Trends in the Prevalence of Adolescent Births in Antigua and Barbuda over 35 Years

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ABSTRACT

A retrospective study was undertaken to determine trends in teenage births in Antigua and Barbuda from 1969 to 2003. Maternity Ward records were reviewed at Holberton Hospital, site of over 90% of deliveries in Antigua and Barbuda. Maternal age for all births were included. The estimated population in Antigua and Barbuda increased from 60 159 in 1969 to 69 866 in 1998, with no suspected change in age-group or gender distribution. Births to mothers 12–13, 14–15, 16–17 and 18–19 years old were analyzed separately. Yearly birth totals for the 10-year period from 1969 to 1973 and 1999 to 2003 were compared using student t test analysis. The total number of births averaged 1075 per year with no change in trend. For females aged 12 and 13 years, there was no change in births from 1969 to 1978 compared with 1994 to 2003. For females aged 14 years, there was a 54% drop; for females aged 15 years, a 59% drop; for females aged 16 years, a 53% drop; for females aged 17 years, a 51% drop; for females 18 years, a 37% drop and for females aged 19 years, a 30% drop, while births to mothers $ 20 years increased 25%. The decrease for all teen births was 42% from 1969–1978 to 1994–2003. Teen births accounted for 29% of all births at Holberton in 1969 to 1973 but only 16% of births in 1999 to 2003. In conclusion, Antigua and Barbuda has seen a marked drop of 42% in teenage deliveries, including a 53% drop in school-aged teens from 1969 to 2003. Explanations include factors such as economic, social, educational and medical developments.

Tendencias en la Prevalencia de Nacimientos de Partos en Adolescentes en Antigua y Barbuda por Espacio de 35 Años

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RESUMEN

Se llevó a cabo un estudio retrospectivo a fin de determinar las tendencias de partos en adolescentes en Antigua y Barbuda de 1969 a 2003. Se revisaron las historias clínicas de la Sala de Maternidad del Hospital Holberton, lugar en que tuvieran lugar más del 90% de esos partos en Antigua y Barbuda. Se incluyó la edad de las madres para todos los nacimientos. La población estimada en Antigua y Barbuda, aumentó de 60 159 en 1969 a 69 866 en 1998, sin sospecha de cambio en el grupo etáreo o la distribución de género. Los nacimientos en madres de 12–13, 14–15, 16–17 y 18–19 años de edad, fueron analizados por separado. Los totales de nacimientos anuales durante el período de 10 años 1969 a 1973 y 1999 a 2003 fueron comparados usando el análisis de prueba t de estudiante. El número total de nacimientos fue de un promedio de 1075 por año, sin cambios en la tendencia. Para las hembras de 12 y 13 años de edad, no hubo cambios en los partos de 1969 a 1978 en comparación con los ocurridos de 1994 a 2003. Para las hembras de 14 años de edad, hubo una caída de un 54%; para las hembras de 15 años de edad, una caída de 59%; para las hembras de 16 años de edad una caída del 53%; para las hembras de 16 años de edad una caída de 53%; para las hembras de 17 años de edad una caída de 51%; para las hembras de 18 años de edad una caída de 37%; y para las hembras de 19 años de edad una caída de 30%, en tanto que los nacimientos para madres $ 20 años aumentaron un 25%. El descenso para todos los partos en adolescentes fue de 42% de 1969–1978 a 1994–2003.

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Los partos en adolescentes representaron el 29% de todos los nacimientos en Holberton desde 1969 a 1973 pero sólo un 16% de los nacimientos de 1999 a 2003. En conclusión, Antigua y Barbuda han visto un marcado descenso de 42% en los alumbramientos en adolescentes, incluyendo una caída de 53% en los adolescentes de edad escolar desde 1969 a 2003. Las explicaciones incluyen factores relacionados con el desarrollo económico, social, educacional y médico.

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INTRODUCTION

Pregnancy in adolescence is a significant health problem worldwide. Teenage mothers are likely to remain poorly educated, economically dependent and be at risk for repeated unwanted pregnancies in developed countries (1). Teenage mothers are more likely to have low birthweight or premature infants in developed countries as well as in the Caribbean (1–4). In Antigua and Barbuda in 1996, 15% of babies of teenage mothers were low birthweight (less than 2.5 kilograms) compared with 9% of babies born to mothers 20 years old or more. In Jamaica, teenage mothers are twice as likely to have a baby die of immaturity than mothers over 20 years old (4, 5) and more likely to have a complicated delivery with hypertension or Caesarean section (6). In Grenada, preterm labour and birth, small for gestational age babies, Caesarean section, perinatal asphyxia and perinatal mortality are all increased in teen pregnancies (7).

The children of teenage mothers are twice as likely to drop out of school before completing secondary school, twice as likely to be dependent on others financially, two or three times more likely to be teenage parents themselves and two to three times more likely to be involved in crime than children born to mothers 20 years or older in the United States of America [USA] (8, 9). Social and educational consequences in the Caribbean are also significant and lasting (6). Teenage mothers in the Caribbean have lower monthly incomes and their children have poorer nutritional status (10).

This study was undertaken to assess the 35-year trend in births to teenage mothers in Antigua and Barbuda. During this period, 92% of deliveries were performed at Holberton Hospital, the only full service facility in Antigua and Barbuda, serving a population of about 72 310 people in 2000, 90% Afro-Caribbean, 8% mixed ethnicity and others 2%. Antigua and Barbuda had mainly an agrarian economy prior to the 1970s when the economy switched to tourism. The tourist industry accounts for 65 to 70% of the gross domestic product. In 1982, the per capita income was $4228 US, rising to $5189 US in 1990 and to $6054 US in 1998 adjusted for inflation (Statistics Division, Ministry of Finance, Government of Antigua and Barbuda).

Changing economic and social conditions in the emerging small island countries of the Caribbean are having an effect on teen pregnancy but the effects have not been well documented. Over the past 35 years, changing demographic, economic, social, educational and medical conditions may have influenced teenage women in their choosing or not choosing to have children. This study documents the changes in teen births in Antigua over a 35-year period.

SUBJECTS AND METHODS

Maternity records at Holberton Hospital were retrospectively reviewed. Maternal age was recorded for all births. The total number of births per year was recorded. Population data for Antigua and Barbuda from 1970 to 2000 were reviewed. Total deliveries to mothers age 12–18, and 19 years old were tallied. Data were compiled for five-year periods from January 1969 to December 2003. Births to mothers 12–18 and 19 years old were analyzed separately. Births per year were compared for the 10-year periods from 1969 to 1978 and 1994 to 2003 with Student *t* test using STAT101 software (11) with results of $p > 0.05$ reported as not significant (NS).

RESULTS

The number of births per year at Holberton Hospital in Antigua ranged from 988 in 1988 to 1415 in 2000, with an average of 1075 births per year. Births to women aged 20 or more years increased over that time. The number of births to women at each age from 12 years to 19 years for each five-year period from 1969 to 2003 is shown on Table 1. The births per year for each age were compared from the years 1969 to 1978 and the years 1994 to 2003. There was no significant change in trends in birth to female children aged 12 and 13 years old.

From the first 10-year period (1969 to 1978) to the most recent 10-year period (1994 to 2003), births to teens aged 14 years fell by 54%; those to teens aged 15 years fell by 59% (Fig. 1); to those aged 16 years, birth fell by 53%; to those aged 17 years, births fell by 51% (Fig. 2); to those aged 18 years, births fell by 32%; to those aged 19 years, births fell by 30% (Fig. 3); births to women 20 years and older increased by 25% (Fig. 4). The percentage of total births contributed by teenage mothers decreased from 29% during 1969 to 1978 to 16% from 1994–2003.

The yearly birth totals from 1969 to 1978 were compared with those from 1994–2003 for each age: 14 years old, 8.6 ± 2.9 vs 4.2 ± 1.3 ($p < 0.001$), 15 years old 30.1 ± 5.0 *vs* 12.2 ± 2.6 ($p < 0.0001$), 16 years old 50.6 ± 10.9 vs 24.0 ± 5.1 ($p < 0.0001$), 17 years old 72.2 ± 10.3 *vs* 35 ± 7.9 ($p < 0.0001$), 18 years old 79.3 ± 9.8 vs 53.9 ± 9.9 ($p < 0.0001$), 19 years old 86.8 ± 8.0 vs 60.7 ± 7.7 ($p < 0.0001$). For the same time period, births to mothers $ 20 years increased from 854 ± 96.3 vs 1011 ± 105 ($p < 0$ .01).

Table 1: Number of births for each teenage year for each five-year period from 1969 to 2003 at Holberton Hospital in Antigua

Year	12 yr	13 yr	14 yr	15 yr	16 yr	17 yr	18 yr	19 yr	> 20 yr
1969–1973	0	3	46	147	258	374	372	444	4155
1974–1978	2	7	40	154	248	348	421	424	4391
1979–1983	0	13	51	145	249	355	409	425	3376
1984–1988	1	10	32	90	171	247	333	366	3833
1989–1993	2	7	39	87	134	180	274	259	4325
1994–1998	2	8	25	61	118	165	274	282	4932
1999–2003	1	2	17	61	122	185	265	325	5182
Change in Births: 1969–1978 vs 1994–2003	NS	NS	-54%	-59%	-53%	-51%	-32%	-30%	+18%

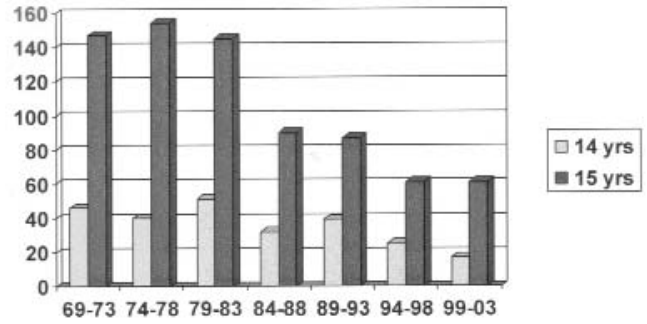

Fig. 1: Births to mothers aged 14 and 15 years by five-year periods from 1969 to 2003.

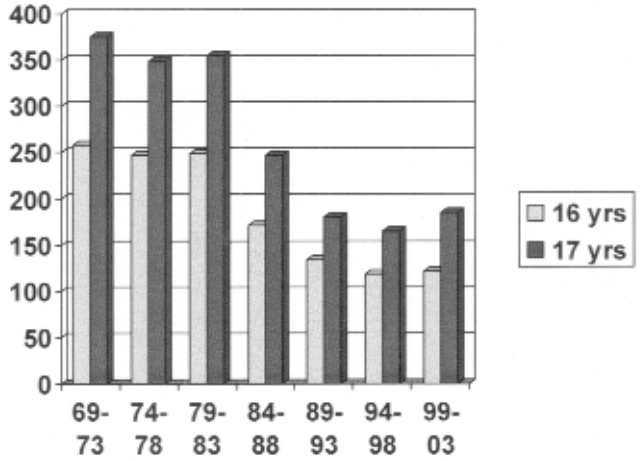

Fig. 2: Births to mothers aged 16 and 17 years by five-year periods from 1969 to 2003.

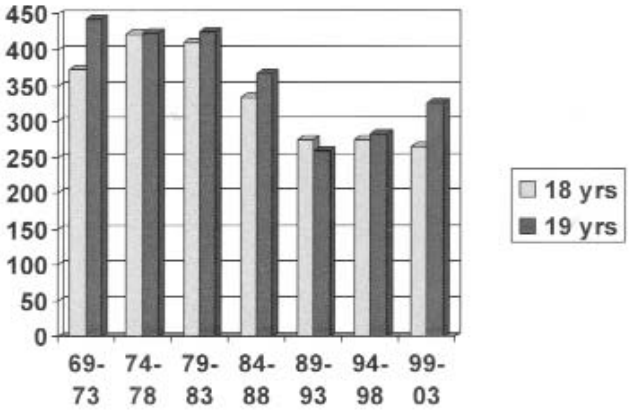

Fig. 3: Births to mothers aged 18 and 19 years by five-year periods from 1969 to 2003.

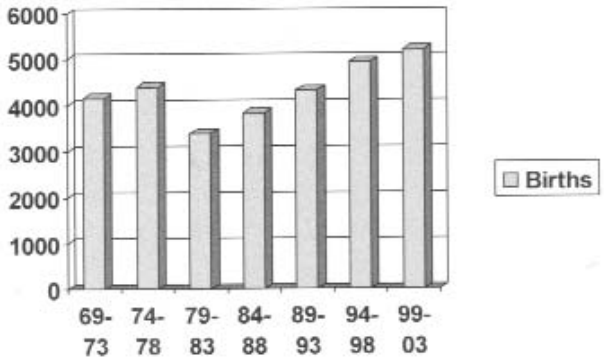

Fig. 4: Births to mothers 20 years old and over by five-year periods from 1969 to 2003.

The population of Antigua and Barbuda in the 1970s averaged 61 984 ± 765, in the 1980s, 63 524 ± 181 and in the 1990s, 67 110 ± 2632 with no suspected change in gender or age distribution (Statistics Division, Ministry of Finance, Government of Antigua and Barbuda).

DISCUSSION

This study documents a marked fall in adolescent deliveries over thirty years at Holberton Hospital in Antigua and Barbuda. The impression has been that this is occurring throughout the Caribbean region (12, 13). Recent data indi-

cate that in Jamaica, 24.6% of deliveries are to teenagers and in Barbados, 18.6% (12). The most recent figures from Antigua and Barbuda show a rate of 15.9% for the 10-year period ending in 2003. The number in the USA in 1992 was 12.7% of births (14). Fertility rates were around 150 pregnancies per 1000 women aged 15 to 19 years in Caribbean women in the 1950s (13). Using 1996 population estimates (15), the birth rate in Antigua for women 15 to 19 years old was about 67 per 1000 that year. The pregnancy rate in the USA in 1995 was 83.6 per 1000 women 15 to 19 years old (14, 16) but includes abortions. From the fertility rate of about 150 per 1000 in the 1950s, the rate of adolescent pregnancy has fallen to 65 per 1000 in Barbados in 1990 (13). The teenage pregnancy rate has remained around 110 per 1000 in Jamaica between 1994 and 1997, in contrast to the trends in Antigua and Barbuda, and Barbados (17). The explanation for this decrease in births to teenage mothers in this retrospective observational report may not be simple. Factors associated with teenage pregnancy and birth might include demographic, economic, social, educational and medical changes.

A fall in teenage births could be due to a fall in the number of young women at risk for pregnancy. Population figures that are available for Antigua and Barbuda suggest a population increase of 16% in the 30-year period covered in this review. No migration of teenage women into or out of Antigua and Barbuda is suspected, so the number of teenaged women probably increased. Gender and age specific population data were first acquired in the 1990s in Antigua. A fall in teen births could reflect a general fall in fertility, but births to mothers 20 years old and older increased 25% during the years of this study. So demographic change does not appear to explain the drop.

Antigua and Barbuda has seen a dramatic change in the economy in the past thirty years. In an agrarian economy, vocational opportunities were limited. With the increase in per capita income of $4228 US to $6054 US (43%) from 1982 to 1998, goods and services were within reach for more nationals. In addition, overseas opportunities for employment increased. Economic or vocational goals are important in decreasing adolescent pregnancy in the USA, Latin America and the Caribbean (1, 6, 18). Adolescent pregnancy in Brazil was three times as likely in the worst socioeconomic areas compared with the best (19). Being unemployed was associated with adolescent pregnancy in Guyana (20). Economics may be one of the major explanation for the fall in teen births in Antigua and Barbuda.

Social structures, such as family and church, play an important role in shaping attitudes of teenage girls. Although fathers are becoming more involved in raising children, 70% of the pregnancies in Antigua and Barbuda are out of wedlock. This figure does not appear to have changed much over the years (6). United Nations figures show that men (age 31.5 years) and women (age 33.2 years) in Antigua and Barbuda are in the top ten countries in the world for marrying late or not marrying at all [men 31.9%, women 37.4%] (21). Other countries in the top ten in these categories include Jamaica, Barbados, Dominica, St Kitts and Nevis and St Vincent and the Grenadines (21).

Other social factors, in addition to these cultural ones, may make a difference. Parent-adolescent communication in African American families increased contraceptive and condom use in teenage girls (22). In Jamaica, absence of a male father figure in the home of urban girls made teen pregnancy 2.7 times more likely (23). Having close relatives who are teenage mothers is a risk factor (20). An adolescent who became pregnant in Jamaica was 2.7 times more likely to have a mother who gave birth as an adolescent (24). The church continues to provide moral guidance but teenagers seldom relate sexual decisions to the preferences of the church (6). Peer pressure and low self-esteem are important both in the USA and the Caribbean for early sexual activity (6, 13, 25).

Attention has also been directed toward adolescent fathers, starting with contraception (26–29). The sexuality of adolescent men and attitudes toward women are areas needing further exploration (30–32). Similar to adolescent women, adolescent men need education in couple relationships and parenting behaviours (33, 34). These issues could be approached in a family life, male/female responsibility and sex educational course in schools. Recent data suggest that the reasons for becoming teen parents are complex and an individual approach involving motivational interviewing techniques may be necessary for both men and women (35, 36). Changes in attitudes and social roles (*eg* more involved fathers) may have contributed to the changes in teen births in Antigua and Barbuda.

Educational changes result from economic development. If education is seen as a method of economic improvement, teenage women will defer pregnancy (1, 6). For Antiguans, school attendance is mandatory until age 16 years and the literacy rate is 90% (37). In Brazil, having little formal education was associated with adolescent pregnancy (19). In Jamaica, a programme to encourage teenage mothers to complete their education led to higher rates of graduation and fewer repeat pregnancies (17). Having less than a secondary school education was significantly associated with adolescent pregnancy in Guyana (20). Increased education may also increase correct knowledge and use of contraceptives (38). Providing access to medical information and establishing educational and vocational goals resulted in the termination of fewer pregnancies in Mexico (39). Ignorance regarding contraceptive use and side effects limits teenage use (6, 13). Educational goals and opportunities have probably contributed to the fall in teen births in Antigua and Barbuda.

Availability of contraceptive information through the International Planned Parenthood Association and the

Caribbean Family Planning Affiliation provides young women with options regarding childbearing (6, 13). Confidentiality in adolescent healthcare is important (38, 40, 41). An Adolescent Health Service Clinic, a public health clinic, was established in Antigua and Barbuda specifically for adolescents. In 1996 and 1997, 153 teenage women accepted contraceptive services, 7% of all women seen at public health clinics (15). Types of contraception made available included injection, used by 45%; oral contraceptives, used by 40% and condoms used by 13% (15). The benefits and safety of various contraceptive methods must be explained and a motivational type of interview must be used (28, 29, 40–42). Side effects, reported in 48% of women in Jamaica, may limit use of injections or oral contraceptives (42).

Other barriers to contraceptive use include sexual attitudes, cultural norms and gender-specific issues in the USA as well as in the Caribbean (11, 31, 32). It is of interest that school based interventions to affect lifestyle change in adolescents were recently shown to be ineffective (43).

The personal, individual approach may be more effective (35, 36, 44). Medical factors may shape pregnancy decisions in teenage women. About 32% of teenage pregnancies in the USA end in induced abortion (16). Although this intervention is less culturally acceptable in Antigua and Barbuda, abortion rates are unknown. In Barbados, 23% of abortions are in teenage women (12). Increased income also allows for private consultation and treatment, confidentiality being a significant problem on small islands. A parental notification law in the USA requiring women considered minor by law to notify parents prior to an abortion led to a 15% fall in abortions and a 4% rise in births to those aged 17 years (45). The other medical issue of importance is sexually transmitted disease. The risk of Acquired Immunodeficiency Syndrome (AIDS) may discourage sexual activity. It is interesting that in Antigua and Barbuda, teenage birth rates dropped in the mid 1980s, the onset of the AIDS epidemic.

In conclusion, the rates of teenage deliveries in Antigua and Barbuda, a small island with a growing economy based on tourism and other services including banking and Internet, have decreased dramatically, especially since the mid-1980s. This 42% drop probably exceeds any goals established in the 1970s (6). The fall of 53% in births to women still in secondary school is especially encouraging. Economic, social, educational and medical changes have probably all played a role in explaining these data. Other small island societies undergoing similar economic, educational and medical change may experience similar outcomes.

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