDS knowledge and youths' HIV/AIDS may be a suitable way to test this association. Third, the cross-sectional nature of data used in this paper addresses associations rather than causality. Because the knowledge acquisition is a lasting and complex process, longitudinal studies are recommended for future research to capture causation and the dynamic nature of HIV/AIDS knowledge.

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**CHAPITRE SIXIÈME: FAMILY STRUCTURE AND RISKY SEXUAL  
BEHAVIOR IN HIV PREVENTION AMONG UNMARRIED YOUNG  
PEOPLE: AN INTERPRETATION USING RESILIENCE THEORY**

**Zacharie Tsala Dimbuene and Barthelemy Kuate Defo**

**PRONUSTIC Research Laboratory and Department of Demography**

**University of Montreal (Quebec), Canada**

**Paper submitted for publication**

## **Abstract**

Most studies have approached the association between family structure and risky sexual behavior among young people through a risk perspective, assuming that two-parent families, compared with others, are the most protective. This paper sets out to examine the effects of individual risk and protective factors with an emphasis on family traits associated with resilience that may be helpful to overcome risky sexual behaviors. The paper draws mainly on a pooled sample of 1,175 unmarried sexually experienced youths of both sexes aged 10 - 29 years using CFHS data. Overall, 13 % of youths have engaged in risky sexual behavior in the last 12 months, defined as the co-occurrence of multiple partnership and condom nonuse. This percentage was higher in neither-parent families (16.3 %) compared with two- (11.6 %) and one-parent families (10.1 %). Findings showed variations in the effects of individual risk and protective factors by family structure. Among family factors associated with resilience, the quality of parent/guardian-youth relationships is significantly associated with lower rates of risky sexual behavior irrespective of family structure. Parental control showed a protective effect only in two-parent families. A better understanding of family factors that lower the rates of risky sexual behavior should be a promising avenue of study to enhance the efficiency of HIV interventions in sub-Saharan Africa.

**Key words: Family structure, resilience, adolescence and youth, risky sexual behavior**



## VI.1 Introduction

Risky sexual behavior such as inconsistent condom use and multiple sexual partners is the major ingredient leading to higher levels of sexually transmitted diseases (STDs), including HIV, which are common among young people in sub-Saharan Africa. In fact, HIV is spread mainly through heterosexual intercourse and highest rates of HIV are found among youths (United Nations, 2008). Today, youths are living in evolving societies due to political, economical, social, cultural and technological changes (Blum, 2007), that have brought many changes in life-course transitions among young people (Cohen et al., 2005). Among recent changes are age at first intercourse has decreased or at least stalled, while age at first marriage risen (Adair, 2008; Mensch et al., 2006; Zaba, Pisani, Slaymaker, & Boerma, 2004). This leads to an increase in the length of exposure to HIV/AIDS and STDs between first sex and marriage. These trends were also found in the last Cameroonian Demographic and Health Survey (CDHS 2004) where a gap of almost 2 years between first sex and marriage among women aged 20-24 years was observed (Adair, 2008). These two trends coupled with lower rates of condom use mean that young people are facing a double jeopardy when confronting HIV/AIDS.

Viewed mainly from this predominant and negative perspective, one might think that youths are engaging in risky sexual behavior. Michaud (2006) advocates for a change in the current paradigms when scientists and policymakers examine risky behaviors among young people. In fact, and despite stressful conditions such as a generalized poverty, young people may not necessarily be engaging in risky sexual behaviors; in fact, they can be *resilient*. The concept of resilience requires first and foremost the presence of a threat (Olsson, Bond, Burns, Vella-Brodrick, & Sawya, 2003). Thus, identifying the threat is the logical starting

point to establish the relevance of resilience theory in African settings when analyzing risky sexual behavior. Socioeconomically, sub-Saharan Africa is one of the poorest of the world's regions. The increasing and endemic poverty in the region has strongly affected households and families and has arguably become a leading cause or explanation of sexual risk-taking among young people (Booyesen & Summerton, 2002; Madise et al., 2007). Indeed, family-related studies have identified poverty as a highly stressful, frequently traumatic condition. These studies have also reported on the varied models of adaptation of sexual behaviors in order to satisfy personal needs such as clothes and school fees (Kuate Defo, 2004; Meekers & Calvès, 1997). This perspective, a risk/pathogenic approach, considers youths as rational agents who maximize opportunities available in their communities through “transactional” sex but do not account for the associated negative outcomes, including HIV, STDs and unplanned pregnancies.

Attitudes and behaviors toward sexuality are rooted in cultural norms and social contexts (families, schools or neighborhoods) in which individuals live and make their choices. Families, the core of each society where young people are raised socially, culturally and religiously, provide the most salient environment (Nsamenang, 2000). In both developed and developing countries, studies on the association between family structure and risky sexual behaviors have adopted a pathogenic paradigm, and have claimed that two-parent families are more protective than other types of families (Benzies & Mychasiuk, 2009; Odimegwu, Solanke, & Adedokum, 2002; Wu, Chong, Cheng, & Chen, 2007). Research has also posited that young people's behavior entails risk (Jessor, 1991). Thus, two-parent families are viewed as homogenous in strengths (cohesion, connectedness, communication between family members, supervision or monitoring) and are protective against risky

sexual behaviors. In practice, even youths in two-parent families may also engage in risky behaviors especially in the context of a severe poverty.

In recent decades, there has been a shift of thoughts among scholars and researchers investigating individuals and families to identify what would be helpful for youths to manage risky sexual behaviors (Greeff & van Der Merwe, 2004). In this emerging paradigm, called salutogenic or positive-oriented approach, the emphasis is put on resilience and strengths that contribute to the growth and development of a family system rather than on vulnerabilities (Luthar, Cicchetti, & Becker, 2000; Rutter, 1993; Walsh, 2003). Family resilience is the ability to cultivate strengths to positively meet the challenges of life (Olsson et al., 2003; Patterson, 2002; Walsh, 2003). It is also similar to regenerative power, particularly when good outcomes follow significant risk situations (Patterson, 2002). Salutogenic approach allows us to determine what family traits may be helpful to young people to overcome risky sexual behaviors.

The remainder of the paper is organized as follows. Section 2 reviews previous research about family structure and risky sexual behavior in relation to resilience theory. Section 3 presents data and methods. Section 4 presents the findings of the paper. The final section deals with discussion and concluding remarks.

## **VI.2 Literature review**

Research suggests that risky sexual behaviors are influenced by a set of individual, family and community factors. At each level, risk and protective factors are present. Following Rew and Horner (2003), this paper considered that individual risk and protective factors

interact with resilient family attributes to determine patterns of sexual behaviors among young people.

### **VI.1.1 Individual Risk Factors**

Risk factors are defined as those conditions that are associated with a higher likelihood of negative or undesirable outcomes in a variety of outcomes from health and well-being to social role performance (Deković, 1999). Previous studies have identified a number of individual factors that correlated with risky sexual behaviors during adolescence and young adulthood. These include age at first sexual intercourse, multiple sexual partners, and low contraceptive use at first sex (Manning, Longmore, & Giordano, 2000; Pettifor et al., 2004). Age at sexual debut is an important marker for HIV and STDs (Cleland et al., 2004) and is also associated with higher risk of unplanned pregnancies among female adolescents. Using a large sample of 4138 men and 4948 women aged 15-49 years in rural Zimbabwe, Hallett et al. (2007) found that the early age at first sex was associated with having more lifetime sexual partners and higher rates of HIV infection. Studies mostly conducted in the United States have also shown that age at first sex is a strong predictor of subsequent contraceptive use (Manning et al., 2000). Anticipators or early sexually experienced youths were less likely to use contraceptive methods at first sex than delayers. This association depends on the developmental stage of the youth. Those who initiate first sex later are older than earlier initiators, and have probably more skills and knowledge to cope with negative consequences associated with unprotected sexual intercourse such as unplanned pregnancies, HIV and STDs, and choose thereafter to use a contraceptive method.

Substantively, studies have shown that females are at higher risk of HIV and STDs than males (Fergus & Zimmerman, 2005; Türmen, 2003). Recent HIV estimates have shown

that Cameroonian women are 1.7 times more likely to be HIV-positive compared with men (Institut National de la Statistique (INS) & ORC Macro, 2004). Power imbalances between males and females in most African societies explain partly these inequalities. Females are expected to be passive (Akwaru et al., 2003) while men exert full control over sexual life among married women or in sexual partnerships among young people (Gage, 1998; Green et al., 2001; Wolff, Blanc, & Gage, 2000).

Motivation for first sex is another factor that put young people at risk (Ott, Millstein, Ofner, & Halpern-Felsher, 2006). Previous research identified four dimensions of motivations for sex related to risk-taking especially during adolescence and early adulthood which is a period of self-construction and affirmation. Motivations for sex can be physically-oriented (desire for feelings of excitement or pleasure) (Parsons, Halkitis, Bimbi, & Borkowski, 2000), relationship-oriented (desire for intimacy) (Gebhardt, Kuyper, & Greunsven, 2003; Sanderson & Cantor, 1995; Tschann, Adler, Millstein, Gurvey, & Ellen, 2002), socially-oriented (desire of approval or respect) (Kinsman, Romer, Furstenberg, & Schwarz, 1998) or individually-oriented (desire to gain a sense of competence and learn more about oneself) (Stanton et al., 1994).

For many youths, and boys in particular, having sexual intercourse with multiple sexual partners is a way to gaining prestige and popularity among peers. A qualitative study carried out in Malawi among 114 youths aged 14-19 years showed that youths conceive of sexual relations as a natural and routine activity where pleasure and passion are essential components (Undie, Crichton, & Zulu, 2007). Understanding the motivations for sexual activity help to understand why young people can protect themselves against HIV/STDs. Pleasure and condom use are correlated (Randolph, Pinkerton, Bogart, Cecil, & Abramson,

2007). Because pleasure is essential in human sexuality, any artifice that is seen as interfering with pleasure is more likely to be avoided or accepted reluctantly. Many youths think that condoms interfere with sexual pleasure (Njikam Savage, 2005), and not surprisingly they are reluctant to use them. It is expected that youths who are sexual-sensation-seekers or physically motivated for sex are more likely to engage in risky sexual behavior because they are more reluctant to use condoms.

### **VI.1.2 Individual protective factors**

Protective factors are those that buffer the effects of stressful events and promote coping skills and good adjustment. Protective factors modify an individual's response to a risk situation. It requires some form of protection of the reaction to a factor that in ordinary circumstances leads to a maladaptive outcome (Rutter 1987). These protective factors have been given the credit for facilitating the process of positive adjustment.

Age of the respondent as a proxy of psychological development, education (Snelling et al., 2007), and religious attendance (Agha et al., 2006; Fergus & Zimmerman, 2005; Rostosky, Wilcox, Comer Wright, & Randall, 2004) have been found to decrease the likelihood of risky sexual behaviors among young people. Older young people have more skills such as HIV knowledge and greater ability to make positive decisions compared to younger adolescents (Gage, 1998). As a source of social control through fostered networks between its members, religion can provide positive and normative behaviors among young people. Because belonging to a religious affiliation is a precondition, religiosity is a powerful indicator of the effect of religion on sexual behavior among people (Rostosky et al., 2004). The scanty studies that addressed the interplay between religion and adolescent sexual behavior in sub-Saharan Africa showed mixed results. In a national sample of women aged

15 - 49 years in Ghana, Takyi (2003) found a negative and significant association between religion and lifetime use of condoms. Compared to those who declared no religion, Catholics, Protestants, other Christians, and Muslims were less likely to report condom use. In a sample of 13 – 20 year old Zambian female adolescents, Agha et al. (2006) found that religious affiliations have both positive and negative effects on sexual behaviors. Female adolescents in conservative religious groups tended to delay sexual initiation but were less likely to use condoms when they were sexually experienced.

### **VI.1.3 Family structure and family processes associated with resilience**

A considerable literature carried out mostly in the United States and other developed countries has established that living with two biological parents versus one-parent, step-parent and neither-parent is associated with lower rates of sexual behavior (see for a review, Miller et al., 2001). The association between family structure and youth sexual behaviors is poorly documented in African settings, and available studies have shown inconsistent findings. Among female adolescents living in slums in Nairobi (Kenya), those living without their biological father were more likely to have ever engaged in sex (Ngom et al., 2003). In Bamenda (Cameroon), young people living with two-biological parents were more likely to report current condom use and had lower rates of sexual initiation, multiple sexual partners, and casual sexual relations compared to those living with one-parent or other relatives (Rwenge, 2003). In urban Botswana, Meekers & Ahmed (2000) showed that living in female-headed households was not a significant predictor of sexual debut among female and male adolescents. A study in Rwanda also indicated that the presence of biological father buffered the effects of peer influence on sexual debut among 15-24 year-old of both sexes. Similarly, a study on high-school students in Nairobi aged 12-25 years found that male and female students living with two biological parents were less

likely to engage in sexual intercourse than those living with neither parent (Kabiru & Orpinas, 2008). Among Zambian female and male adolescents, living with two biological parents lowered the risks of early sexual debut (Magnani et al., 2002), but significant and protective effects were found only for Ghanaian females (Karim et al., 2003). These studies showed that family structures do not significantly predict current sexual behavior. In fact, no significant associations were found between family structure and multiple sexual partners in the last three months or condom use at last sex.

Living with two biological parents in developed countries does not capture the same reality found in African settings. In developed countries, biological parents are mainly the persons who are responsible for their offspring. Thus it is feasible that the absence of one or both parents is very detrimental for young people especially when there are no other adults in the homes. In most African settings in contrast, child socialization is often a collective task although parents have the most important role (Nsamenang, 2000; Verhoef, 2005). Adults in homes are invested with a social authority over children. In this case, their presence may lower the negative effect of one- or neither-parent families that are observed in developed countries.

In spite of their notable contribution, these studies often fail to account family processes that measure the interactions between family members. These include the quality of parent-youth relationships, parent-youth communication, parental control, and to some extent parental financial support. To be protective, the family environment needs the presence of a warm parent or supportive adults acting positively to buffer negative effects of poverty, divorce or family stress (Rew & Horner, 2003). The ways youths perceive their connectedness with their family, with family values and behaviors shared within the family



tends to determine their coping skills. Using cross-sectional data, Slap et al. (2003) found that low parent-teen connectedness was associated with higher likelihood of early sexual debut, while sexually inexperienced youth reported higher levels of parent-teen connectedness. The level of child connectedness with family members is a function of parent-child relationships (McBride et al., 2005; Tinsley & Lees, 2004). For instance, in a longitudinal study among teens aged 15-19 years, Regnerus and Luchies (2006) reported that close relationships in father-daughter dyads were associated with lower rates of sexual initiation but not for mother-son dyads. Although these studies have provided an important body of literature about the protective effects of parent-child relationships, some limitations may be noted. First, most studies have focused on contrasting African-American families and white families. They have pinpointed economic stress in black families as a cause of lower connectedness of young people within families and communities. Second, these studies have widely emphasized economic disadvantage and disorganized settings that were associated with higher criminality rates in which African-American families were living compared with better-off settings of White families (Wilson, 1987). Together, these factors explained at least partially the differences in higher rates of risky sexual behaviors between Black and White youths.

These premises are not unequivocally met in sub-Saharan Africa where economic disadvantage produces a set of general conditions rather than isolated ones. In particular, it may be assumed that, with few variations, young people are growing up in a homogenous cultural and ethnic environment. Until recently, youths in traditional African societies conformed to family norms and values, and conflicts between parents and children were uncommon (Cattell, 1994). Today, things are changing due to increasing urbanization, higher education and media exposure. Hence, young people are less likely to conform to

traditional values. This may lead to family conflicts that are associated with higher rates of risky behaviors such as early sexual debut. Some scholars have speculated that increasing urbanization has broken traditional values and led to less social control by adults over children, and may explain the recent increase in sexual risky behaviors (Meekers, 1994; Meekers & Calvès, 1997).

Communication between family members can operate as a vital protective resource (Patterson, 2002). Specifically, parent-youth communication that is open, receptive and comfortable is associated with lower rates of sexual initiation and less sexual activity among young people (Ngom et al., 2003). Walsh (2002) posited that effective communication has three main qualities, including clarity of expression, open emotional expression and collaborative problem-solving. In practice, African families are far from this pattern because communication, especially about sexual topics is confined within sexual rites carried out by grandmothers or other adults in a marriage perspective and in future daily-life duties for boys and girls (Kouinche & Tagne, 1998). Hence, there is little evidence of the associations between parent-child communication and youth sexual behavior. In a study of Ghanaian students in Accra, Adu-Mireku (2003) found that communication about sexuality between students and their parents or other adults in the home did not predict sexual activity although it did increase the likelihood of condom use at last sexual intercourse.

Associations between financial resources and risky behaviors have been examined (Frauenglass, Routh, Pantin, & Mason, 1997). Meekers and Calvès (1997) argue that adolescents' sexual behaviors are economically motivated and that youth are rational agents. The implicit hypothesis of this contention is that parents do not fully meet the needs

of their children, probably due to economic deprivation, increasing unemployment and poverty. Economic hardship and poverty had been found as important risk factors. For instance, young people in disadvantaged homes are more likely to engage in risky sexual behaviors (Madise et al., 2007). Although poverty does not necessarily mean that youths engage in risky behaviors, the increasing proportion of African households living in permanent economic hardship is detrimental for youth. Thus, the challenge is to understand the social and personal processes that cause poverty and disadvantage and its consequences on youth sexual behavior, and how other young people succeed in spite of limited opportunities and personal dangers inherent in their life environment.

Family-related literature has widely examined the association between parental control and risky sexual behavior in western countries. The expectation is that young people living with two parents are well supervised/monitored compared to counterparts living with one- or neither-parent. Hence, they are less likely to engage in risky sexual behavior (DiClemente et al., 2003). Here again, it is important to deal with context specificities in interpreting findings. Youth supervision is necessary as a part of socialization and guidance. However, child supervision in African settings is a collective task, especially in rural areas. Each adult is socially authorized to rebuke deviant behavior among young people, and in particular sexual conduct. Adults in the communities may report asocial conduct to biological parents or rebuke directly if necessary. So while parental control may be stronger in two-parent families, in Africa there may be similar protective effects in one- or neither-parent families.

Research has often reported urban-rural differences with risky sexual behaviors. Accessibility to youth-oriented reproductive health services may explain direct effects of the place of residence. For instance, access to condoms is greater in urban areas (Mashamba

& Robson, 2002). Indirect effects can also be expected because youths in urban areas are often more educated, better informed about HIV/AIDS and STDs, and therefore more likely to use condoms than their rural counterparts.

### **The present study**

A large body of research has emphasized the protective effect of two-parent families. Empirical studies have also documented individual and family risk and protective factors associated with risky sexual behaviors among young people. However, studies have often adopted a risk approach to studying sexual behavior, with little attention paid to identifying protective factors present within family environments. Indeed, each type of family structure can protect against risky sexual behavior. The present study is based on the premise that any family structure can experience stressful events (e.g., poverty or economic hardship) leading to risky sexual behavior.

Specifically, the study aims to determine strengths (referred to as family processes) within each type of family structure that can enhance condom use and reduce multiple sexual partners. Indeed, communication about sexuality, parental control, parental financial support, and socioeconomic status are among influential factors that can buffer negative effects of risk factors. Although the presence of two parents is helpful for young people, assuming that family processes are protective only in two-parent families is unmerited. Even in one- or neither-parent homes, family protective factors can be found.

## **VI.2 Data and Methods**

### **VI.2.1 Data**

This research is based on data from two population-based surveys -Cameroon Family and Health Survey (CFHS) - carried out under the auspices of the Population Observatory in Socio-clinical Epidemiology (POSE) in western Cameroon from all 75 villages and towns of the Bandjoun administrative division, that collected data on family life and health outcomes using a life course perspective in 1996 and 2002. To ensure the representativeness of the sample design, the population distribution of the 1987 Cameroonian census was updated and used to build representative samples of the following age- and sex-specific groups: adolescent boys ages 10 - 19, adolescent girls ages 10 - 19, men ages 20 - 49, women ages 20 - 49, men age 50 and above, and women age 50 and above. Randomly selected households (2377 households in 1996 and 1765 households in 2002) and representative samples of 2377 and 4950 men and women (and subsamples respectively of 695 in 1996 and of 902 sexually experienced young people in 2002 of both sexes 10 - 29 years old) were drawn from Bandjoun.

Limiting analyses to sexually experienced youth eliminates a sizeable proportion of respondents who were still virgin. It is recognized that abstinence is a useful preventive strategy against HIV/AIDS and STDs. However, risky sexual behavior is of specific interest in the paper so we limit analyses to sexually experienced youths. Importantly, safe sexual behaviors require strong skills than in the case of abstinence. Although marriage is not fully safe against AIDS, analyses are limited to unmarried young people because family structure is not meaningful for those currently married and living independently. Thus, a pooled sample of 1175 unmarried youths aged 10-29 years was used. Pooled data increase

the probability of Type I error especially in the case of multiple observations per subject. However, this probability was minimized because the two samples were independent. In addition, pooled data are not used in an inferential manner. In contrast, pooled data hold many benefits. These include increased statistical power and robustness, greater sample heterogeneity in important subject demographics, and the ability to estimate a variety of models that would not be possible within any single data set (Curran et al., 2008). In this paper, data were pooled to obtain sufficient cases in each type of family structure especially when it is used as a stratification variable. To account the pooling nature of the data, a dummy variable for the survey date was introduced in the estimations.

## **VI.2.2 Measures**

*Dependent variable: risky sexual behavior*

Risky sexual behavior can be defined in a number of ways. The most obvious one is based on whether vaginal, oral or anal intercourse is protected or unprotected. A second way would be to refer to the nature of partner: knowledge of the partner's HIV status or non-exclusive partner. Risky sexual behavior also includes having a large number of lifetime sexual partners, or engaging in sexual activity under the influence of alcohol or drugs. In this paper, risky sexual behavior is defined as the co-occurrence of multiple sexual partners and the non-use of condoms in the last 12 months.

Two questions were used here to define risky sexual behavior. First, "how many sexual partners did you have in the last 12 months?" Reporting lifetime sexual partners may be subject to recall bias. To overcome this shortcoming, the time interval was limited to the last 12 months. Responses varied in the two samples. In 1996, the reported number of sexual partners ranged from 0 to 18 ( $M: 1.43$ ;  $SD: 1.66$ ). In 2002, young people reported

between 0 and 28 sexual partners ( $M: 1.82; SD: 3.29$ ). Second, respondents were asked: “what contraceptive method are you currently using?” Condom use is of great importance in the monitoring of the spread of HIV in major international initiatives and the Millennium Development Goals (Cleland et al., 2004). However, condom use has been widely criticized due to measurement errors which are a function of the respondent, the interviewer and the instrument used (Weir, Roddy, Zekeng, Ryan, & Wong, 1998).

### *Independent variables*

The postulated risk and protective factors at both individual and family levels are presented in Table 1. Individual risk factors include age at sexual debut, gender and motivation for first sex, while protective factors are respondent’s age, educational attainment, contraceptive use at first sex and religious attendance. Family characteristics include family structure, quality of parent-child relationships, parent-child communication, provider of pocket money, parental control, and a set of socioeconomic variables (education of parent/guardian, radio/TV at home, and lighting mode at home). The type of residence was included as a community characteristic.

Table 1: Definitions and specification of selected variables

Variables	Definition	Specifications
<b>Panel A: Dependent variable</b>		
Risky Sexual Behavior	Combination of multiple sexual partners in the last 12 months and condom nonuse	Coded 1 if young people had multiple sexual partners in the last 12 months <b>AND</b> did not use condoms, 0 otherwise
<b>Panel B: Individual Characteristics</b>		
Age at first sex	Is considered as early age of coital debut if youths have experienced first sex before at age 15	Coded 1 if first sex before age 15, and 0 otherwise
Age at survey	Age of the respondent at the time of the survey in years	Coded 1 = 10-19; 2 = 20-29 years
Educational attainment	Dummy variable indicating the highest educational attainment of the young people	Coded 1 if secondary or high and 0 if primary
Gender	Sex of the respondent	0 = Male; 1 = Female
Motivation for First Sex	Motivations of sexual debut. Responses were among other fun/enjoyment/pleasure, curiosity, arousal, love, marriage, getting boyfriend/girlfriend.	Coded 1 = physically-oriented if fun/enjoyment/pleasure/curiosity/arousal, and 0 otherwise
Use of contraception at first sex	Dummy variable indicating if young people used a contraception at first sex	Coded 1 if young people used contraception at first sex and 0 if he/she did not
Religious attendance	Responses were in 5-point scale: 5 = <i>Never</i> , 4 = <i>Rarely</i> , 3 = <i>Sometimes</i> , 2 = <i>Often</i> , 1 = <i>Very often</i> .	Coded 0 if young people never attended church and 1 otherwise



Table 1 *Continued*

Variables	Definition	Specifications
<b>Panel C: Family/Community Context</b>		
Quality of parent-child relationships	Responses on the quality of the relationships between young people and their parents/guardian were 1 = <i>very good</i> , 2 = <i>good</i> , 3 = <i>quite good</i> , 4 = <i>fair</i> and 5 = <i>difficult</i>	Coded 0 if difficult and 1 otherwise
Parent-child communication	An index based on yes/no questions on whether young people had conversations with parents/guardian about <i>puberty, sexual education, STD/AIDS prevention, pregnancy prevention and alcohol consumption or drugs</i>	Range 0-5
Source of pocket money	Item asking who was giving the most pocket money at the time of the survey. Responses were among other mother <i>and mother, father, mother, grandfather/grandmother, brother/sister/uncle/aunt, cousin.</i>	Coded 1 if mother, father or both provided pocket money, and 0 otherwise
Parental control	Item asking if parents/guardians were controlling the leisure of youth. Response ranged from 1 = <i>a lot</i> to 5 = <i>not at all</i> .	Coded 0 if not all, and 1 otherwise
Socioeconomic status	An index built using three variables including parent/guardian education (none, primary, secondary & +), possession of radio/TV at home (yes vs. no) and lighting mode at home (electricity vs. other).	Range 0-4
Type of Place of Residence	Dummy variable	Coded 1 if urban

### **VI.2.3 Analysis strategy**

The methods of data analysis include an examination of the association between risk/protective factors and risky sexual behavior (bivariate analyses) at individual and family/community levels for the pooled sample and each type of family structure, using unadjusted odd ratios (OR) derived from logistic regression. For multivariate logistic regression, six models were estimated for each type of family structure and the pooled sample. Models 1 - 3 assess the effects of (a) risk factors, (b) protective factors and (c) family variables associated with resilience, respectively. Models 4 - 5 estimate the effects of risk factors in the presence of individual protective factors and family variables, respectively. Finally, model 6 includes risk, protective factors, family variables related to resilience and the place of residence.

Two-way interactions were also checked in additional analyses. It was expected that the effects of certain risk or protective factors would vary by gender and age. For instance, it can be assumed that motivations for first sex would differ between boys and girls. Likewise, parental control and religious attendance can vary by age and gender. As young people are growing up, the degree of autonomy is increasing; then they may be less likely to attend church frequently. If females are more religious than males, then it is expected that the effect of religious attendance will be stronger for females than males. The effects of socioeconomic status are also expected to vary by gender and age.

#### *Preliminary analyses*

Before fitting multivariable models, assumptions about logistic regression were carefully checked. In particular, the test of multicollinearity and statistical significance of the associations with the dependent variable were examined. Related-methodological issues have

been discussed elsewhere (Bagley, White, & Golomb, 2001; Sun & Kay, 1996). Using variance tolerance, known as the *Variance Inflation Factor (VIF)*, the test did not reveal any problem of multicollinearity among the variables, irrespective of the family structure. As regards to significance levels in bivariate associations, there is no consensus in the social sciences about the thresholds used to keep or exclude the independent variables in multivariate analyses. Some researchers consider a p-value less than 0.25 as the cut-off for keeping variables while others argue that a non-significant association may become significant in the presence of confounding or mediating factors (Sun & Kay, 1996). Due to empirical basis of selected independent variables in the study, no *a priori* significant levels were fixed and all the variables were included in the estimations.

#### *Goodness-of-fit of the models and the influence of the outliers*

Another issue discussed in multivariable logistic regression concerns the extent to which estimated models significantly fit the data. A set of tests were used to address this issue, including the log-likelihood (LL), the test of Hosmer-Lemeshow, the Pearson's Chi-square of the model, and the Receiver Operating Characteristic (ROC) curve. The influence of outliers on the estimates was examined using a plot of the residuals and predicted probabilities of the outcome, to screen for covariate patterns and overdispersion. Residuals with absolute values more than 1 indicate a problematic covariate pattern that can undermine the goodness-of-fit of the models. However, the plots depicted no residuals values above 1 and there were no problems of overdispersion for each type of family structure.

## **VI.3 Findings**

### **VI.3.1 Descriptive Results**

Table 2 presents the percentage distribution of the sample. Panel A of the table depicts the components of the dependent variable. Overall, 27.4 % of young people reported two or more sexual partners in the last 12 months preceding the surveys. Similar figures are observed per year, with 26.7 % and 28.0 % of young people who reported multiple sexual partners in 1996 and 2002, respectively. Sub-Saharan countries generally have low levels of contraceptive use, especially among youths. Surprisingly, 43.2 % of young people reported current condom use. Thirteen percent of young people had engaged in risky sexual behavior referred to as the co-occurrence of multiple sexual partners and condom nonuse. Panel B of Table 2 outlines individual risk and protective factors. The pooled sample consisted of 41.8 % of youths who resided with two biological parents and 21 % living with one parent, often the mother. Importantly, more than one-third of young people aged 10-29 years at the time of the surveys were living with relatives. For instance, about 40 % were living apart from at least one biological parent in 1996 and 36 % in 2002.

#### *Risk factors*

Fifty-three percent of young people were females. Interestingly, many young people have experienced sexual initiation at late age in the two rounds. In 1996, 61.8 % of youths experienced sexual intercourse after age 15 while the corresponding figure was 74.3 % in 2002. Overall, 68.9 % of youths experienced sexual debut after age 15. Although various motivations may lead to premarital sexual intercourse, empirical evidence shows that youths who are physically motivated for first sex or those seeking sex for enjoyment and pleasure are more likely to report higher number of sexual partners and condom nonuse.

Table 2: Percentage distribution of the sample

Variables	1996	2002	Pooled sample
<i>Panel A: Dependent variable</i>			
Had 2 & + Sexual Partners in the last 12 months	26.7	28.0	27.4
Used Condom (% Yes)	45.9	41.2	43.2
Risky Sexual Behavior (No Condom Use & 2+ sexual partners)	10.0	15.3	13.0
<i>Panel B: Individual characteristics</i>			
Family structure			
Two-parent families	43.5	40.5	41.8
One-parent families	17.5	23.8	21.0
Neither-parent families	39.0	35.8	37.2
Gender (% Male)	52.0	43.0	46.9
Age at first sex			
Early age at first sex (< 15 years)	38.2	25.7	31.1
Late age at first sex (15&+ years)	61.8	74.3	68.9
Motivation for First Sex			
Physically-oriented	42.4	44.8	43.7
Other motives	57.6	55.2	56.3
Age at survey			
10-19 years	52.4	43.2	47.2
20-29 years	47.6	59.8	52.8
Educational attainment			
Primary	25.7	24.5	25.0
Secondary & +	74.3	75.5	75.0
Use of contraception at first sex (% Yes)	10.6	28.4	20.7
Religious attendance (% attended)	51.9	51.3	51.6
<i>Panel C: Family/Community context</i>			
Quality of P/G-youth relationships (% Difficult)	27.1	38.8	33.7
Parent-youth communication: mean (SD). Range 0-5	1.41 (1.97)	1.67 (1.64)	1.56 (1.79)
Source of pocket money			
Other relatives	50.0	54.3	52.4
Mother (and/or) Father	50.0	45.7	47.6
Parent/Guardian supervision (% Yes)	80.2	70.4	74.6
Socioeconomic status: mean (SD). Range 0-4	1.9 (.84)	2.0 (.99)	1.9 (.93)
Type of Place of Residence (% Urban)	18.0	14.6	16.1
Sample size (N)	510	665	1 175

Source: CFHS (1996 & 2002)

The motivations for first sex were dichotomized to isolate sexual-sensation-seekers. Although the majority of youths have engaged in first sex for other motives that include falling in love or the need for marriage especially for females, it still remains that 43.7 % of them were engaged in premarital sexual intercourse for fun, pleasure and enjoyment. By year, these figures were similar with 42.4 % in 1996 and 44.8 % in 2002 who reported a first sex encounter that was physically motivated.

### *Protective factors*

Hypothesized protective factors included age at the time of the survey, education, contraceptive use at first sex and religious attendance. Although the two sub-samples of unmarried youths were similar in age, there were some variations in the range. In 1996, age varied between 14 and 29 years ( $M = 20.1$ ;  $SD = 3.21$ ) while it ranged between 10 and 29 years in 2002 ( $M = 20.4$ ;  $SD = 3.41$ ). The pooled sample consisted of 47.2 % of adolescents (10 – 19 years) and 52.8 % of young adults (20 – 29 years). Most of youths have reached high school. In fact, three-quarters of them have completed high school or were enrolled at university. This percentage is higher than what is generally observed in sub-Saharan countries. Another challenge in HIV prevention is to encourage condom use at first sex. About 21 % of young people have used a contraceptive method at first sex in the pooled sample. Corresponding proportions were 10.6 % and 28.4 % in 1996 and 2002, respectively.

### *Family factors associated with resilience*

Panel C of Table 2 depicts family traits associated with resilience. Firstly, how young people perceive their relationships with parents/guardians. It is important to underline that one-third in the pooled sample perceived relationships with their parents/guardian as difficult. The increasing proportion of young people reporting poor quality of relationships with their

parents or guardians is an indicator that things are really changing in African societies as young people move away from traditional norms and values. Parental communication inside the home included whether young people talked with their parents/guardian about puberty, sexual education, STD/AIDS prevention, pregnancy prevention, and alcohol/drugs consumption. A communication index was built by summing responses (range 0 - 5), and findings indicate low levels of parent/youth-child communication about sexual topics ( $M = 1.56$ ;  $SD = 1.79$ ).

Another factor that was examined is the source of the pocket money. Almost equally, biological parents and relatives provide pocket money to the young people. Overall, 47.6 % received pocket money from mother, father or both. This reflects the high percentage of young people living with relatives at the time of the survey. Parental control referred to as whether the parents/guardians knew about leisure activities of the youth. Most of young people (75 %) reported that parents/guardians were informed of their whereabouts. Socioeconomic status (SES) was assessed using three measures: education of the parent/guardian, presence of radio/TV and lighting mode at home at the time of the survey. Mean score of SES was 1.9 ( $SD = .93$ ; range 0 - 4).

#### *Community context*

The variable examined at the community level was area of residence (rural vs. urban). Most of young people were living in rural areas (84.9 %), and this reflects the semi-urban characteristic of Bandjoun.

### **VI.3.2 Bivariate associations of individual, family and community factors with risky sexual behavior**

The first step of analysis was to assess the gross effects of individual risk and protective factors, and family characteristics on risky sexual behavior in the pooled sample and separately for each type of family structure. To achieve this goal, unadjusted odd ratios from logistic regression were used (Table 3).

#### *Pooled sample*

As expected, living with at least one biological parent was associated with lower rates of the co-occurrence of multiple sexual partners and condom nonuse. For instance, the odds of risky sexual behavior decreased by 32 % and 42 % for youths living in two-parent and one-parent families, respectively, compared with those living with other relatives. Having had first sex before age 15 and being physically-motivated for first sex were significantly associated with risky sexual behavior at the 5 % level of significance. Early sex increased by 71 % the odds that young people report multiple sexual partners and condom nonuse in the last 12 months. Likewise, physical motivation for first sex increased by 24 % the likelihood of risky sexual behavior. More educated youths and those who used a contraceptive method at first sex reported significantly lower rates of risky sexual behavior and this could indicate protective factors. For instance, being better-educated and contraceptive use at first intercourse decreased by 28 % and 53 % the odds of risky sexual behavior among young people.



Table 3: Bivariate associations between risky sexual behavior and selected variables by family structure

Variables	Two-parent		One-parent		Neither-parent		Full sample	
	%	OR (95% CI)	%	OR (95% CI)	%	OR (95% CI)	%	OR (95% CI)
<i>Panel A: Individual Characteristics</i>								
Family structure								
Two-parent families							11.6	.68** (.47 - .98)
One-parent families							10.1	.58** (.36 - .94)
(Neither-parent families)							16.3	1.00
Gender								
Male	10.4	.99 (.57 - 1.73)	8.0	.66 (.27 - 1.61)	17.5	1.21 (.72 - 2.03)	13.4	1.07 (.76 - 1.50)
(Female)	11.6	1.00	11.5	1.00	14.9	1.00	12.7	1.00
Age at first sex								
Early age at first sex: < 15 years	12.3	1.10 (.60 - 2.10)	14.1	1.76 (.75 - 4.13)	23.6	2.23*** (1.33 - 3.73)	17.5	1.71*** (1.21 - 2.43)
(Late age at first sex: 15 + years)	11.3	1.00	8.5	1.00	12.1	1.00	11.0	1.00
Motivation for first sex								
Physically-oriented	14.5	1.64* (.94 - 2.85)	9.4	.88 (.38 - 2.03)	15.5	.90 (.54 - 1.51)	13.8	1.24** (1.12 - 1.50)
(Other motives)	9.4	1.00	10.6	1.00	16.9	1.00	10.4	1.00
Age at survey								
10-19 years	8.9	.59 (.33 - 1.04)	9.3	.84 (.36 - 1.96)	15.2	1.18 (.71 - 1.97)	12.1	.86 (.61 - 1.21)
(20-29 years)	14.3	1.00	10.8	1.00	17.5	1.00	13.9	1.00
Educational attainment								
(Primary)	16.4	1.00	11.1	1.00	19.3	1.00	16.0	1.00
Secondary +	8.9	.55** (.31 - .98)	9.7	.86 (.35 - 2.1)	15.5	.76** (.41 - .91)	12.0	.72** (.49 - .96)
Use of contraception at first sex								
(No)	13.2	1.00	11.5	1.00	17.4	1.00	14.5	1.00
Yes	5.9	.35** (.14 - .91)	6.2	.50** (.17 - .92)	11.3	.60 (.29 - 1.27)	7.4	.47*** (.29 - .79)
Religious attendance								
(No)	9.9	1.00	10.3	1.00	15.6	1.00	12.1	1.00
Yes	13.2	1.38 (.78 - 2.40)	10.0	.97 (.42 - 2.22)	16.8	1.09 (.66 - 1.81)	13.9	1.17 (.83 - 1.64)

Table 3 *Continued*

Variables	Two-parent		One-parent		Neither-parent		Full sample	
	%	OR (95% CI)	%	OR (95% CI)	%	OR (95% CI)	%	OR (95% CI)
<i>Panel B: Family/Community Context</i>								
Quality of P/G-youth relationships (Difficult)	14.3	1.00	17.7	1.00	17.1	1.00	17.7	1.00
Good	11.7	.65** (.34 - .85)	9.6	.49*** (.13 - .87)	12.2	.67* (.39 - 1.05)	10.7	.56*** (.39 - .78)
Parent-child communication (cont.) <sup>a</sup>	n/a	1.02 (.87 - 1.19)	1.47	.98 (.77 - 1.24)	1.67	1.0 (.88 - 1.15)	1.56	1.01 (.92 - 1.11)
Source of pocket money (Other relatives)	12.2	1.00	9.7	1.00	15.9	1.00	13.6	1.00
Mother and/or Father	11.3	.92 (.52 - 1.62)	10.5	1.10 (.48 - 2.53)	17.2	1.10 (.63 - 1.94)	12.3	.89 (.63 - 1.25)
Parent/Guardian supervision (No)	16.8	1.00	12.7	1.00	15.6	1.00	15.4	1.00
Yes	10.3	.56 (.31 - 1.04)	9.0	.68** (.29 - .81)	13.7	1.04 (.59 - 1.83)	12.2	.76** (.52 - .94)
Socioeconomic status (cont.) <sup>a</sup>	n/a	.89 (.65 - 1.21)	1.63	.87 (.56 - 1.35)	1.99	1.21 (.91 - 1.60)	1.94	1.04 (.87 - 1.26)
Type of Place of Residence (Rural)	12.3	1.00	10.8	1.00	17.1	1.00	13.8	1.00
Urban	8.0	.62 (.26 - 1.51)	7.7	.69 (.23 - 2.11)	11.3	.62 (.27 - 1.42)	9.0	.62** (.36 - .91)

Reference category in parentheses.

\*\*\* $p < 1\%$ , \*\* $p < 5\%$ , \* $p < 10\%$

Source: CFHS (1996 & 2002)

Examining the gross effects of family factors associated with resilience in the pooled sample, results revealed two significant variables that operate in the expected direction. The quality of parent/guardian relationships (44 %) and parental control (24 %) decreased significantly the odds of risky behavior by 44 % and 24 %, respectively. At the community level, urban settings were associated with a decrease of risky sexual behavior by 38 %.

#### *Stratification by family structure*

The main objective of this paper is to determine how family factors associated with resilience may be helpful for young people to overcome risky sexual behavior. To achieve this goal, the effects of risk and protective factors were examined for each type of family structure. When the data were stratified by family structure, most of the statistical significances observed in the pooled sample disappear in two- and one-parent families. Indeed, no risk factor reached statistical significance in two- or one-parent families. By contrast, age at first sex was significantly associated with risky sexual behavior in neither-parent families ( $OR = 2.23$ ;  $CI = 1.33 - 3.73$ ).

The effects of protective factors differed by family structure. Although the odds of risky sexual behavior decreased with education, statistical significance was observed only in two- ( $OR = .55$ ;  $CI = .31 - .98$ ) and neither-parent families ( $OR = .76$ ;  $CI = .41 - .91$ ). Likewise, contraceptive use at first sex showed negative and significant effects in two- ( $OR = .35$ ;  $CI = .14 - .91$ ) and one-parent families ( $OR = .50$ ;  $CI = .17 - .92$ ).

When examining the effects of family variables, the findings also indicate variations for each type of family structure. None of the four protective factors reached significance levels in two- and neither-parent families. In contrast, the quality of parents/guardians-youth relationships

and parental control decreased significantly (at  $p < .05$ ) the odds of risky sexual behavior among youths living in one-parent families.

### **VI.3.3 Multivariate results**

Tables 4 to 7 show the effects of risk, protective factors and family characteristics on the likelihood of risky sexual behavior. In practice, Models 1 – 3 display the effects of risk, protective factors and family context, respectively. Models 4 – 5 control the effects of risk factors in the presence of protective factors and family characteristics. Finally, Models 6 present the additive effects of the three sets of factors.

For the pooled sample (see Table 4), findings showed (Models 1 – 3) that only few factors reached the significance levels. Early age at first sex (Model 1), contraceptive use at first sex (Model 2), and the quality of parents/guardians-youth relationships was significantly associated with risky sexual behavior. Youth with early sexual debut (before age 15) were significantly more likely to report risky sexual behavior compared to their counterparts who were older at first sexual intercourse ( $OR = 1.71$ ;  $CI = 1.19 - 2.43$ ). Contraceptive use at first sex showed a negative and significant effect ( $OR = .47$ ;  $CI = .28 - .83$ ). The quality of parent/guardian-youth relationships emerged as protective ( $OR = .56$ ;  $CI = .39 - .93$ ). The results about risk factors observed in Model 1 remained mostly unchanged after controlling for protective factors (Model 4) or family characteristics (Model 5). In the pooled sample, Model 6 included family structure as an explanatory variable that allowed a comparison of the results with previous studies that used a risk approach. As shown earlier, two- and one-parent families were associated with lower rates of risky sexual behavior compared with neither-parent families. Among community characteristics, urban residence showed a negative and

significant effect and suggests the persistence of urban-rural gap in the access to condoms especially among young people.

Stratified results (Tables 5 - 7) revealed differentials with the effects of a group of factors within each family structure. Table 5 shows what factors are really risky or protective and how family variables may be protective in two-parent families. Physical motivation for first sex appears as a significant risk predictor ( $OR = 1.66$ ;  $CI = .94 - 2.91$ ). Model 2 indicates that three factors operate as protective, including age ( $OR = .53$ ;  $CI = .30 - .95$ ), education ( $OR = .66$ ;  $CI = .40 - 1.07$ ) and contraceptive use at first sex ( $OR = .33$ ;  $CI = .13 - .87$ ).

Contrary to our expectations, religious attendance is associated with higher rates of risky sexual behavior among youths living in two-parent homes. There are two possible explanations. First, in a context of a narrow socialization like in Bandjoun, church attendance may be a good opportunity for girls and boys to meet and talk. In this case, religious attendance may be a risk rather than a protective factor because it offers to youths the opportunities to escape parental control. Second, the fact that half of youths attended church in the last 12 months preceding the survey may also explain its unexpected effect contrary to industrialized countries. In these countries, only a few youths attend church. Most of them are often conservative and conform to traditional values that restrict sexuality within marriage.

With regards to family factors associated with resilience, findings show that the quality of relationships between youth and parents/guardians ( $OR = .51$ ;  $CI = .29 - .90$ ), and parental control ( $OR = .56$ ;  $CI = .30 - 1.06$ ) lowered significantly the risk of multiple sexual partners and condom nonuse. These effects persisted in subsequent models (Models 4 - 5). Model 6 reveals that the risk factors were not significantly associated with risky sexual behavior. In

contrast, two individual factors (age at the survey and contraceptive use at first sex) and two family factors (quality of parents/guardians-youth relationships and parental control) showed significant and protective effects.

Neither risk nor protective factors reached statistical significance in one-parent families (Models 1 and 2 in Table 6). Interestingly, findings reveal that the quality of parent/guardian relationships decreases significantly by 65 % the odds of risky sexual behavior (Model 3 of Table 6). When the effects of risk factors are controlled for family variables (Model 5), age at first sex become somewhat significant at 10 % level ( $OR = 2.17$ ;  $CI = .88 - 5.09$ ). A similar effect was observed in Model 6 for the age at sexual debut.

Among young people residing with other relatives, findings reveal two significant variables among individual risk factors and family characteristics (Models 1 and 3 of Table 7). Early age at first sex increased significantly the odds of risky sexual behavior ( $OR = 2.22$ ;  $CI = 1.32 - 1.93$ ). In contrast, the quality of relationships between the youth and his/her parents/guardians emerges as protective factor in Model 3 ( $OR = .69$ ;  $CI = .40 - 1.16$ ). Including all variables (Model 6) reinforce these results.

#### *Interaction effects*

Previous results were extended in testing interactions. Several models were fitted to check two-way interactions. Motivations for first sex, religious attendance, and parental control were expected to be gendered and age-dependent. Methodologically, the interaction terms were introduced one by one in the full model (Model 6). No significant interaction term was detected and results were limited to additive models.

Table 4: Estimated odds ratio (OR) of risky sexual behavior among young people in Bandjoun, Cameroon (Full sample:  $N = 1\ 175$ )

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
<b>Panel A: Risk factors</b>						
Gender ( <i>Female</i> )						
Male	.98 (.69 - 1.39)			.88 (.61 - 1.27)	.97 (.67 - 1.39)	.85 (.58 - 1.24)
Age at first sex ( <i>15 years +</i> )						
Early age at first sex (< 15 years)	1.71*** (1.19 - 2.43)			1.76*** (1.21 - 2.55)	1.74*** (1.22 - 2.50)	1.70*** (1.16 - 2.49)
Motivation for First Sex ( <i>Other</i> )						
Physical-oriented	1.08 (.76 - 1.53)			1.11 (.78 - 1.58)	1.09 (.77 - 1.55)	1.11 (.78 - 1.59)
<b>Panel B: Protective factors</b>						
Age at survey ( <i>20-29 years</i> )						
10-19 years		.84 (.60 - 1.19)		.74* (.51 - 1.05)		.76 (.51 - 1.08)
Educational attainment ( <i>Primary</i> )						
Secondary +		.75** (.63 - .92)		.79 (.54 - 1.15)		.74 (.61 - 1.15)
Use of contraception at first sex ( <i>No</i> )						
Yes		.47*** (.28 - .79)		.49*** (.29 - .83)		.50** (.29 - .85)
Religious attendance ( <i>Never</i> )						
Attended church		1.24 (.88 - 1.76)		1.26 (.88 - 1.78)		1.23 (.86 - 1.75)
<b>Panel C: Family and community characteristics</b>						
Family structure ( <i>neither-parent</i> )						
Two-parent						.70* (.46 - 1.06)
One-parent						.61* (.36 - 1.02)
P/G-youth relationships ( <i>Difficult</i> )						
Good			.56*** (.39 - .79)		.55*** (.39 - .78)	.56*** (.39 - .79)
P/G-youth communication			1.03 (.93 - 1.13)		1.03 (.94 - 1.14)	1.03 (.93 - 1.14)
Source of pocket money ( <i>Other</i> )						
Mother and/or father			.97 (.68 - 1.38)		.98 (.69 - 1.41)	1.17 (.79 - 1.73)
Parent/Guardian supervision ( <i>No</i> )						
Yes			.79 (.54 - 1.67)		.78 (.53 - 1.14)	.81 (.54 - 1.19)
Socioeconomic status			1.04 (.86 - 1.25)		1.01 (.83 - 1.22)	1.02 (.84 - 1.24)
Type of Place of residence ( <i>Rural</i> )						
Urban						.62* (.36 - 1.06)

\*\*\* $p < 1\%$ , \*\* $p < 5\%$ , \* $p < 10\%$

Source: CFHS (1996 & 2002)

Table 5: Estimated odds ratio (OR) of risky sexual behavior among young people living in two-parent families in Bandjoun, Cameroon

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
<b>Panel A: Risk factors</b>						
Gender ( <i>Female</i> )						
Male	.90 (.51 - 1.60)			.86 (.48 - 1.61)	.90 (.49 - 1.66)	.89 (.48 - 1.70)
Age at first sex ( <i>Late age: 15 years +</i> )						
Early age at first sex (before age 15)	1.10 (.58 - 1.98)			1.12 (.58 - 2.15)	1.19 (.63 - 2.24)	1.21 (.62 - 2.38)
Motivation for First Sex ( <i>Other motives</i> )						
Physical-oriented	1.66* (.94 - 2.91)			1.69* (.96 - 3.03)	1.65* (.93 - 2.92)	1.62 (.90 - 2.92)
<b>Panel B: Protective factors</b>						
Age at survey ( <i>20-29 years</i> )						
10-19 years		.53** (.30 - .95)		.55** (.29 - .96)		.52** (.28 - .96)
Educational attainment ( <i>Primary</i> )						
Secondary +		.66* (.40 - 1.07)		.57* (.40 - 1.08)		.57* (.38 - 1.11)
Use of contraception at first sex ( <i>No</i> )						
Yes		.33** (.13 - .87)		.32** (.12 - .86)		.33** (.12 - .88)
Religious attendance ( <i>Never</i> )						
Attended church		1.64* (.93 - 2.93)		1.69* (.94 - 3.05)		1.66 (.91 - 3.02)
<b>Panel C: Family and community characteristics</b>						
P/G-youth relationships ( <i>Difficult</i> )						
Good			.51** (.29 - .90)		.52** (.29 - .92)	.50** (.28 - .90)
P/G-youth communication			1.05 (.89 - 1.23)		1.05 (.89 - 1.24)	1.07 (.91 - 1.27)
Source of pocket money ( <i>Other</i> )						
Mother and/or father			1.08 (.60 - 1.95)		1.02 (.55 - 1.90)	1.13 (.60 - 2.15)
Parent/Guardian supervision ( <i>No</i> )						
Yes			.56* (.30 - 1.06)		.56* (.29 - 1.05)	.59* (.31 - 1.03)
Socioeconomic status			.91 (.66 - 1.25)		.89 (.65 - 1.23)	1.01 (.71 - 1.41)
Type of Place of residence ( <i>Rural</i> )						
Urban						.55 (.22 - 1.40)

Sample size:  $N = 491$

\*\*\* $p < 1\%$ , \*\* $p < 5\%$ , \* $p < 10\%$

Source: CFHS (1996 & 2002)



Table 6: Estimated odds ratio (OR) of risky sexual behavior among young people living in one-parent families in Bandjoun, Cameroon

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
<b>Panel A: Risk factors</b>						
Gender ( <i>Female</i> )						
Male	.65 (.27 - 1.57)			.52 (.21 - 1.33)	.66 (.26 - 1.68)	.57 (.22 - 1.49)
Age at first sex ( <i>Late age: 15 years +</i> )						
Early age at first sex (before age 15)	1.88 (.79 - 4.49)			2.05 (.83 - 5.09)	2.17* (.88 - 5.33)	2.39* (.91 - 6.24)
Motivation for First Sex ( <i>Other motives</i> )						
Physical-oriented	.82 (.34 - 1.93)			.90 (.38 - 2.17)	.79 (.33 - 1.90)	.83 (.34 - 2.02)
<b>Panel B: Protective factors</b>						
Age at survey ( <i>20-29 years</i> )						
10-19 years		.88 (.38 - 2.06)		.72 (.30 - 1.72)		.78 (.30 - 2.05)
Educational attainment ( <i>Primary</i> )						
Secondary +		.95 (.39 - 2.34)		1.11 (.51 - 2.45)		1.17 (.50 - 2.70)
Use of contraception at first sex ( <i>No</i> )						
Yes		.51 (.17 - 1.55)		.43 (.14 - 1.38)		.45 (.14 - 1.47)
Religious attendance ( <i>Never</i> )						
Attended church		.97 (.42 - 2.23)		.94 (.40 - 2.19)		.99 (.42 - 2.42)
<b>Panel C: Family and community characteristics</b>						
P/G-youth relationships ( <i>Difficult</i> )						
Good			.35** (.15 - .85)		.33** (.13 - .81)	.35** (.14 - .86)
Parent/Guardian-youth communication			1.05 (.81 - 1.36)		1.03 (.79 - 1.34)	1.02 (.78 - 1.34)
Source of pocket money ( <i>Other</i> )						
Mother and/or father			1.35 (.57 - 3.20)		1.23 (.51 - 2.98)	1.34 (.53 - 3.40)
Parent/Guardian supervision ( <i>No</i> )						
Yes			.69 (.28 - 1.67)		.69 (.28 - 1.68)	.70 (.28 - 1.73)
Socioeconomic status			.81 (.51 - 1.27)		.79 (.51 - 1.26)	.80 (.50 - 1.30)
Type of Place of residence ( <i>Rural</i> )						
Urban						.66 (.21 - 2.12)

Sample size:  $N = 247$

\*\*\* $p < 1\%$ , \*\* $p < 5\%$ , \* $p < 10\%$

Source: CFHS (1996 & 2002)

Table 7: Estimated odds ratio (OR) of risky sexual behavior among young people living in neither-parent families in Bandjoun, Cameroon

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
<b>Panel A: Risk factors</b>						
Gender ( <i>Female</i> )						
Male	1.14 (.67 - 1.93)			1.07 (.61 - 1.87)	1.13 (.66 - 1.94)	1.05 (.59 - 1.87)
Age at first sex ( <i>Late age: 15 years +</i> )						
Early age at first sex (before age 15)	2.22*** (1.32 - 1.93)			2.16*** (1.25 - 3.76)	2.14*** (1.27 - 3.61)	2.04** (1.17 - 3.56)
Motivation for First Sex ( <i>Other motives</i> )						
Physical-oriented	.84 (.49 - 1.42)			.82 (.49 - 1.43)	.85 (.49 - 1.45)	.84 (.49 - 1.44)
<b>Panel B: Protective factors</b>						
Age at survey ( <i>20-29 years</i> )						
10-19 years		1.17 (.70 - 1.97)		.97 (.57 - 1.67)		.96 (.56 - 1.69)
Educational attainment ( <i>Primary</i> )						
Secondary +		.78 (.42 - 1.44)		.85 (.45 - 1.58)		.91 (.55 - 1.49)
Use of contraception at first sex ( <i>NO</i> )						
Yes		.60 (.29 - 2.28)		.75 (.33 - 1.67)		.72 (.32 - 1.63)
Religious attendance ( <i>Never</i> )						
Attended church		1.12 (.67 - 1.88)		1.15 (.68 - 1.93)		1.09 (.65 - 1.87)
<b>Panel C: Family and community characteristics</b>						
P/G-youth relationships ( <i>Difficult</i> )						
Good			.69* (.40 - 1.16)		.71* (.36 - 1.15)	.64* (.31 - 1.08)
P/G-youth communication			1.01 (.88 - 1.16)		1.02 (.88 - 1.17)	1.02 (.88 - 1.18)
Source of pocket money ( <i>Other</i> )						
Mother and/or father			1.08 (.61 - 1.94)		1.07 (.59 - 1.94)	1.06 (.57 - 1.98)
Parent/Guardian supervision ( <i>No</i> )						
Yes			1.10 (.61 - 1.96)		1.06 (.59 - 1.92)	1.08 (.59 - 1.97)
Socioeconomic status			1.21 (.91 - 1.60)		1.16 (.87 - 1.56)	1.17 (.87 - 1.57)
Type of Place of residence ( <i>Rural</i> )						
Urban						.59 (.26 - 1.39)

Sample size:  $N = 437$

\*\*\* $p < 1\%$ , \*\*  $p < 5\%$ , \* $p < 10\%$

Source: CFHS (1996 & 2002)

## **VI.4 Discussion and concluding remarks**

The interplay between family structure and risky sexual behavior is of great importance, especially in the era of AIDS. A general hypothesis in family-related studies assumes that two-parent families are protective while other types of families are at risk. This paper demonstrated that each type of family structure can be protective or at risk. In fact, this paper assumed that stressful conditions leading to risky sexual behavior among young people exist in both two-parent homes and other types of families.

In using the salutogenic approach, this study moves beyond previous studies that have focused on risk factors rather than family factors that can reduce the involvement in risky sexual behavior. Findings of the pooled sample were only informative as they are based on a risk approach. Thus, the discussion focuses on stratified results. The study partially supported the main hypothesis from the risk approach. Indeed, young people living with at least one parent were less likely to report risky sexual behavior than youths living in neither-parent families.

*What are the risk and protective factors at the individual level?*

The results indicated that neither risk factors nor protective factors necessarily showed risk or protective effects depending on the type of families considered. Rather, there were some variations. In the following lines, only significant factors are discussed.

### *Two-parent families*

Motivations for first sex emerged as a strong and significant risk factor for youths living with two biological parents. This finding supports the hypothesis that young people who are sexual-sensation-seekers are more likely to engage in risky sexual behavior than those who engage in sexual intercourse for other reasons. This is in lines with previous studies in Cameroon. A

study among senior students at the University of Douala (Cameroon) reported that students engaged in unprotected sexual intercourse for sexual pleasure (Njikam Savage, 2005). Age and contraceptive use at first sex was associated with lower rates of risky sexual behavior. Adolescents aged 10-19 years reported lower odds of risky sexual behavior compared to young adults aged 20-29 years. Yet it was expected that the latter will be more likely than former to protect themselves against HIV because they have more skills and knowledge of condom use (Manning et al., 2000).

As expected, adolescents were less likely to report multiple sexual partners (Table 2): 8.9 % of 10-19 years-old adolescents compared with 14.3 % of 20-29 years-old. Contraceptive use at first sex had a significant negative effect for youths living in two-parent families. Previous research showed that condom use at first sex is associated with a higher likelihood of subsequent condom use (Shafii, Stovel, Davis, & Holmes, 2004).

This finding provides a promising avenue for HIV interventions although low levels of contraceptive use at first sex are generally observed in African settings. Reproductive health programs targeted to youths may encourage them to undertake protected first sexual intercourse; in addition to teach them the importance to delay sexual debut. Further research is also needed to understand how parents-youth interactions can enhance these skills during sexual onset. This is particularly important in the context of an increasing gap between age at first sex and marriage (Adair, 2008).

#### *One-parent families*

Most of the risk and protective factors operated in the expected direction but only two were statistically significant. As hypothesized, age at first sex is a risk factor. Young people with early sexual debut were more likely to report risky sexual behavior.

### *Neither-parent families*

Among young people living in neither-parent families, age at sexual debut increased significantly the odds of risky sexual behavior.

### *Are there family traits that enhance protection among young people?*

Findings showed that the quality of parent/guardian-youth relationships is a protective factor irrespective of family structure. The quality of parent/guardian-youth relationships has received increasing attention in developed countries. In fact, when parents are supportive and warm, children are more likely to report positive outcomes such as late sexual debut and high levels of contraceptive use (Regnerus & Luchies, 2006). The quality of parent/guardian-youth relationships determines the quality and frequency of communication about sex and parental control. Young people who perceive higher levels of closeness with parents or other adults at home are more likely to accept family values and attitudes about sexuality, and subsequently tend to report lower rates of risky sexual behavior (McBride et al., 2005; Slap et al., 2003).

To our knowledge, this is the first study using a salutogenic approach in sub-Saharan Africa to document the risky sexual behavior among unmarried young people. Policymakers and practitioners may realistically shift from the traditional views to a more positive approach. The risk cannot be completely eliminated. The most obvious way to protect young people is to enhance the factors that can reduce this risk at individual, family and community levels. In doing so, they can seek within families what factors may help youths to overcome risky sexual behaviors in the context of increasing poverty.

Each type of family structure has probably strengths (and weaknesses). The quality of parent/guardian-youth relationships emerged in this paper as a strong protective factor.

Improving these strengths may be a productive avenue for HIV/AIDS prevention. Importantly, positive connections between youth and their daily environments, including families, schools, churches, and communities, could be a promising way for a healthy future (WHO, 2007a). Thus, HIV/AIDS programs must reinforce the connectedness with daily life environments through prosocial activities (physical activity, organized sports and other activities, volunteer or religious activities).

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## **CHAPITRE SEPTIÈME : CONCLUSION GÉNÉRALE**

En dépit de nombreuses interventions en santé reproductive auprès des adolescents et des jeunes en Afrique subsaharienne, rien n'est plus clair que cette partie du globe présente à ce jour les niveaux les plus élevés des infections sexuellement transmissibles et des grossesses précoces par rapport à d'autres parties du monde. Ceci signifie également que les problèmes de santé reproductive auprès des adolescents et des jeunes y sont plus élevés (Bankole et al., 2004; Kuate Defo, 1998a). L'une des raisons fondamentales qui expliquerait ces faibles résultats réside en partie dans l'approche initialement adoptée dans les différentes interventions et programmes de santé reproductive, qui est centrée sur l'individu (King, 1999; Kirby, 2001).

En procédant de cette manière, les interventions ont soustrait, de leur contexte social, les connaissances et comportements des adolescents et des jeunes en matière de sexualité. Ce contexte est pourtant riche en explications et permet de mieux comprendre leurs manières de penser et d'agir dans le domaine de la sexualité. En effet, la sexualité se construit à travers un ensemble des normes, des croyances, et des stéréotypes propres à chaque culture et chaque société. Agir ou mieux intervenir en déniaient consciemment ou inconsciemment les spécificités propres à chaque société et chaque culture ne peut mener qu'à l'échec. D'où l'importance de la prise en compte des contextes d'une part, et d'autre part, de situer toute intervention en lien avec les questions de santé en général et celles de la santé reproductive en particulier dans des cadres précis qui permettent de comprendre les contours et les significations des questions de sexualité pour les communautés locales. Les contextes sont assez nombreux étant donné l'imbrication des sous-systèmes qui forment les sphères de la



vie sociale (Bronfenbrenner, 1979). Lun d'entre eux, *la famille*, qui constitue le socle de toute société est l'élément central de cette thèse. Bien que la famille soit aussi en perpétuelle évolution, elle reste néanmoins un des piliers sur lequel toute société bâtit ses valeurs.

Ainsi, cette thèse s'est assigné comme objectif général celui de resituer les rôles de la famille au cœur des enjeux et des défis majeurs liés à la santé reproductive des jeunes en Afrique subsaharienne. Cette question est cruciale pour deux raisons. Premièrement, la sexualité en Afrique est toujours présentée à tort ou à raison comme un sujet tabou (Boileau et al., 2008). Il est donc important de mieux comprendre les rôles que les parents peuvent jouer dans cette délicate entreprise qu'est la promotion de la santé reproductive des adolescents et des jeunes. Deuxièmement, en tant que structure d'encadrement des adolescents et des jeunes, il est impérieux d'identifier les facteurs familiaux qui permettraient de mieux orienter les actions auprès des adolescents et jeunes. Ces différentes préoccupations ont favorisé l'émergence de trois questions en termes d'objectifs spécifiques, qui constituent l'ossature de la partie empirique de cette thèse dont nous résumons les principaux résultats.

## **VII. 1 Principaux résultats**

La première question examine les effets des structures familiales, du type d'union des parents ou des tuteurs et des processus d'interactions entre parents-enfants sur l'entrée en sexualité prémaritale pour les personnes âgées de 10 à 29 ans dont on dispose des informations sur l'environnement familial à partir de deux enquêtes de Bandjoun (1996 et 2002). Les analyses indiquent que l'âge médian au premier rapport sexuel se situe entre 16

et 17 ans. Les résultats font ressortir trois facteurs qui sont associés à un risque faible d'entrée en sexualité prémaritale : vivre dans une famille nucléaire avec ses deux parents biologiques, un niveau élevé de contrôle parental et la qualité des rapports entre parents/tuteurs-enfants. Ces résultats sont similaires à ceux rapportés par des études antérieures (Babalola, 2004; Babalola et al., 2005; Ngom et al., 2003; Thurman et al., 2006). Ces études établissent des associations entre les structures familiales et les comportements sexuels des adolescents et des jeunes. À titre d'exemple, la présence du père dans la maison est associée à un faible risque de premier rapport sexuel au Kenya (Ngom et al., 2003) et au Rwanda (Babalola, 2004). Par contre, les unions polygamiques, la communication entre parents/tuteurs-enfants, un statut socioéconomique élevé, le changement de structure familiale et le statut d'orphelin sont associés positivement et de manière statistiquement significative au risque de sexualité prémaritale.

La deuxième question traite du rôle des structures familiales sur l'acquisition des connaissances correctes sur les modes de transmission et de prévention du VIH/SIDA chez les adolescents et les jeunes non mariés. Les études antérieures ayant abordé la question en Afrique ont traité la connaissance du VIH/SIDA comme une composante unique qui inclut dans une seule mesure les modes de transmission correctes et les croyances erronées. La persistance des croyances erronées auprès des adolescents et des jeunes nécessite que cette question soit traitée en distinguant les connaissances correctes de croyances erronées (UNAIDS et al., 2004). Par ailleurs, plus de vingt ans après l'apparition du SIDA et étant donné le volume des programmes de santé reproductive et les campagnes de sensibilisation, il est important d'analyser de manière globale quelle est la proportion d'individus capables d'identifier tous les modes de transmission et les moyens de prévention du VIH/SIDA.

Parallèlement à ce questionnaire, les résultats indiquent que moins de la moitié des adolescents et jeunes (41,6 %) sont capables d'identifier tous les modes de transmission du VIH/SIDA dans cette étude et un cinquième d'entre eux ont encore des croyances erronées, c'est-à-dire ils pensent que le SIDA peut se transmettre par les piqûres des moustiques et/ou les contacts avec des personnes infectées. En ce qui concerne les précautions nécessaires pour éviter le VIH/SIDA, les résultats indiquent que seulement 9 % d'adolescents et jeunes ont été capables d'identifier correctement les huit moyens de prévention ciblés. Ces résultats suggèrent qu'il y a encore de la place dans l'éducation sur la sexualité en général, et le VIH/SIDA chez les adolescents et jeunes.

Revenons maintenant au rôle des variables liées à l'environnement familial. Les résultats indiquent une association positive et significative entre la structure familiale, la communication sur la sexualité aussi bien avec les parents/tuteurs qu'avec les pairs. Ces différents facteurs augmentent la probabilité d'avoir des connaissances correctes des modes de transmission et des moyens de prévention du VIH/SIDA. Contrairement au sens commun selon lequel les parents en Afrique ne discutent pas de la sexualité avec leurs enfants, certaines études affirment qu'ils interagissent avec leurs enfants au sujet de la sexualité (Izugbara, 2008). Ainsi selon cet auteur, la question ne réside pas dans la forme mais dans le contenu des discussions entre les parents et leurs enfants au sujet de la sexualité. Il pose ainsi la problématique de l'adéquation entre les connaissances des parents sur le VIH/SIDA et celles de leurs enfants. Cette question directe n'a pas été abordée dans cette étude. En d'autres termes, les parents sont-ils suffisamment outillés pour guider leurs enfants à acquérir des connaissances correctes sur le VIH/SIDA?

Des facteurs individuels sont aussi apparus comme étant d'importants prédicteurs du niveau des connaissances correctes des modes de transmission et des moyens de prévention du VIH/SIDA. Parmi ces facteurs se trouvent l'éducation, l'âge au moment de l'enquête et le fait d'avoir vécu une expérience sexuelle. Ces trois facteurs augmentent significativement le niveau des connaissances correctes des modes de transmission et des moyens de prévention du VIH/SIDA.

La troisième question cherche à élucider les forces (c'est-à-dire des facteurs familiaux qui peuvent réduire les comportements sexuels à risque), au sein de chaque type des structures familiales, qui peuvent aider les adolescents et les jeunes à adopter les comportements de prévention. À l'opposé de l'approche conventionnelle qui veut que les familles où vivent les deux parents biologiques soient protectrices, et que les autres structures familiales soient des familles à risque, la présente étude assume que les facteurs de risque et de protection sont présents dans toutes les familles. Donc, il est possible de déterminer pour chaque type des familles des facteurs potentiels qui peuvent soit réduire (facteurs de protection) ou augmenter (facteurs de risque) les comportements sexuels à risque.

Les résultats indiquent que la qualité des relations entre parents/tuteurs-enfants réduit significativement la probabilité de comportement sexuel à risque, défini comme la cooccurrence de plusieurs partenaires sexuels et de non-utilisation du condom au cours de 12 mois précédant l'enquête, quel que soit le type de structures familiales, c'est-à-dire que les adolescents et les jeunes vivent avec les deux parents biologiques ou avec un seul parent (père ou mère) ou encore avec d'autres membres de familles (frères/sœurs, cousins/cousines, oncles/tantes, grands-parents). Ce résultat est riche de sens dans la mesure où des interventions qui ciblent les jeunes pourraient promouvoir certains facteurs

familiaux qui sont associés à de faibles risques des comportements sexuels. Étant donné que les familles ayant un seul parent sont généralement présentées comme des familles à risque, ce facteur pourrait être exploité pour accroître la résilience des adolescents et des jeunes vivant dans ce type de familles et freiner ainsi l'occurrence des comportements sexuels à risque. Par contre, le contrôle parental ne présente un rôle protecteur que dans le cas des jeunes vivant avec leurs deux parents biologiques.

## **VII. 2 Questions émergentes et pistes de recherche**

Bien que nos résultats tiennent compte des processus familiaux qui médiatisent les effets des structures familiales sur les connaissances et les comportements de prévention chez les adolescents et les jeunes, il n'en demeure pas moins que ces concepts sont construits à l'aide des questions simples qui éludent leur complexité. C'est le cas de la qualité des relations entre parents-enfants qui est saisie à l'aide d'une seule question alors qu'elle comporte une dimension bien plus complexe (Rai et al., 2003; Shek, 1998). C'est à juste titre que les études américaines ont développé des instruments pour mesurer les processus familiaux (contrôle parental, communication parent-enfant, qualité des relations entre parents et enfants). Les processus familiaux en Afrique ont été jusqu'ici très peu étudiés. Le moment est venu de réfléchir sur le développement des outils adéquats et adaptés aux contextes africains permettant de mesurer ces différents processus.

Le rôle du type d'union sur l'entrée en sexualité a été établi. Mais en sait-on davantage dans les pays africains quant à son influence (ou son association) sur la santé des enfants et des jeunes à l'exception de l'étude au Nigéria sur les comportements sexuels (Slap et al., 2003) ou celle sur la mortalité infantile (Omariba & Boyle, 2007). Étant donné que

plusieurs sociétés africaines présentent encore à ce jour des proportions considérables de familles polygames, il est important d'approfondir les mécanismes qui placent les adolescents et jeunes qui vivent dans les familles polygamiques dans un état de vulnérabilité élevée comparativement à leurs homologues des familles monogamiques.

Les questions de construits sont aussi importantes que les résultats qui y sont rattachés. Étant donné les défis que soulèvent les résultats de cette étude, notamment en ce qui concerne le rôle des structures familiales sur l'acquisition des connaissances des modes de transmission et des moyens de prévention du VIH/SIDA, deux pistes de recherche sont à explorer.

Premièrement, des études de validité et de fiabilité doivent être menées. Il sera question dans ce cas de vérifier la cohérence du niveau des connaissances chez un individu en utilisant différentes échelles de mesure (VanLandingham, Grandjean, Suprasat, & Sittitrai, 1995; VanLandingham et al., 1997). Par exemple, le niveau de connaissance d'un individu est-il identique selon que l'on utilise des questions dichotomiques (à faible étendue de variation) ou une échelle de Likert (5-point, 6-point, ou 7-point). Un tel exercice permettrait d'élucider le type de questions adaptées selon les contextes.

Deuxièmement, le rôle des parents dans l'acquisition des connaissances sur les modes de transmission et de prévention du VIH/SIDA reste à élucider (Tinsley & Lees, 2004). Les chercheurs et les praticiens en santé reproductive suggèrent constamment l'implication des parents dans l'acquisition des connaissances du SIDA chez les jeunes dans le but ultime de promouvoir des comportements de prévention (notamment l'utilisation du condom). D'un point de vue méthodologique, il est question de mesurer directement leur niveau des

connaissances sur le SIDA et d'autres aspects de la sexualité et de les comparer à celles de leurs enfants. Cela permettra aux intervenants de mieux définir les axes d'action auprès des parents pour que ceux-ci soient capables de discuter en toute sérénité avec leurs enfants. Cet aspect a été très peu exploité même dans les pays développés (Sigelman et al., 1995).

Il y a également toute la problématique de la pauvreté dans la plupart des pays de l'Afrique subsaharienne et de son impact sur les comportements sexuels des adolescents et des jeunes (Kuate Defo, 2004; Madise et al., 2007; Meekers & Calvès, 1997; Rwenge, 2003). Comme nous l'avons maintes fois souligné, de nombreuses études en Afrique subsaharienne expliquent les comportements sexuels des adolescents et des jeunes par la pauvreté du ménage ou de l'environnement familial. Dans cette perspective, la famille avec deux parents biologiques reste-t-elle associée à une probabilité plus faible des comportements sexuels à risque? Cette question mérite davantage d'être approfondie pour les raisons suivantes.

Bien que cette étude établisse globalement que les familles avec deux parents biologiques sont protectrices si l'on considère l'entrée en sexualité ou l'acquisition des connaissances correctes sur les modes de transmission et des moyens de prévention, elle souffre d'un problème de généralisation. En effet, elle est basée sur des données de représentativité locale à Bandjoun. Cette préfecture est en effet peuplée de 98 % des bamiléké et dans ce sens, ne pourrait présenter qu'une faible hétérogénéité des processus familiaux ou des pratiques sexuelles à cause de l'homogénéité culturelle.

Enfin, certains défis méthodologiques restent à relever en ce qui concerne les données. Il est vrai que les données rétrospectives ont permis d'établir les associations entre les

structures familiales et l'entrée en sexualité, mais il n'en demeure que les données prospectives permettraient de mieux cerner les effets des situations familiales passées sur les comportements sexuels des adolescents et des jeunes. Ceci est surtout valable dans le cadre des activités d'interventions comme celles que mène actuellement l'observatoire de population en épidémiologie socio-clinique (Population Observatory in Socio-clinical Epidemiology, POSE). Les données qui sont entrain d'être collectées permettront de mesurer avec la plus grande précision ces types d'effets car elles reposent sur le suivi des individus des enquêtes précédentes.



## Références bibliographiques

- Adair, T. (2008). HIV status and age at first marriage among women in Cameroon. *Journal of Biosocial Science*, 40, 743 - 760.
- Adams, G. R. (1989). *Adolescent life experiences* (2nd ed.). Pacific Grove, California: Brooks/Cole Publishing Company.
- Adams, G. R., & Berzonsky, M. D. (2003). *Blackwell handbook of adolescence*. Malden, MA: Blackwell Pub.
- Adams, G. R., Côté, J. E., Marshall, S., & Canada. Santé Canada. Division de l'enfance et de l'adolescence. (2001). *Les relations parents-adolescents et le développement de l'identité : analyse documentaire et énoncé de politique*. Ottawa: Division de l'enfance et de l'adolescence Santé Canada.
- Adu-Mireku, S. (2003). Family communication about HIV/AIDS and sexual behaviour among senior secondary school students in Accra, Ghana. *African Health Sciences*, 3, 7-14.
- Agha, S., Hutchinson, P., & Kusanthan, T. (2006). The effects of religious affiliation on sexual initiation and condom use. *Journal of Adolescent Health*, 38, 550-555.
- Ahmat, A. (2000). *Organisations familiales et travail des femmes en milieu urbain centrafricain*. Montréal: Université de Montréal.
- Akwara, P. A., Madise, N. J., & Hinde, A. (2003). Perception of risk of HIV/AIDS and sexual behaviour in Kenya. *Journal of Biosocial Science*, 35, 385 - 411.
- Albrecht, C., & Teachman, J. A. (2004). Childhood living arrangements and the risk of premarital intercourse. *Journal of Family Issues*, 24, 867 - 894.
- Allison, P. D. (1984). *Event History Analysis: Regression for Longitudinal event Data*. Beverly Hills, London, New Delhi: Sage Publications.

- Amato, P. R. (1987). Family processes in one-parent, stepparent, and intact families: The child's point of view. *Journal of Marriage and the Family*, 49, 327 - 337.
- Amoran, O. E., Onadeko, M. O., & Adeniyi, J. D. (2005). Parental influence on adolescent sexual initiation. *International Quarterly of Community Health Education*, 23, 73 - 81.
- Amuyunzu-Myamongo, M., Biddlecom, A. E., Ouedraogo, C., & Woog, V. (2005). *Qualitative evidence on adolescents' views on sexual and reproductive health in sub-Saharan Africa* (Occasional Report). New York: The Alan Guttmacher Institute.
- Antoine, P., & Nanitelamio, J. (1990). *La montée du célibat féminin dans les villes africaines. Trois cas: Pikine, Abidjan et Brazzaville* (Vol. 12). Paris: CEPED.
- Araoye, M. O., & Adegoke, A. (1996). AIDS-related knowledge, attitudes and behavior among selected adolescents in Nigeria. *Journal of Adolescence*, 19, 179 - 181.
- Arnett, J. (1995). Broad and narrow socialization: The family in a context of a cultural theory. *Journal of Marriage and the Family*, 57, 617 - 628.
- Atwater, E. (1988). *Adolescence* (2nd ed.). Englewood Cliffs, N.J.: Prentice Hall.
- Atwater, E. (1994). *Psychology for living: Adjustment, growth, and behavior today* (5th ed.). Englewood Cliffs, N.J.: Prentice Hall.
- Babalola, S. (2004). Perceived peer behavior and the timing of sexual debut in Rwanda: A survival analysis of youth data. *Journal of Youth and Adolescence*, 33, 353 - 363.
- Babalola, S., Tambashe, B. O., & Vondrasek, C. (2005). Parental factors and sexual risk-taking among young people in Côte d'Ivoire. *African Journal of Reproductive Health*, 9, 49 - 65.

- Bagley, S. C., White, H., & Golomb, B. A. (2001). Logistic regression in medical literature: Standards for use and reporting, with particular attention to one medical domain. *Journal of Clinical Epidemiology*, *54*, 979-985.
- Bandura, A. (1977). *Social Learning Theory*. New Jersey, Toronto: Englewood Cliffs, Prentice-hall, Inc.
- Bank, W. (1983). *World Development Report 1993: Investing in Health*. New York.
- Bankole, A., Ahmed, F. A., Neema, S., Ouedraogo, C., & Konyani, S. (2007). Knowledge of correct condom use and consistency of use among adolescents in four countries in sub-Saharan Africa. *African Journal of Reproductive Health*, *11*, 197 - 220.
- Bankole, A., Biddlecom, A., Guiella, G., Singh, S., & Zulu, E. (2008). Sexual behaviour, knowledge and information sources of very young adolescents in four Sub-Saharan African countries. *African Journal of Reproductive Health*, *11*, 28-43.
- Bankole, A., Singh, S., Woog, V., & Wulf, D. (2004). *Risk and protection: Youth and HIV/AIDS in Sub-Saharan Africa*. New York: Guttmacher Institute.
- Barber, B. K., & Schluterman, J. M. (2008). Connectedness in the lives of children and adolescents: A call for greater conceptual clarity. *Journal of Adolescent Health*, *43*, 209 - 216.
- Bauni, E. K. (1992). The changing sexual patterns of the Meru people of the Chogoria region. In T. Dyson (Ed.), *Sexual behaviour and networking: anthropological and socio-cultural studies on the transmission of HIV* (pp. 335-351). Liège, Belgique: Éditions Derouaux-Ordina.
- Benzies, K., & Mychasiuk, R. (2009). Fostering family resiliency: a review of the key protective factors. *Child and Family Social Work*, *14*, 103 - 114.

- Berglund, S., Liljestrand, J., De Maria Marin, F., Salgado, N., & Zelaya, E. (1997). The background of adolescent pregnancies in Nicaragua: A qualitative approach. *Social Science and Medicine*, 44(1), 1 - 12.
- Bicego, G., Rutstein, S., & Johnson, K. (2003). Dimensions of the emerging orphan crisis in sub-Saharan Africa. *Social Science & Medicine*, 56, 1235 – 1247.
- Blum, R. W. (2007). Youth in sub-Saharan Africa. *Journal of Adolescent Health*, 41, 230 - 238.
- Boer, H., & Emons, P. A. A. (2004). Accurate and inaccurate HIV transmission beliefs, stigmatizing and HIV protection motivation in Northern Thailand. *AIDS Care*, 16, 167-176.
- Boerma, J., & Gregson, D. (2003). Understanding the uneven spread of HIV within Africa: Comparative study of biologic, behavioral, and contextual factors in Tanzania and Zimbabwe. *Sexually Transmitted Infections*, 30, 779 - 787.
- Bohmer, L., & Kirumira, E. K. (2000). Socioeconomic context and the sexual behavior of Ugandan out of school youth. *Culture, Health & Sexuality*, 2, 269 - 285.
- Boileau, C., Rashed, S., Sylla, M., & Zunzunegui, M. V. (2008). Monitoring HIV risk and evaluating interventions among young people in urban west Africa: Development and validation of an instrument. *AIDS Education & Prevention* 20, 203 - 219.
- Booyesen, F. R., & Summerton, J. (2002). Poverty, risky sexual behaviour, and vulnerability to HIV Infection: Evidence from South Africa. *Journal of Health, Population and Nutrition*, 20, 285-288.
- Bouwa, A. (2006). *A study of the historical, socio-economic, anthropological and spiritual condition of Bamiléké villages*. Douala, Cameroon: BINAM.
- Bozon, M. (2003). A quel âge les femmes et les homes commencent-ils leur vie sexuelle. *Populations et Sociétés*, 391.

- Brewster, K. L. (1994). Neighborhood context and the transition to sexual activity among young black women. *Demography*, *31*, 603 - 614.
- Brewster, K. L., Billy, J. O. G., & Grady, W. R. (1993). Social context and adolescent behavior: The impact of community on the transition to sexual activity. *Social Forces*, *71*, 713 - 740.
- Bronfenbrenner, U. (1979). *The ecology of human development : experiments by nature and design*. Cambridge, Mass.: Harvard University Press.
- Browning, C. R., Leventhal, T., & Brooks-Gunn, J. (2005). Sexual initiation in early adolescence: The nexus of parental and community control. *American Sociological Review*, *70*, 758 - 778.
- Buseh, A. G., Glass, L. K., McElmurry, B. J., Mkhabela, M., & Sukati, N. A. (2002). Primary and preferred sources for HIV/AIDS and sexual risk behavior information among adolescents in Swaziland, Southern Africa. *International Journal of Nursing Studies*, *39*, 525 - 538.
- Caldwell, J. C., Caldwell, P., Ankrah, E. M., Anarfi, J. K., Agyeman, D. K., Awusabo-Asare, K., et al. (1993). African families and AIDS: Context, reactions and potential interventions. *Health Transition Review, Supplement to volume 3, "Sexual networking and HIV/AIDS in West Africa"*, 1 - 16.
- Campbell, C., & MacPhail, C. (2002). Peer education, gender and the development of critical consciousness: Participatory HIV prevention by South African Youth. *55*(331-345).
- Carlson, M. J. (2006). Family structure, father involvement and adolescent behavioral outcomes. *Journal of Marriage and the Family*, *68*, 137 - 154.
- Case, A., Paxson, C., & Ableidinger, J. (2004). Orphans in Africa: parental death, poverty and school enrolment. *Demography*, *41*, 483 - 508.

- Cattell, M. G. (1994). Nowadays it isn't easy to advise the young: Grandmothers and granddaughters among Abaluyia of Kenya. *Journal of Cross-cultural Gerontology*, 9, 157 - 187.
- Chatterji, M., Murray, N., London, D., & Anglewicz, P. (2005). The factors influencing transactional sex among young men and women in 12 sub-Saharan countries. *Social Biology*, 1/2, 56 - 72.
- Cherlin, A., Furstenberg, F. P., Chase-Landale, L., Kiernan, K., Robins, P., Morrison, D., et al. (1991). Longitudinal studies of effects of divorce on children in Great Britain and the United States. *Science*, 252, 1386 - 1389.
- Cherlin, A., & Riley, N. (1986). *Adolescent fertility: An emerging issue in sub-Saharan Africa* Unpublished manuscript, Washington, DC.
- Clark, C. A., & Worthington, E. L. (1990). Family variables affecting the transmission of religious values from parents to adolescents: A review. In B. K. Barber & B. C. Rollins (Eds.), *Parent-adolescent relationships* (pp. 167 - 192). Lanham, Maryland: University Press of America.
- Cleland, J., Boerma, J. T., Carael, M., & Weir, S. S. (2004). Monitoring sexual behaviour in general populations: A synthesis of lessons of the past decade. *Sexually Transmitted Infections*, 80, ii1-ii7.
- Cleland, J., & Ferry, B. (1995). *Sexual behaviour and AIDS in the developing world*. London: Taylor & Francis.
- Cohen, B., Jessor, R., Reed, H., Lloyd, C., Behrman, J., & Lam, D. (2005). Conceptual framework. In National Research Council & Institute of Medicine (Eds.), *Growing up Global. The changing transitions to adulthood in developing countries* (pp. 32 - 63). Washington: The National Academies Press.

- Crockett, L. J., Bingham, C. R., Chopak, J. S., & Vicary, J. S. (1996). Timing of first sexual intercourse: The role of social control, social learning, and problem behavior. *Journal of Youth and Adolescence*, *25*, 89 - 111.
- Crockett, L. J., & Raffaelli, M. (2003). Adolescent sexuality: Behavior and meaning. In G. R. Adams & M. D. Berzonsky (Eds.), *Blackwell Handbook of Adolescence* (pp. 372 - 392). Malden, MA: Blackwell Pub.
- Curran, P., Hussong, A. M., Cai, L., Huang, W., Chassin, L., Sher, K. J., et al. (2008). Pooling data from multiple longitudinal studies: The role of item response theory in integrative data analysis. *Developmental Psychology*, *44*, 365-380.
- Davis, E. C., & Friel, L. V. (2001). Adolescent sexuality: Disentangling the effects of family structure and family content. *Journal of Marriage and the Family*, *63*, 669 - 681.
- Deković, M. (1999). Risk and protective factors in the development of problem behavior during adolescence. *Journal of Youth and Adolescence*, *28*, 667 - 685.
- Delaunay, V. (2001). Sexualité et fécondité des adolescents: Évolution récente en milieu rural sénégalais. In F. Gendreau (Ed.), *Les transitions démographiques des pays du Sud* (pp. 225 - 239). Paris: AUPELF-UREF.
- Demuth, S., & Brown, S. L. (2004). Family structure, family processes, and adolescent delinquency: The significance of parental absence versus parental gender. *Journal of Research in Crime and Delinquency*, *41*, 58 - 81.
- DiClemente, R. J., & Crosby, R. A. (2003). Sexually transmitted diseases among adolescents: Risk factors, antecedents, and prevention strategies. In G. R. Adams & M. D. Berzonsky (Eds.), *Blackwell Handbook of Adolescence* (pp. 573 - 605). Malden, MA: Blackwell

- DiClemente, R. J., Wingood, G. M., Crosby, R., Sionean, C., Cobb, B. K., & Harrington, K. (2003). Parental monitoring: Association with adolescents' risk behaviors. *Pediatrics, 107*, 1363-1368.
- DiClemente, R. J., Wingood, G. M., Crosby, R. A., Sionean, C., Cobb, B. K., Harrington, K., et al. (2001). Parent-adolescent communication and sexual risk behaviors among African American adolescent females. *The Journal of Pediatrics, 139*, 407 - 412.
- DiIorio, C., Resnicow, K., Thomas, S., Wang, D. T., Van Marter, D. F., & Lipana, J. (2002). Keepin' it R.E.A.L.!: Program description and results of baseline assessment. *Health Education & Behavior, 29*, 104 – 123.
- Diop-Sidibé, N. (2005). Siblings and the timing of first sex in three major cities of Côte d'Ivoire. *International Family Planning Perspectives, 31*, 54 - 62.
- Dittus, P., & Jaccard, J. (2000). Adolescents' perceptions of maternal disapproval of sex: relationships to sexual outcomes. *Journal of Adolescent Health, 26*, 268 - 278.
- Djamba, K. Y. (1997). Theoretical perspectives on female sexual behaviour in Africa: A review and conceptual model. *African Journal of Reproductive Health, 1*, 67 - 78.
- Djamba, K. Y. (2003). Social capital and premarital sexual activity in Africa: The case of Kinshasa, Democratic Republic of Congo. *Archives of Sexual Behavior, 32*, 327 - 337.
- East, L., Jackson, D., & O'Brien, L. (2006). Father absence and adolescent development: A review of literature. *Journal of Child Health Care, 10*, 283 - 295.
- Eaton, L., Flisher, A. J., & Aarø, L. E. (2003). Unsafe sexual behaviour in South African youth. *Social Science and Medicine, 56*, 149-165.
- Edwards, J. (1987). Changing Family structure and useful well-being: Assessing the future. *Journal of Family Issues, 8*(4), 355-372.



- Elbedour, S., Bart, W., & Hektner, J. (2007). The relationship between monogamous/polygamous family structure and the mental health of Bedouin Arab adolescents. *Journal of Adolescence, 30*, 213 - 230.
- Elbedour, S., Onwuegbuzie, A. J., Caridine, C., & Abu-Saad, H. (2002). The effects of polygamous marital structure on behavioral, emotional, and academic adjustment in children: A comprehensive review of literature. *Clinical Child and Family Psychology Review, 5*, 255 - 271.
- Ellis, B. J., Bates, J. E., Dodge, K. A., Fergusson, D. M., Horwood, L. J., Petit, G. S., et al. (2003). Does father absence place daughters at special risk for early sexual activity and teenage pregnancy. *Child Development, 74*, 801 - 821.
- Fatusi, A. O., & Blum, R. W. (2008). Predictors of early sexual initiation among a nationally representative sample of Nigerian adolescents *BMC Public Health, 8* doi 10.1186/1471 - 2458 - 8 - 136.
- Fergus, S., & Zimmerman, M. A. (2005). Adolescent resilience: A framework for understanding healthy development in the face of risk. *Annual Review of Public Health, 26*, 399-419.
- Ferry, B. (2001). L'activité sexuelle entre puberté et procréation au coeur des transitions du Sud. In F. Gendreau (Ed.), *Les transitions démographiques des pays du Sud* (pp. 213 - 224). Paris: AUPELF-UREF.
- Fitzgerald, A. M., Stanton, B. F., Terreri, N., Shipena, H., Li, X., Kahihuata, J., et al. (1999). Use of western-based HIV interventions targeting adolescents in African settings. *Journal of Adolescent Health, 25*, 52 - 61.
- Frauenglass, S., Routh, D. K., Pantin, H. M., & Mason, C. A. (1997). Family support decreases influence of deviant peers on Hispanic adolescents' substance use. *Journal of Clinical Child Psychology, 26*, 15-23.

- Furstenberg, F. F. (2000). The sociology of adolescence and youth in the 1990s: A critical commentary. *Journal of Marriage and the Family*, 62, 896 - 910.
- Gage, A. J. (1997). Household structure and childhood immunization in Niger and Nigeria. *Demography*, 34, 295 - 309.
- Gage, A. J. (1998). Sexual activity and contraceptive use: The components of the decision-making process. *Studies in Family Planning*, 29, 154-166.
- Garriguet, D. (2005). Early sexual intercourse. *Health Reports*, 16, 9 - 18.
- Gebhardt, W. A., Kuyper, L., & Greunsven, G. (2003). Need for intimacy in relationships and motives for sex as determinants of adolescent condom use. *Journal of Adolescent Health*, 33, 154-164.
- Gertler, P., Levine, D. I., & Ames, M. (2004). Schooling and parental death. *The Review of Economics and Statistics*, 86, 211 - 225.
- Glover, E. K., Bannerman, A., Pence, B. W., Jones, H., Miller, R., Weiss, E., et al. (2003). Sexual health experiences of adolescents in three Ghanaian towns. *International Family Planning Perspectives*, 29, 32 - 40.
- Godin, G. (1991). L'éducation pour la santé: les fondements psychosociaux de la définition des messages éducatifs. *Sciences sociales et santé*, 9(1), 67-94.
- Golfshani, N. (2003). Understanding reliability and validity in quantitative research. *The Quantitative Report*, 8, 597 - 607.
- Greeff, A. P., & van Der Merwe, S. (2004). Variables associated with resilience in divorced families. *Social Indicators Research*, 68, 59 - 75.
- Green, G., Pool, R., Harrison, S., Hart, G., Wilkinson, J., Nyanzi, S., et al. (2001). Female control of sexuality: illusion or reality? Use of vaginal products in south west Uganda. *Social Science & Medicine*, 52, 585-598

- Greene, W. H. (2003). *Econometric analysis*: Prentice Hall.
- Gueye, M., Castle, C., & Kani Konate, M. (2001). Timing of first intercourse among Malian adolescents: implications for contraceptive use. *International Family Planning Perspectives*, 27, 56 - 62.
- Gupta, N. (2000). Sexual initiation and contraceptive use among adolescent women in northwest Brazil. *Studies in Family Planning*, 31, 228 - 238.
- Gupta, N., & Mahy, M. (2003). Sexual Initiation Among Adolescents Girls and Boys: Trends and Differentials in Sub-Saharan Africa. *Archives of Sexual Behavior*, 32(1), 41-53.
- Gwatkin, D. R., & Deveshwar-Bahl, G. (2002). *Inequalities in HIV/AIDS knowledge: An overview of socioeconomic and gender differentials in developing countries*. Unpublished manuscript, Washington, D. C.
- Hallett, T., Lewis, J., Lopman, B. A., Nyamukapa, C. A., Mushati, P., Wambe, M., et al. (2007). Age at first sex and HIV infection in rural Zimbabwe. *Studies in Family Planning*, 38, 1-10.
- Hayley, A. H. (2005). Extended families and adolescent well-being. *Journal of Adolescent Health*, 36, 260 - 266.
- Heald, S. (2002). It's Never as Easy as ABC: Understandings of AIDS in Botswana. *African Journal of AIDS Research*, 1, 1 - 10.
- Heard, H. E. (2007). The family structure trajectory and adolescent school performance. *Journal of Family Issues*, 28, 319 - 354.
- Hetherington, E. M. (1972). Effects of father absence on personality development in adolescent daughters. *Developmental Psychology*, 7, 313 - 326.
- Hetherington, E. M., Camara, K., & Featherman, D. (1983). Achievement and intellectual functioning in children in one-parents households. In J. T. Spence (Ed.),

*Achievement and achievement motives : psychological and sociological approaches* (pp. 205 - 284). San Francisco: W.H. Freeman.

Hogan, D. P., & Kitagawa, E. M. (1985). The impact of social status, family structure and neighborhood on the fertility of Black Adolescents. *American Journal of Sociology*, 90, 825 - 855.

Holtzman, D., & Rubinson, R. (1995). Parent and peer communication on AIDS-related behavior among U.S. high school students. *Family Planning Perspectives*, 27, 235 - 240.

Huebner, A. J., & Howell, L. W. (2003). Examining the relationship between adolescent sexual risk taking and perceptions of monitoring, communication, and parenting styles. *Journal of Adolescent Health*, 33, 71 – 78.

Hutchinson, M. K., Jemmot, J. B., Jemmot, L. S., Braverman, P., & Fong, G. T. (2003). The role of mother-daughter sexual risk communication in reducing sexual risk behaviors among urban adolescent females: A prospective study. *Journal of Adolescent Health*, 33, 98 - 107.

Ingham, R. (1995). AIDS: Knowledge, awareness, and attitudes. In J. Cleland & B. Ferry (Eds.), *Sexual behaviour and AIDS in the developing world* (pp. 43 - 74). London ; Bristol, PA: Taylor & Francis.

Institut National de la Statistique (INS), & ORC Macro. (2004). *Enquête démographique et de santé du Cameroun 2004*. Claverton, Maryland, USA: INS & MACRO.

Isiugo-Abanihe, U. C., & Oyedirani, K. A. (2004). Household socioeconomic status and sexual behaviour among Nigerian female youth. *African Population Studies*, 19, 81 - 98.

Izugbara, C. O. (2008). Home-based sexuality education. *Youth & Society*, 39, 575 - 600.

- Jaccard, J., Dittus, P. J., & Gordon, V. V. (1996). Maternal correlates of adolescent sexual and contraceptive behavior. *Family Planning Perspectives, 28*, 159 - 165, 185.
- Jessor, R. (1991). Risk behavior in adolescence: A psychosocial framework for understanding and action. *Journal of Adolescent Health, 12*, 597-605.
- Jessor, R., Turbin, M. S., & Costa, F. M. (1998). Risk and protection in successful outcomes among disadvantaged adolescents. . *Applied Developmental Science, 2*, 194 - 208.
- Jewkes, R., Vundule, C., Maforah, F., & Jordaan, E. (2001). Relationship dynamics and teenage pregnancy in South Africa. *Social Science and Medicine, 52*, 733-744.
- Jewkes, R. K., Levin, J. B., & Penn-Kekana, L. A. (2003). Gender inequalities, intimate partner violence and HIV preventive practices: Findings of a South African cross-sectional study. *Social Science & Medicine, 56*, 125-134.
- Kabiru, C. W., & Orpinas, P. (2008). Factors associated with sexual activity among high-school students in Nairobi, Kenya. *Journal of Adolescence*, doi:10.1016/j.adolescence.2008.1008.1001.
- Kalichman, S. C., Simbayi, L. C., Kagee, A., Toefy, Y., Jooste, S., Cain, D. C., et al. (2006). Associations of poverty, substance use, and transmission risk behaviors in three South African communities. *Social Science & Medicine, 62*, 1641-1649.
- Kandem Kamgno, H. (2007). The evolution of gender relations in the Bamiléké and Béti societies of Cameroon. Arusha, Tanzania, December 10-14th, 2007: Paper presented at the 5th African Population Conference.
- Kaptue, L. (1998). Les adolescents et le VIH/Sida. In B. Kuate Defo (Ed.), *Sexualité et Santé reproductive durant l'adolescence en Afrique, avec une attention particulière sur le Cameroun* (pp. 287-295). Boucherville: Ediconseil inc.

- Karim, A. M., Magnani, R. J., Morgan, G. T., & Bond, K. C. (2003). Reproductive health risk and protective factors among unmarried youth in Ghana. *International Family Planning Perspectives, 29*, 14 - 24.
- Kauffmann, G., Clark, S., Manzini, N., & May, J. (2004). Communities, opportunities, and adolescents' sexual behaviour in KwaZulu-Natal, South Africa. *Studies in Family Planning, 35*, 261 - 274.
- Kauffmann, G., Lesthaeghe, R. J., & Meekers, D. (1989). The nuptiality regimes in sub-Saharan Africa. In R. J. Lesthaeghe (Ed.), *Reproduction and social organization in sub-Saharan Africa* (pp. 238 - 337). Berkeley: University of California Press.
- Kayembe, K. P., Mapatano, M. A., Busangu, F. A., Nyandwe, K., Y., Mashinda, K. D., Musema, M. G., et al. (2008). Correlates of ever had sex and of recent sex among teenagers and young unmarried adults in the Democratic Republic of the Congo. *AIDS and Behavior*(585 - 593).
- Kim, Y. M., Kols, A., Nyakuru, R., Marangwanda, C., & Chibatamoto, P. (2001). Promoting sexual responsibility among young people in Zimbabwe. *International Family Planning Perspectives, 27*, 11 - 19.
- King, R. (1999). *Sexual behavioural change for HIV: When have theories taken us?* Geneva: UNAIDS.
- Kinsman, J., & al. (2001). Evaluation of a comprehensive school-based AIDS education program in rural Masaka, Uganda. *Health Education Research, 16*, 85 - 100.
- Kinsman, S. B., Romer, D., Furstenberg, F. F., & Schwarz, D. F. (1998). Early sexual initiation: The role of peer norms. *Pediatrics, 102*, 1185 - 1192.
- Kirby, D. (2001). Understanding what works and what doesn't in reducing adolescent sexual risk-taking. *Family Planning Perspectives, 33*, 276 - 281.

- Kirk, J., & Miller, M. L. (1986). *Reliability and validity in qualitative research*. Beverly Hills: Sage Publications.
- Klepp, K. I., Ndeki, S. S., Leshabari, M. T., Hannan, P. J., & Lyimo, B. A. (1997). AIDS Education in Tanzania: Promoting risk education among primary school children. *American Journal of Public Health, 87*, 1931 - 1936.
- Kotchick, B. A., Shaffer, A., & Forehand, R. (2001). Adolescent sexual risk behavior: A multi-systemic perspective. *Clinical Psychology Review, 21*, 493-519.
- Kouinche, A., & Tagne, E. (1998). Traditional norms, beliefs and practices regarding adolescent sexuality in Bandjoun (western Cameroon). In B. Kuate Defo (Ed.), *Sexuality and Reproductive Health during Adolescence in Africa with a Special Attention to Cameroon* (pp. 109 - 117). Ottawa: University of Ottawa Press.
- Kuate Defo, B. (1998a). Emerging patterns in adolescent sexuality, fertility and reproductive health in Africa. In B. Kuate-Defo (Ed.), *Sexuality and reproductive health during adolescence in Africa with a special attention to Cameroon* (pp. 15 - 35). Ottawa: University of Ottawa Press.
- Kuate Defo, B. (1998b). *Enquête sur vie familiale, sexualité et santé reproductive au Cameroun (EFSR) 1996-1997. Caractéristiques de la population de Bandjoun*. Montréal: PRONUSTIC/Département de Démographie/Université de Montréal.
- Kuate Defo, B. (1998c). Trends and determinants of regional differences in premarital sexual initiation during adolescence. In B. Kuate-Defo (Ed.), *Sexuality and reproductive health during adolescence in Africa with a special attention to Cameroon* (pp. 121 - 140). Ottawa: University of Ottawa Press.
- Kuate Defo, B. (2004). Young people's relationships with sugar daddies and sugar mummies: What do we know and what do we need to know? . *African Journal of Reproductive Health, 8*, 13 - 37.

- Kuate Defo, B. (2005). Facteurs associés à la santé perçue et à la capacité fonctionnelle des personnes âgées dans la préfecture de Bandjoun au Cameroun. *Cahiers québécois de démographie*, 34, 1 - 46.
- Kuate Defo, B. (2006). Multilevel modeling of influences on transitions to adulthood in developing countries with special reference to Cameroon. In National Research Council & Institute of Medicine (Eds.), *The changing transitions to adulthood in developing countries: Selected studies* (pp. 367 - 422). Washington, D.C.: National Academies Press.
- Kuate Defo, B., & Lepage, Y. (1997). *Enquête sur vie familiale, sexualité et santé reproductive au Cameroun (EFSR) 1996-1997. Méthodologie de sondage*. Montréal: PRONUSTIC/Département de Démographie/Université de Montréal.
- Kumi-Kyereme, A., Awusabo-Asare, K., Biddlecom, A., & Tanle, A. (2007). Influence of social connectedness, communication and monitoring on adolescent sexual activity in Ghana. *African Journal of Reproductive Health*, 11, 133 - 147.
- Lalou, R., & Piché, V. (2007). Migration, HIV/AIDS knowledge, perception of risk and condom use in the Senegal river valley. In M. Caraël & J. R. Glynn (Eds.), *HIV, resurgent infections and population change in Africa* (pp. 171-194). Dordrecht: Springer.
- Langille, D. B., Curtis, L., Hughes, J., & Murphy, G. T. (2002). Contraception among young women attending high school students in rural Nova Scotia. *Canadian Journal of Public Health*, 93, 461 - 464.
- Langille, D. B., Curtis, L., Hughes, J., & Murphy, G. T. (2003). Association of socioeconomic factors with health risk behaviors among high school students in rural Nova Scotia. *Canadian Journal of Public Health*, 94, 442 - 447.
- Lefkowitz, E. S., Boone, T. L., & Shearer, C. L. (2004). Communication with best friends about sex-related topics during emerging adulthood. *Journal of Youth and Adolescence*, 33, 339-351.



- Leke, R. J. (1998). La santé reproductive des adolescents en Afrique Subsaharienne. In B. Kuate-Defo (Ed.), *Sexualité et santé reproductive durant l'adolescence en Afrique* (pp. 281-286). Québec: Ediconseil.
- Lenciauskiene, I., & Zaborskis, A. (2008). The effects of family structure, parent-child relationship and parental monitoring on early sexual behaviour among nine European countries. *Scandinavian Journal of Public Health, 36*, 607 - 618.
- Lesko, N. (2007). Talking about sex: The discourses of LoveLife peer educators in South Africa. *International Journal of Inclusive Education, 11*, 519 – 533.
- Li, X., Lin, C., Gao, Z., Stanton, B., Fang, X., Yin, Q., et al. (2004). HIV/AIDS knowledge and the implications for Health Promotion Programs among Chinese students: Geographic, gender and age differences *Health Promotion International, 19*, 345-356.
- Lloyd, C. B., & Desai, S. (1992). Children's Living Arrangements in Developing Countries. *Population Research and Policy Review, 11*(3), 193-216.
- London, A. S., & Robles, A. (2000). The co-occurrence of correct and incorrect knowledge and perceived risk for HIV among women of childbearing age in El Salvador. *Social Science and Medicine, 51*, 1267-1278.
- Lovel, H., Antwi, P., & Nottage, B. N. (1987). Yesterday's unwanted babies: Today's teenage pregnancies. *Lancet, 1*, 1036 - 1037.
- Luke, N. (2003). Age and economic asymmetries in the sexual relationships of adolescent girls in sub-Saharan Africa. *Studies in Family Planning, 34*, 67 - 86.
- Luthar, S. S., Cicchetti, D., & Becker, B. (2000). The construct of resilience: A critical evaluation and guidelines for future work. *Child Development, 71*, 543-562.
- Mackay, R. (2003). Family resilience and good child outcomes: An overview of the research literature. *Social Policy Journal of New Zealand, 20*, 98-118.

- MacLachlan, & al. (1997). AIDS education for youth through active learning: A school-based approach from Malawi. *International Journal of Educational Development*, 17, 41 - 50.
- Madise, N., Zulu, E., & Ciera, J. (2007). Is poverty a driver for risky sexual behaviour? Evidence from national surveys of adolescents in four African countries. *African Journal of Reproductive Health*, 11, 83-98.
- Magnani, R. J., Karim, A. M., Weiss, L. A., Bond, K. C., Lemba, M., & Morgan, G. T. (2002). Reproductive health risk and protective factors among youth in Lusaka, Zambia. *Journal of Adolescent Health*, 30, 76 - 86.
- Manning, W., Longmore, M., & Giordano, P. (2000). The relationship context of contraceptive use at first intercourse. *Family Planning Perspectives*, 32, 104 - 110.
- Marie, A. (1997). Les structures familiales à l'épreuve de l'individualisation. In M. Pilon, T. Loco, É. Vignikin & P. Vimard (Eds.), *Ménages et familles en Afrique. Approches des dynamiques contemporaines* (pp. 279 - 300). Paris: CEPED.
- Masanjala, W. (2007). The poverty-HIV/AIDS nexus in Africa: A livelihood approach. *Social Science and Medicine*, 64, 1032 - 1041.
- Mashamba, A., & Robson, E. (2002). Youth reproductive health services in Bulawayo, Zimbabwe. *Health & Place*, 8, 273 - 283.
- Maswanya, E., Moji, K., Aoyagi, K., Yahata, Y., Kusano, Y., Nagata, K., et al. (2000). Knowledge and attitudes toward AIDS among female college students in Nagasaki, Japan. *Health Education Research*, 15(1), 5 - 11.
- McBride, D. C., Freier, M. C., Hopkins, G. L., Babikian, T., Richardson, L., Helm, H., et al. (2005). Quality of parent-child relationship and adolescent HIV risk behaviour in St. Marten. *AIDS Care*, 17, S45 - S54.

- McLanahan, S. (1988). Family structure and dependency: Early transitions to female household headship. *Demography*, 25(1), 1 - 16.
- Meekers, D. (1994). Sexual initiation and premarital childbearing in sub-Saharan Africa. *Population Studies*, 48, 47 - 67.
- Meekers, D., Agha, S., & Klein, M. (2005). The impact on condom use of the "100% Jeune" Social marketing program in Cameroon. *Journal of Adolescent Health*, 36, 530.e531 - 530.e512.
- Meekers, D., & Ahmed, G. (1999). Pregnancy-related school drop-outs in Botswana. *Population Studies*, 53, 195 - 209.
- Meekers, D., & Ahmed, G. (2000). Contemporary patterns of adolescent sexuality in urban Botswana. *Journal of Biosocial Science*, 32, 467 - 485.
- Meekers, D., & Calvès, A. E. (1997). Main girlfriends, girlfriends, marriage, and money: the social context of HIV risk behaviour in sub-Saharan Africa. *Health Transition Review, Supplement 7*, 361 - 375.
- Meekers, D., & Calvès, A. E. (1999). Gender differentials in adolescent sexual activity and reproductive health risks in Cameroon. *African Journal of Reproductive Health*, 3, 51 - 67.
- Meekers, D., & Klein, M. (2002). Determinants of condom use among young people in urban Cameroon. *Studies in Family Planning*, 33, 335-346.
- Mensch, B. S., Grant, M. J., & Blanc, A. K. (2006). The changing context of sexual initiation in sub-Saharan Africa. *Population and Development Review*, 32, 699 - 724.
- Michaud, P. A. (2006). Adolescents and risks: Why not change our paradigm? *Journal of Adolescent Health*, 38, 481 - 483.

- Miller, B. C. (2002). Family influences on adolescent sexual and contraceptive behavior. *The Journal of Sex Research, 39*, 22 - 26.
- Miller, B. C., Benson, B., & Galbraith, K. A. (2001). Family relationships and adolescent pregnancy risk: A research synthesis. *Developmental Review, 21*, 1 - 38.
- Miller, B. C., & Bingham, C. R. (1989). Family configuration in relation to the sexual behavior of female adolescents. *Journal of Marriage and the Family, 51*, 499 - 506.
- Miller, B. C., McCoy, J. K., Olson, T. D., & Wallace, C. M. (1986). Parental discipline and control attempts in relation to adolescent sexual attitudes and behavior. *Journal of Marriage and the Family, 48*, 503 - 512.
- Miller, B. C., Norton, M. C., Curtis, T., Hill, E. J., Schvaneveldt, P., & Young, M. H. (1997). The timing of sexual intercourse among adolescents: Family, peer, and other antecedents. *Youth & Society, 29*, 54 - 83.
- Namisi, F. S., Flisher, A. J., Overland, S., Bastien, S., Onya, H., & Kaaya, S. (2008). Sociodemographic variations in communication on sexuality and HIV/AIDS with parents, family members and teachers among in school-adolescents: a multi-site study in Tanzania and South Africa. *Scandinavian journal of public health*, doi: 10.1177/1403494807086986.
- National Research Council, & Institute of Medicine. (2005). *Growing up global: The changing transitions to adulthood in developing countries*. Washington, D.C: he National Academy Press.
- Ngom, P., Magadi, M. A., & Owuor, T. (2003). Parental presence and adolescent reproductive health among the Nairobi urban poor. *Journal of Adolescent Health, 33*, 369 - 377.
- Nichols, D., Ladipo, O. A., Paxman, J. M., & Otolorin, E. O. (1987). Sexual behavior, contraceptive Use, and reproductive health among Nigerian adolescents. *Studies in Family Planning, 17*, 100 - 106.

- Njikam Savage, O. M. (2005). Risky sexual behavior, sexually transmitted infections, HIV/AIDS and health promotion among students in the University of Douala. *African Population Studies*, 20, 53 - 67.
- Nkya, G. M., Sindato, C., Mcharo, J., & Kibona, S. N. (2006). Community knowledge on HIV/AIDS and its relationship with sexual practices in Tabora and Igunga Districts, western Tanzania. *Tanzania Health Research Bulletin*, 8, 173-176.
- Noller, P., & Callan, V. (1991). *The adolescent in the Family*. New York: Routledge.
- Nsamenang, A. B. (2000). *Fathers, families, & child well-being in Cameroon: A review of literature*. Philadelphia: National Center on Fathers and Families.
- Odimegwu, C. O., Solanke, L. B., & Adedokun, A. (2002). Parental characteristics and adolescent sexual behavior in Bida local government area of Niger state. *African Journal of Reproductive Health*, 6, 95-106.
- Olsson, C. A., Bond, L., Burns, J. M., Vella-Brodrick, D. A., & Sawya, S. M. (2003). Adolescent resilience: A concept analysis. *Journal of Adolescence*, 26, 1 - 11.
- Omariba, D. W., & Boyle, M. H. (2007). Family structure and child mortality in Sub-Saharan Africa: Cross-national effects of polygyny. *Journal of Marriage and Family*, 69, 528 - 543.
- Ott, M. A., Millstein, S. G., Ofner, S., & Halpern-Felsher, B. L. (2006). Greater expectations: Adolescents' positive motivations for sex. *Perspectives on Sexual and Reproductive Health*, 38, 84 - 89.
- Parke, R. D., Morris, K., Shofield, T., Leidy, M., Miller, M., & Flyr, M. (2006). Parent-child relationships: Contemporary perspectives. In P. Noller & J. A. Feeney (Eds.), *Close relationships : Functions, forms and processes* (pp. 89 - 110). New York: Psychology Press.

- Parsons, J. T., Halkitis, P. N., Bimbi, D., & Borkowski, T. (2000). Perceptions of the benefits and costs associated with condom use and unprotected sex among late adolescent college students. *Journal of Adolescence, 23*, 377 - 391.
- Patterson, J. M. (2002). Understanding family resilience. *Journal of Clinical Psychology, 58*, 233 - 246.
- Pearson, J., Muller, C., & Frisco, M. L. (2006). Parental Involvement, Family Structure, and Adolescent Sexual Decision-Making. *Sociological Perspectives, 49*(1), 67-90.
- Peltzer, K., & Promptussananon, S. (2005). HIV/AIDS knowledge and sexual behavior among junior secondary school students in South Africa. *Journal of Social Sciences, 1*, 1 - 8.
- Pequegnat, W., Baunan, L. J., Bray, J. H., Diclemente, R. J., Dilorio, C., Hoppe, S. K., et al. (2001). Measurement of the role of families in prevention and adaptation to HIV/AIDS. *AIDS and Behavior, 5*, 1 - 10.
- Pequegnat, W., & Szapocznik, J. (2000). The role of families in preventing and adapting to HIV/AIDS: Issues and answers. In W. Pequegnat & J. Szapocznik (Eds.), *Working with families in the era of HIV/AIDS* (pp. 3 - 26). California: Thousand Oaks.
- Perkins, D. F., Luster, T., Villarruel, F. A., & Small, S. A. (1998). An ecological, risk-factor examination of adolescents' sexual activity in three ethnic groups. *Journal of Marriage and the Family, 60*, 660 - 673.
- Perrino, T., González-Soldevilla, A., Pantin, H., & Szapocznik, J. (2000). The role of families in adolescent HIV prevention: A review. *Clinical Child and Family Psychology Review, 3*, 81 - 96.
- Pettifor, A. E., van der Straten, A., Dumbar, M. S., Shiboski, S. C., & Padian, N. S. (2004). Early age of first sex: A risk factor for HIV infection among women in Zimbabwe. *AIDS, 18*, 1435 - 1442.

- Piaget, J. (1976). *The psychology of intelligence*. Totowa, N. J.: Little Adams and CO.
- Pillai, V. K., & Gupta, R. (2000). Modeling sexual activity among schoolgirls in Zambia. *Journal of Family Issues, 21*, 170 - 190.
- Popenoe, D. (1993). American family decline, 1960-1990: A review and appraisal. *Journal of Marriage and the Family, 55*, 527 - 542.
- Prata , N., Vahidnia, F., & Fraser, A. (2005). Gender and relationship differences in condom use among 15-24-year-olds in Angola. *International Family Planning Perspectives, 31*, 192 - 199.
- Rai, A. A., Stanton, B., Wu, Y., Li, X., Galbraith, J., Cottrell, L., et al. (2003). Relative influences of perceived parental monitoring and perceived peer involvement on adolescent risk behaviors: Analysis of six cross-sectional data sets. *Journal of Adolescent Health, 33*, 108 - 118.
- Randolph, M. E., Pinkerton, S. D., Bogart, L. M., Cecil, H., & Abramson, P. R. (2007). Sexual pleasure and condom use. *Archives of Sexual Behavior, 36*, 844 - 848.
- Regnerus, M. D., & Luchies, L. B. (2006). The parent-child relationships and opportunities for adolescents' first sex. *Journal of Family Issues, 27*, 159 - 183.
- Rew, L., & Horner, S. D. (2003). Youth resilience framework for reducing health-risk behaviors in adolescents. *Journal of Pediatric Nursing, 18*, 379 - 388.
- Roche, K. M., Mekos, D., Alexander, C. S., Astone, N. M., Bandeen-Roche, K., & Ensminger, M. E. (2005). Parenting influences on early sex initiation among adolescents: How neighborhood matters. *Journal of Family Issues, 26*, 32 - 54.
- Rocher, G. (1968). *Introduction à la sociologie générale*. Montréal: HMH.

- Rostosky, S. S., Wilcox, B. L., Comer Wright, M. L., & Randall, B. A. (2004). The impact of religiosity on adolescent sexual behaviour: A review of the evidence. *Journal of Adolescent Research, 19*, 677 - 697.
- Rutter, M. (1993). Resilience: Some conceptual considerations. *Journal of Adolescent Health, 14*, 626 - 631.
- Rutter, M., & Hay, D. F. (1994). *Development through life. A handbook for clinicians*. Oxford: Blackwell Scientific Publications.
- Rwenge, M. (1999). Facteurs contextuels de la transmission sexuelle du sida en Afrique subsaharienne : une synthèse. In C. Becker, J. P. Dozon, C. Obbo & M. Touré (Eds.), *Vivre et penser le sida en Afrique* (pp. 217 - 236). Dakar: CODESRIA.
- Rwenge, M. (2003). Poverty and sexual risk behaviour among young people in Bamenda, Cameroon. *African Population Studies, 18*, 91 - 104.
- Rwenge, M. (2004). Les différences ethniques des comportements sexuels au Cameroun: l'exemple des Bamiléké et Bété. *African Population Studies, 19*, 159 - 191.
- Sanderson, C. A., & Cantor, N. (1995). Social dating goals in late adolescence: Implications for safer sexual activity. *Journal of Personality and Social Psychology, 68*, 1121 - 1134.
- Sarker, M., Milkowski, A., Slinger, T., Gondos, A., Sanou, A., Kouyate, B., et al. (2005). The role of HIV-related knowledge and ethnicity in determining HIV perception and willingness to undergo HIV testing among rural women in Burkina Faso. *AIDS and Behavior, 9*, 243 - 249.
- Sarker, M., Neckermann, C., & Müller, O. (2005). Assessing the health status of young AIDS and other orphans in Kampala, Uganda. *Tropical Medicine and International Health, 10*, 210 - 215.



- Schneider, B., Atteberry, A., & Owens, A. (2005). *Family matters: Family structure and child outcomes*. Alabama: Alabama Policy Institute.
- Schofield, M. (1971). The sexual behaviour of young people. In J. Medawar & D. Pyke (Eds.), *Family planning* (pp. 173 - 178). Harmondsworth: Penguin.
- Schonfeld, D. J. (2000). Teaching young children about HIV and AIDS. *Child and Adolescent Clinics of North America, 9*, 375 - 387.
- Shafii, T., Stovel, K., Davis, R., & Holmes, K. (2004). Is condom use habit forming? Condom use at sexual debut and subsequent condom use. *Sexually Transmitted Diseases, 31*, 366 - 372.
- Shek, D. T. L. (1998). Linkage between marital quality and parent-child relationship. *Journal of Family Issues, 19*, 687 - 704.
- Sigelman, C. K., Derenowski, E. B., Mullaney, H. A., & Siders, A. T. (1993). Parents' contributions to children's knowledge and attitudes regarding AIDS. *Journal of Pediatric Psychology, 18*, 221 - 235.
- Sigelman, C. K., Mukai, T., Woods, T., & Alfred, C. (1995). Parents' contributions to children's knowledge and attitudes regarding AIDS: Another look. *Journal of Pediatric Psychology, 20*, 61 - 77.
- Silver, E. J., & Bauman, L. J. (2006). The association of sexual experience with attitudes, beliefs, and risk behaviors of inner-city adolescents. *Journal of Research on Adolescence, 16*, 29 - 45.
- Simons, L. G., Chen, Y., Simons, R. L., Brody, G., & Cutrona, C. (2006). Parenting practices and child adjustment in different types of households. A study of African American families. *Journal of Family Issues, 27*, 803 - 825.

- Slap, G. B., Lot, L., Huang, B., Daniyam, C. A., Zink, T. M., & Succop, P. A. (2003). Sexual behaviour of adolescents in Nigeria: Cross-sectional survey of secondary school students. *BMJ*, *236*, 1 - 6.
- Small, S. A., & Luster, T. (1994). Adolescent sexual activity: An ecological risk-factor approach. *Journal of Marriage and the Family*, *56*, 181 - 192.
- Snelling, D., Walter Rasugu Omariba, D., Hong, S., Georgiades, K., Racine, Y., & Boyle, M. H. (2007). HIV/AIDS knowledge, women's education, epidemic severity and protective sexual behaviour in low- and middle-income countries. *Journal of Biosocial Science*, *39*, 421 - 442.
- Song, A., Richters, J., Crawford, J., & Kippax, S. (2005). HIV and sexual health knowledge and sexual experience among Australian-born and overseas-born students in Sydney. *Journal of Adolescent Health*, *37*, 243.e249 – 243.e214.
- Songué, P. B. (1998). Influence du milieu social sur la sexualité des adolescents. In B. Kuate-Defo (Ed.), *Sexualité et Santé reproductive durant l'adolescence en Afrique, avec une attention particulière sur le Cameroun* (pp. 117-199). Québec: Ediconseil inc.
- Speizer, I. S., Magnani, R. J., & Colvin, C. E. (2003). The effectiveness of adolescent reproductive health interventions in developing countries: A review of the evidence. *Journal of Adolescent Health*, *33*, 324 - 348.
- Stanton, B., Li, X., Black, M., Ricardo, I., Galbraith, J., Kaljee, L., et al. (1994). Sexual practices and intentions among preadolescent and early adolescent low-income urban African-Americans *Pediatrics*, *93*, 966 - 973.
- Stanton, B. F., Li, X., Kahihuata, J., Fitzgerald, A. M., Neumbo, S., Kanduumombe, G., et al. (1998). Increased protected sex and abstinence among Namibian youth following a HIV risk reduction intervention: A randomization longitudinal study. *AIDS*, *12*, 2473 - 2480.

- Stephenson, R., Baschieri, A., Clements, S., Hennink, M., & Madise, N. (2007). Contextual influences on modern contraceptive use in sub-Saharan Africa. *American Journal of Public Health, 97* 1233 - 1240.
- Sun, G. W., & Kay, G. L. (1996). Inappropriate use of bivariable analysis to screen risk factors for use in multivariable analysis. *Journal of Clinical Epidemiology, 49*, 907 - 916.
- Takyi, B. K. (2003). Religion and women's health in Ghana: Insights into HIV/AIDS preventive and protective behavior. *Social Science & Medicine, 56* 1221 - 1234.
- Tambashe, B. O., & Shapiro, D. (1996). Family background and early life course transitions in Kinshasa. *Journal of Marriage and the Family, 58*, 1029 - 1037
- Tan, X., Pan, J., Zhou, D., Wang, C., & Xie, C. (2007). HIV/AIDS knowledge, attitudes and behaviors assessment of Chinese students: A questionnaire study. *Journal of Environmental Research and Public Health, 4*, 248 - 253.
- Thompson, E., McLanahan, S., & Curtin, R. B. (1992). Family structure, gender, and parental socialization. *Journal of Marriage and the Family, 54*, 368 - 378.
- Thornton, A., & Camburn, D. (1987). The influence of the family on premarital sexual attitudes and behaviour. *Demography, 24*, 323 - 340.
- Thurman, T. R., Brown, L., Richter, L., Maharaj, P., & Magnani, R. (2006). Sexual risk behavior among South African adolescents: Is orphan status a factor? *AIDS and Behavior, 10*, 627 - 635.
- Tinsley, B. J., & Lees, N. B. (2004). Child and adolescent HIV risk: Familial and cultural perspectives. *Journal of Family Psychology, 18*, 208 - 224.
- Townsend, K. C., & McWhirter, B. T. (2005). Connectedness: A review of the literature with implications for counseling, assessment, and research. *Journal of Counseling and Development, 83*, 191 - 201.

- Tschann, J. M., Adler, N. E., Millstein, S. G., Gurvey, J. E., & Ellen, J. M. (2002). Relative power between sexual partners and condom use among adolescents. *Journal of Adolescent Health, 31*, 17 - 25.
- Türmen, T. (2003). Gender and HIV/AIDS. *International Journal of Gynecology and Obstetrics, 82*, 411 - 418.
- UNAIDS, UNICEF, & WHO. (2004). *Cameroon: Epidemiological Fact Sheet on HIV/AIDS and Sexually Transmitted Diseases, 2004 Update*.
- Undie, C., Crichton, J., & Zulu, E. (2007). Metaphors we love by: Conceptualizations of sex among young people in Malawi. *African Journal of Reproductive Health, 11*, 221 - 235.
- United Nations. (2008). *The Millennium Development Goals Report*. New York.
- Upchurch, D. M., Aneshensel, C. S., Sucoff, C. A., & Levy-Storms, L. (1999). Neighborhood and family contexts of adolescent sexual activity. *Journal of Marriage and the Family, 61*, 920 - 933.
- Upchurch, D. M., Levy-Storms, L., Sucoff, C. A., & Aneshensel, C. S. (1998). Gender and ethnic differences in the timing of first sexual intercourse. *Family Planning Perspectives, 30*, 121 - 127.
- VanLandingham, M., Grandjean, N., Suprasert, S., & Sittitrai, W. (1995). Two views of sexual practices among northern Thai males: The health belief model and the theory of reasoned action. *Journal of Health and Social Behavior, 36*, 195 - 212.
- VanLandingham, M., Grandjean, N., Suprasert, S., & Sittitrai, W. (1997). Dimensions of AIDS knowledge and risky sexual practices: A study of Northern Thai males. *Archives of Sexual Behavior, 26*, 269 - 293.
- Verhoef, H. (2005). 'A child has many mothers'. Views of child fostering in Northwestern Cameroon. *Childhood, 12*, 369 - 390.

- Vukovic, D. S., & Bjegovic, V. M. (2007). Brief report: Risky sexual behavior of adolescents in Belgrade: Association with socioeconomic status and family structure. 869 - 877.
- Walsh, F. (2002). Family resilience framework: Innovative practice applications. *Family Relations, 51*, 130 - 137.
- Walsh, F. (2003). Family resilience: A framework for clinical practice. *Family Process, 42*, 1 - 18.
- Weir, S. S., Roddy, R. E., Zekeng, L., Ryan, K. A., & Wong, E. L. (1998). Measuring condom use: Asking "do you or don't you" isn't enough. *AIDS Education and Prevention, 10*, 293 - 302.
- Wen, M. (2008). Family structure and children's health and behavior. *Journal of Family Issues, 29*, 1492 - 1519.
- Westoff, C. F. (2003). *Trends in marriage and early childbearing in developing countries* (No. 5). Claverland, Maryland: ORC Macro.
- Whitaker, D. J., & Miller, K. S. (2000). parent-adolescent discussions about sex and condoms: Impact on peer influences of sexual risk behavior. *Journal of Adolescent Research, 15*, 251 - 273.
- WHO. (2007a). *Helping developing countries improve adolescents' health*. Geneva.
- WHO. (2007b). *Summaries of the projects assisting the parents of adolescents*. Geneva.
- Wight, D., Williamson, L., & Henderson, M. (2006). Parental influences on young people's sexual behaviour: A longitudinal analysis. *Journal of Adolescence, 29*, 473 - 494.
- Wilson, W. J. (1987). *The truly disadvantaged : the inner city, the underclass, and public policy*. Chicago: University of Chicago Press.

- Wingood, G. M., & DiClemente, R. J. (2000). Application of the theory of gender and power to examine HIV-related exposures, risk factors, and effective interventions for women. *Health Education & Behavior, 27*, 539 - 565.
- Wojtkiewicz, R. A. (1994). Parental structure experiences of children: Exposure, transitions, and type at birth. *Population Research and Policy Review, 13*, 141 - 159.
- Wolff, B., Blanc, A. K., & Gage, A. J. (2000). Who decides? Women's status and negotiation of sex in Uganda *Culture, Health & Sexuality, 2*, 303 - 322.
- Wu, G. H., Chong, M. Y., Cheng, A. T. A., & Chen, T. H. H. (2007). Correlates of family, school, and peer variables with adolescent substance use in Taiwan. *Social Science and Medicine, 64*, 2594 - 2600.
- Wu, L. L. (1996). Effects of family instability, income, and income instability on the risk of a premarital birth. *American Sociological Review, 61*, 386 - 406.
- Wu, L. L., & Martinson, B. C. (1993). Family structure and the risk of a premarital birth. *American Sociological Review, 58*, 210 - 232.
- Wu, L. L., & Thomson, E. (2001). Race differences in family experience and early sexual initiation: Dynamic models of family structure and family change. *Journal of Marriage and the Family, 63*, 682 - 696.
- Zaba, B., Pisani, E., Slaymaker, E., & Boerma, J. T. (2004). Age at first sex: Understanding recent trends in African demographic surveys. *Sexually Transmitted Infections, 80*, ii28 - ii35.
- Zabin, L. S., & Kiragu, K. (1998). The health consequences of adolescent sexual and fertility behavior in sub-Saharan Africa. *Studies in Family Planning, 29*, 210 - 232.
- Zellner, S. L. (2003). Condom use and the accuracy of AIDS in Côte d'Ivoire. *International Family Planning Perspectives, 29*, 41 - 47.