# How are the girls and their mothers in Merida, Yucatan when father is absent in the family?

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## ABSTRACT

*Background: "Father absence" and its consequent impacts on family socioeconomic status (SES), children's growth are important issues in human bio-social research. Objectives: The present study aimed at understanding differential height growth, rate of stunting, age at menarche (AAM, early or not early) of school-going girls and their family SES in cases of presence and absence of fathers in families. Methods: A mixed-longitudinal study was done during 2009-10 and 2010-11 among 9 to 17 year-old 540 girls in Merida, Yucatan. Participants of the study were 9-15 year-old 87 girls whose menarche occurred in between first and second rounds of the survey. Based on civil condition of the parents, girls had either both parents (63 cases) or only mother (24 cases) in the family. Retrospective information of AAM and prevalence of stunting (short height for age) were recorded. Early menarche (EM) was < 12 years of age. SES indicators included: crowding index (CI= number of family members/number of bedrooms in a house), mother's education (secondary or above) and occupation (housewife or working), daughter's school type (public or private). Results: Higher proportions of crowded families (CI≥ 3.0), working mothers with secondary education, daughters studying in public schools, stunting, and not EM were associated with father absence. Conclusion: Situation of girls and mothers were worse in absence of father.*

*KEYWORDS: Father absence; daughter's early menarche; stunting; mother's education; occupation.*

## INTRODUCTION

"Father absence" or single parenthood of mother includes cases of pregnancy without social or legal marriage, divorce, separation (legally or other reasons), and death of spouse.

In general, family without father is a particular situation when the children, especially the daughters face several crises in their familial and societal life. Multiple factors influence and contribute to the vulnerability in the form of several physiological and psychological disturbances in the life of the daughter, more precisely during their adolescence (East et al., 2006).

Daughter's growth and sexual development gets influenced by divorce or separation of her parents. Sisters of same biological parents sharing similar environment, race and religion were studied and younger sisters in disrupted families were observed to reach puberty earlier (Tither & Ellis, 2008). Belsky-Draper hypothesis (Belsky et al., 2010) model suggests that negative or stressful psychosocial experiences (divorce, abandonment, intense parental disagreements, low resources, social stigma, or other stressors) in early childhood condition to pursue faster life history strategies compared to others who experience positive rearing environments. In a study among 83 girls aged 11 to 14 yrs, no significant difference of mean height between girls (with or without father) was found. Girls without father were taller than other group (Maestripieri et al., 2004).

Rapid social and economic change in Mexico increasing the number of divorce or separation and woman-headed single-parent families, and more and more children are growing up in father absence (González de la Rocha, 1997; INEGI, 2005). In the present study we aimed to examine:

1) The presence or absence of father and differential socioeconomic background of the families with respect to mother's age, education and occupation, daughter's school type (public or private), and family crowding.
2) Daughter's early and not early menarche, differential height growth in two rounds of surveys (with a gap of one year) in families with either single parent mother or both parents.

**MATERIALS AND METHODS**

A twice conducted study during 2009-10 and 2010-11 (with a gap of one year $\pm$ 7 days) of mixed longitudinal type, designed a sample of 540 girls between 9 and 17 years of age from public and private schools in the city of Merida, Yucatan, Mexico. There was no

selection bias for zone within Merida, school, and participants. Between the first and second rounds of the survey, menarche occurred in 87 of the studied girls aged 9 to 15 years. Age at menarche (AAM) data was collected retrospectively using a pre-tested questionnaire. Early menarche (EM) was defined as when a girl experienced her first menstruation before her 12th birthday (Must et al., 2005); 35 participants fell within this category. Therefore, not early menarche (NEM) was defined as age at menarche (AAM) at or after the 12th birthday. Based on civil condition of the parents, 87 girls had either both parents (father and mother, 63 cases) or only mother (father absence, 24 cases) in the family. Selected proxy indicators of socioeconomic status (SES) were used as correlates in the study. Crowding index (CI) was defined as: number of family members/number of bedrooms in a house. Households with crowding index < 3 was considered without crowding; between 3 and 5 as low crowding; and >5 as crowded (Curiel et al., 2005). Education of mothers had two levels: 1) secondary, 2) high school and above. No mother was illiterate in the sample. Mother's occupation was viewed as either housewife or working.

Height (cm) was measured to the nearest one-tenth of a cm using a standard stadiometer (Seca, Hamburg, Germany, model with platform). Z-scores of height for age was calculated and participants were classified as stunted when they had <-2 standard deviation (SD) for height-for-age HAZ (de Onis et al., 2007). The study protocol was approved by the Bioethics Committee of Cinvestav-IPN. School authorities, the Secretary of Education of the State of Yucatan and participants' legal guardian (particularly mother) gave verbal and written informed consent before the commencement of the study.

Continuous data were described as means (± SD) and frequencies (%). Significant difference between independent samples (EM and NEM) was tested with a Student's *t*-test. Relation between variables was assessed using a non-parametric Chi-square ($\chi^2$) test. All analyses were run with the SPSS software package version 13.0 (Chicago IL, USA), and statistical significance assessed using a 0.05 alpha level.

## RESULTS

**Family background and SES**:

Between two rounds of surveys, rates of civil conditions of the parents did not vary significantly (*p*> 0.05). Girls (n= 87) had parents (presence of father and mother: 63 cases or

72.40%) or only mother (father absence 24 cases or 27.60%). Rate of crowding (CI> 3.0) in the families was higher in families where mother was single parent (45.83%) that was significantly different ($\chi^2$ = 15.41, $p<$ 0.05) from the families with both parents (10.05%). Single parent mothers were less educated (33.33% high school and above) than mothers staying with their husbands (44.44% high school and above). Higher proportion of mothers were housewives (47.62%) in the families where both parents were present compared to the single mothers as housewives (20.83%) ($\chi^2$ = 14.96, $p<$ 0.05). When father was present in the family, daughters studying in private schools were higher (38.10%) than daughters in father absence (12.50%)  ($\chi^2$ = 16.67, $p<$ 0.05). Rate of early menarche of girls was higher (47.62%) in families where both parents were present in comparison with their age-peers having father absence (41.67%) (Table 1).

**Daughter' growth and age at menarche:**

Mean age of the girls (n= 87) increased by one year between the first round (11.67 ± 1.18 yrs; range: 9.08 and 14.87 yrs) and second (12.66 ± 1.18 yrs; range: 10.09 and 15.86 yrs) (Table 2). Mean age of girls with or without father in the family did not vary significantly ($p>$ 0.05). Median age at menarche was 12 yrs, irrespective of parent's civil conditions. Mean age at menarche of the girls (11.63 ± 1.19 yrs) also did not vary between sections with and without father. Mean height of the girls (first round: 144.73 ± 7.59 yrs; second round: 149.52 ± 7.04 yrs) increased more than 4.5 cm in a gap of one year. However, no significant difference ($p>$ 0.05) of mean height was observed between girls in father absence or presence. Mean z-scores of height for age of the girls were within normal range (Table 2). Rate of stunting in either round of the survey, was consistently lower among girls who had both parents than girls with father absence (Table 1). Families with both parents had lower mean CI (2.37) than families having father absence (2.97) with significant difference ($p<$ 0.05) (Table 2).

**DISCUSSION**

No recent study was found similar to the present one from Mexico. A study reported that over a period of 20 years, from 1970 to 1990 in Mexico, households headed by women increased from 15.3 % to 17.3 % (using information from the censuses of 1970 and 1990). Between 1976 and 1990, female-headed families in Mexico also increased by 3.2%.

(González de la Rocha, 1997). Studies carried out in the Metropolitan City of Guadalajara in Mexico evidenced greater vulnerability of female-headed households. Those families were not only poorer but were also characterized by remarkable social isolation, what made them different from neighboring male-headed households and were much less able to obtain resources belonging to social networks (González de la Rocha, 1986, 1988). There was a clear trend of increase of divorce (0.4%) and separated women (2%) and decrease of widows (3%) between 1960 and 1990 (López-Barajas & Haydea-Izazola, 1994). In that report, women were found as head of an extended family (26.5%) in comparison with that headed by a male member (15.4%). On the other hand, in nuclear families, male headship (79.1%) exceeded the rate (55%) when a nuclear family was headed by a female member. This demographic index showed that couple preferred to have nuclear family headed by the father. Whereas, father absence led to the association of mother with other relatives in order to maintain security. In a family, in presence of both parents (working), father is the head but in case of father absence, head will be the mother (either working or not). In our present study, it was also found that families were more crowded in absence of father.

Rate of women participation in economic activities also remarkably increased in Mexico between 1994 and 2002 with respect to: working women (6.5%), family headship (5.2%), and principal earning member (2.4%). Therefore, independent of relatively poorer social condition in families in case of father absence is the fact, women participation in education and occupation has increased in society (INEGI, 2005). Our study also reported that proportion of working mother was higher in father absence.

Higher educational levels of the parents are associated with earlier menarche (Hernández et al., 2007; Wronka, 2010; Wronka & Pawlinska-Chmara, 2005). EM among urban Mexican adolescents was found to be associated with high socioeconomic background (Torres-Mejía et al., 2005). In the present study, rate of EM was higher among daughters, who had both parents. The fact was however, opposite to another report (Tither & Ellis, 2008). In the present context, SES of the families in presence of both parents was higher, as evidenced by higher educational levels of the mothers, and less crowding in the household.

In general, school type could be considered as an effective indicator of SES of families. It is common that in families residing in the relatively bigger cities in Mexico, and having substantial monthly income and thereby can afford higher monthly tuition fees;

parents generally prefer private school education for children in view of better education (De La Colina, 2010). In cases of families with lower income (for example, in the context of father absence), have as only option for their children to get enrolled in public schools, where education is free. However, this choice for public or private schools for children is sensitive because parents with higher family income often prefer public schools education for their children. In our study, daughters were enrolled in private schools when both parents were present, indicating families having better SES.

To summarize, it is evident that we need to identify those potential sources that generate and inflict physical and emotional hazards to the children, especially daughters in "father absence". Recommended public policy will include divorce intervention for parents, early referral for nutritional and psychological therapy for the children especially adolescent daughters, and introducing social awareness programs through schools. The present study lacks information of other correlates of father absence and their consequent impacts on family SES, physical and psychological growth of the children. Further studies are needed in this line that will include children of either sex and also comparative accounts will be recorded between families with presence or absence of father (or mother), representing rural and urban sectors of Mexico.

**REFERENCES**

Belsky J, Steinberg L, Houts RM, Halpern-Felsher BL. 2010. The development of reproductive strategy in females: early maternal harshness →earlier menarche → increased sexual risk taking. *Developmental Psychology* 46:120-128.

Curiel AA, Gomez CG, Villasana AC. 2005. Encuesta Nacional de Alimentación y Nutrición (ENAL). Resultados Tlaxcala. (Report). Instituto Nacional de Ciencias Médicas y Nutrición Salvador Zubirán. Pages 13, 17.

De La Colina MG. 2010. Plática con el embajador mexicano Edgardo Flores Rivas: El sistema educativo de México antes y después. *Journal of Latino Education* 9(2):141 -149.

de Onis M, Onyango AW, Borghi E, Siyam A, Nishidaa C, Siekmann J. 2007. Development of a WHO growth reference for school-aged children and adolescents. *Bulletin of World Health Organization* 85:660-667.

East L, Jackson D, O'Brien L. 2006.Father absence and adolescent development: a review of the literature. *Journal of Child Health Care* 10(4):283-95.

González de la Rocha, M. 1986, Los recursos de la pobreza. Familias de bajos ingresos de Guadalajara, Guadalajara: El Colegio de Jalisco, CIESAS, SPP.

González de la Rocha, M. 1988, "De por qué las mujeres aguantan golpes y cuernos: un análisis de hogares sin varón en Guadalajara, en Mujeres y Sociedad: salario, hogar y acción social en el occidente de México, editado por Gabayet, Luisa, et al., Guadalajara: El Colegio de Jalisco/CIESAS Occidente.

González de la Rocha MG. 1997. Hogares de jefatura femenina en México: Patrones y formas de vida. Ponencia preparada para la sesión *Pobreza, género y desigualdad. Jefatura femenina en hogares urbanos latinoamericanos*. XX Congreso Internacional de la Sociedad de EstudiosLatinoamericanos (LASA), Guadalajara, México, 17-19 de abril de 1997

Hernández MI, Unanue N, Gaete X, Cassorla F, Codner E. 2007. Age of menarche and its relationship with body mass index and socioeconomic status. *Revista Médica de Chile* 135(11):1429-1436.

INEGI. 2005. Los hogares con jefatura femenina, 2nd ed. Instituto Nacional de Estadística, Geografía e Informática, Aguascalientes, Mexico

López-Barajas Maria de la Paz, Haydea-Izazola C. 1994. El perfil censal de los hogares y las familias en México. México, D.F.: INEGI.

Maestripieri D, Roney JR, DeBias N, Durante KM, Spaepen GM. 2004. Father absence, menarche and interest in infants among adolescent girls. *Developmental Science* 7:560-566.

Must A, Naumova EN, Phillips SM, Bluss M, Dawson-Hughes B, Rand WM. 2005. Childhood overweight and maturational timing in the development of adult overweight and fatness: The Newton Girls Study and its follow-up. *Pediatrics* 116:620-627.

Tither JM, Ellis BJ. 2008. Impact of fathers on daughters' age at menarche: A genetically and environmentally controlled sibling study. *Developmental Psychology* 44:1409-1420.

Torres-Mejía G, Cupul-Uicab L, Allen B, Galal O, Salazar-Martínez E, Lazcano-Ponce EC. 2005. Comparative study of correlates of early age at menarche among Mexican and Egyptian adolescents. *American Journal of Human Biology* 17(5):654-658.

Wronka I. 2010. Association between BMI and age at menarche in girls from different socio-economic groups. *Anthropologischer Anzeiger* 68:43-52.

Wronka I, Pawlinska-Chmara R. 2005. Relationship between the tempo of maturation and the body/height proportions in adulthood. *Warsaw* 58(9-10):513-517.

**Table 1. Mothers and their daughters (n= 87) in the families with presence or absence of father in Merida, Yucatán**

| Variables | Family, Parents and their daughters | Father absent (%) | Both parents present (%) | $\chi^2$ |
|---|---|---|---|---|
| Civil conditions of the parents | 2009-10 | 27.59 | 72.41 | 0.03 |
| | 2010-11 | 27.14 | 72.86 | |
| Crowding in family | Crowded | 45.83 | 19.05 | 15.41* |
| | Not crowded | 54.17 | 80.95 | |
| Mother's education | Secondary education | 66.67 | 55.56 | 2.11 |
| | Higher education | 33.33 | 44.44 | |
| Mother's occupation | Housewife mother | 20.83 | 47.62 | 14.96* |
| | Working mother | 79.17 | 52.38 | |
| Daughter's school type | Public school | 87.50 | 61.90 | 16.67* |
| | Private school | 12.50 | 38.10 | |
| Daughter's menarche | Early menarche | 41.67 | 47.62 | 0.51 |
| | Not early menarche | 58.33 | 52.38 | |
| Daughter's height for age (1st round) | Stunted | 14.30 | 12.5 | 0.04 |
| | Not stunted | 85.70 | 87.5 | |
| Daughter's height for age (2nd round) | Stunted | 12.50 | 9.50 | 0.24 |
| | Not stunted | 87.50 | 90.50 | |

* $\chi^2$ with Yates correction, $p< 0.05$

**Table 2. Descriptive statistics of variables studied of the daughters and their mothers in presence or absence of father in the families of Merida, Yucatan.**

| Variables | Min | Max | Overall (n= 87) | Father absent (n= 24) | Both parents present (n= 67) |
|---|---|---|---|---|---|
| | | | Mean (SD) | Mean (SD) | Mean (SD) |
| Mother's age (yrs) | 27.21 | 53.60 | 38.17 (5.65) | 36.78 (5.83) | 38.73 (5.52) |
| Daughter's age (yrs) in 1$^{st}$ round | 9.08 | 14.87 | 11.67 (1.18) | 11.68 (1.22) | 11.66 (1.17) |
| Daughter's age (yrs) in 2$^{nd}$ round | 10.09 | 15.86 | 12.66 (1.18) | 12.67 (1.21) | 12.66 (1.18) |
| Daughter's mean age (yrs) at menarche | 9.00 | 14.00 | 11.63 (1.19) | 11.86 (1.21) | 11.53 (1.19) |
| Daughter's median age (yrs) at menarche | 9.00 | 14.00 | 12.00 | 12.00 | 12.00 |
| Daughter's height (cm) in 1$^{st}$ round | 126.00 | 160.90 | 144.73 (7.59) | 145.01 (7.31) | 144.62 (7.74) |
| Daughter's height (cm) in 2$^{nd}$ round | 131.00 | 164.00 | 149.52 (7.04) | 149.75 (6.54) | 149.43 (7.27) |
| Daughter's height for age z-score (1$^{st}$ round) | -4.63 | 2.56 | -0.70 (1.16) | - 0.64 (1.10) | -0.72 (1.19) |
| Daughter's height for age z-score (2$^{nd}$ round) | -4.65 | 2.40 | -0.69 (1.14) | - 0.65 (1.07) | - 0.71 (1.18) |
| Index of crowding* | 1.00 | 7.00 | 2.53 (1.28) | 2.97 (1.59) | 2.37 (1.10) |

Standard deviations (SD) are in parentheses; *t= 2.014, $p<$ 0.05 (between father absent and both parents present)