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Comparing the biological and psychosocial risks of pregnancy between groups of adolescents and adults

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Abstract. Pregnancy in adolescence constitutes the main public health problem for this age group, in some countries. The health problems derived from adolescent pregnancy, birth and neonatal attention depend more on factors of social and environmental risk than on physiological and biological risk factors in adolescence. A descriptive study has been conducted of adolescent and adult mothers in Cádiz, Spain, who attended Family Planning Clinic during 1994. By means of multistage, stratified random sampling, 590 women were selected: 305 adolescent mothers between 15 and 19 years of age, and 285 adult mothers of 20 years and over. Various questionnaires were applied to the women, covering: sociodemographic characteristics; pregnancy and birth; family and social support (Duke-Inc and Apgar family); evolution of the health of the baby; and maternal knowledge of child care. Sociodemographically, significant differences ($p > 0.01$) were obtained in: marital status (more unmarried among adolescents); living in parents' home; fewer working; abandonment of education. No differences were observed in respect of the number of check-ups received during pregnancy. Adult mothers consumed significantly more toxic substances (tobacco, alcohol and drugs) during pregnancy. No differences were appreciated in respect of the birth, or health of the neonate. In adolescents, there was significantly more breastfeeding ($p > 0.01$) compared with adult mothers, 61.6% (56–67%) and 34% (28.5–34.5%), respectively. Pregnancy in adolescence appears to constitute a psychosocial problem rather than a biological risk.

Key words: Adolescence, Epidemiology, Pregnancy, Risk

Introduction

The Committee of Experts of the WHO considers that adolescence is the period of time between the ages of 10 and 19 years, and makes a distinction between puberty or early adolescence (from 10 to 14 years) and true adolescence (from 15 to 19 years) [1]. The proportion of the population of Spain thus classified as adolescent is 16.65% of the total [2, 3].

Among the 17 autonomous regions of Spain, Andalucia ranks second in terms of the size of the adolescent population as a percentage of the whole, at 18.81%. Within Andalucia, Cádiz is the province with the highest percentage of adolescent population, at 20.15% [4].

In many countries, pregnancy in adolescence is considered to be the most serious public health problem at these ages [5]. In countries such as USA, it is regarded as a real urban epidemic [6]. It has been calculated that in Spain, there are 2.3 million adolescents physically capable of procreation, and the fertility rate for this group is 15 per thousand; for comparison, the rate in the countries of Eastern Europe is 50 per thousand, and in the USA 54 per thousand [6].

In the province of Cádiz, for the group aged between 15 and 19 years, the birth rate in 1991 was 3.21 per thousand, and the rate of VTP (voluntary termination of pregnancy) was 3.85 per thousand. This indicates that about 50% of the pregnant adolescents decide to terminate their pregnancy, a proportion that compares with 26% for the rest of pregnant adolescents in Spain. It is believed that 79% of pregnant adolescents in Spain had not used any form of birth control/contraception prior to becoming pregnant [7].

Pregnancy in adolescence constitutes a multi-factor problem that calls for multi-factor solutions [4]. More notable among the factors leading to this problem are the current reduction in the age of menarche, greater sexual freedom, and the more precocious commencement of sexual relations. In the latter context, Oliva [7] has found that 45% of all Spanish adolescents have had some coital relation, this proportion reaching 60% in the province of Cádiz, where the average age for the commencement of coital relations is 15.7 years; among this group, 62% have had more than one sexual partner per year [8, 9]. Other factors are the failure to provide sexual education and lack of family planning health services [7]. More than 60% of adolescents do not use any form of contraception in

their first full sexual intercourse, and nearly as many, 56%, do not use any contraception until an average period of 11 months after commencing sexual relations [7, 8].

Authors such as Carbonel state that only 31% of pregnancies in adolescence are wanted. Those that are 'wanted' tend to be linked to the idea that the pregnancy may be a way of escaping from an adverse family or economic situation [10].

Pregnancy in adolescence, frequently unplanned and unwanted, is reported to represent a negative impact on the physical, emotional and economic condition of these young girls [4]; furthermore, it fundamentally affects their way of life, at a time when they must deal with their own developmental and emotional needs. As such, it constitutes a serious problem of public health, not only in respect of the risk of mortality to which it gives rise, but also in respect of the associated morbidity, both in the adolescent and in her future child [11]. Recent data indicate that the risks for adolescents associated with giving birth are not determined by physiological or psychosocial factors intrinsic in adolescence, but rather than this kind of pregnancy acts as a marker for socio-demographic factors such as poverty, deficient education, single parenthood and inadequate prenatal attention; these conditions increase the risk of adverse health resulting from pregnancy and from motherhood [12, 13].

The most notable risks arising from pregnancy for these adolescents are those of the psychosocial type. Most of the young girls live with their parents and family; they are without a home of their own. Often the pregnant adolescent is not financially independent, and depends exclusively on the income of her parents and other family members, and when the father is also relatively young, he too is nearly always financially dependent on others. A high proportion of pregnant adolescents do not complete or continue their education [14, 15].

The neonatal outcome of the typical adolescent pregnancy depends on social and environmental, as well as biological factors [16, 17], with the factor of greatest influence being inadequate prenatal supervision; typically the adolescent's first medical consultation is in the second trimester of the pregnancy, i.e. after the 13th week [18]. An increased incidence of dystocic births is observed in adolescents of less than 17 years of age [19].

Lastly, in respect of adolescent mothers' deficiencies in child-rearing, it is not clear whether the quality of maternal conduct bears any relationship to the age of the mother; however, the perception of the young mother is that adequate social support may be a critical factor in her interaction with her child [17]. The available data reflect greater risks of child neglect and negligence in child-care, and greater frequency of abuse among children of adolescents. It must also be borne in mind that the physical and emotional factors intrinsic to the self-development of adolescents also create needs and risks, which cannot be easily separated from the specific risks from pregnancy and parenthood [17]. It is reported that the younger the mother, the less satisfactory the child's condition of health [20] will be. Similarly, the level of physical and mental development reached by such a child will also be lower [21].

Many research studies have been conducted in Spain on maternity in adolescence. These, however, were unfortunately limited to specific aspects such as the consequences for the child of the adolescent [20, 22] or the effects of the pregnancy on the young mother [10, 12, 14, 23, 24]. The present study covers several aspects of the problem and represents the first conducted in Spain comparing a sample of adolescents with adult mothers from the same community.

The objective of this study is to compare the socio-demographic characteristics of adolescent mothers (termed cases) with the rest of the mothers, i.e. with adult mothers, in Cádiz, considering the background to the pregnancy, the actual birth and the condition of the neonate. It was hypothesized that adolescent pregnancies carry greater risk.

Material and methods

A transversal study was carried out in which the population or universe comprised of all the women attending the first level Family Planning Centres of the Cádiz University Primary Health Care District (Cádiz, SW Spain), in the year 1994.

Two groups were established for study: one consisted of adolescent women aged between 15 and 19 years, who had had a child and had attended the family planning centre during 1994; the other group consisted of women aged 20 years or more who had had a child and had attended the family planning centre during 1994. The time elapsed between the birth of the child and the mother's attendance of the Family Planning Centre varied from 1 to 6 months.

A stratified random and multistage sampling was performed. The sample size, according to Arkin and Colton for finite and proportional populations was set at 305 adolescent mothers, which gives a sampling error of 3% for a confidence level of 95%, and at 285 for adult mothers. These women were selected two by two from the scheduled appointments lists. All the women selected, both adolescents and adults gave their consent to participation in the study; there were no losses.

The instruments used for the study were:

(a) A general questionnaire that included three sections: socio-demographic data (age, education, place of residence, marital status, job); data on the pregnancy (check-ups, consumption of toxic substances, morbidity) and on the birth (development

and complications); the length of time between the previous pregnancy and the request for an appointment at the family planning centre was also recorded.

(b) Questionnaires on social and family support received (Duke-Inc questionnaire and Apgar family questionnaire) [25, 26].

(c) Questionnaire on the health of the child (condition at time of birth, attendance for check-ups, vaccinations, feeding regime). This survey was completed with the measurement of anthropometric data such as orthostatic size, weight, and tricipital subcutaneous fat skinfold. Two measurements were made of each of these parameters, at the beginning of the study and after 18 months. A Hardenpen–Holtain anthropometer was used to record the orthostatic size and a Seca scale, with an error of ± 50 g, was used to measure weight. To obtain the tricipital skinfold, we used a Holtain fat calibrator with a width from 0 to 45 mm and constant pressure of 10 g/mm^2 on the contact surface of the aperture.

(d) Questionnaire on basic maternal knowledge of caring for a child with high temperature (given that this is one of the most frequent healthcare problems with babies). This questionnaire, together with the data on the care the mother actually provided for her child, was intended to assess the level of infant health education possessed by the mother.

The Duke-Inc and Apgar family questionnaires were selected since they were among the most frequently utilized in previous studies. Their literature is also simple and easy to apply. The rest of the questionnaires were piloted before commencing the study, on 10% of the women who attended the Centre but who did not subsequently participate in the study.

All questionnaires were conducted by the same, previously-trained person. In a pre-arranged appointment with the mother, the interviewer explained the content and objectives of the study, and then proceeded to apply and complete the questionnaires. All the subjects were interviewed within a period of 18 months, the research work commencing in May 1994 and finishing in November 1995.

After the collection of data and the anthropometric measurements, corresponding statistical analyses were undertaken, using the EPI INFO 5.0 program. Frequencies and percentages were obtained, and tests of statistical association using Pearson's χ^2 test with Yates' correction factor, and where necessary, Fisher's exact test, were performed.

Results

A total of 509 women were included in the study, 305 adolescents of 15–19 years of age, and 285 women of 20 years and older. Both groups represent the total number of women giving birth in the year prior to the study, and of the total number attending the family planning clinics during 1994.

The average age of commencement of full sexual relations among the adolescents studied was 15.3 years; this was younger than that found for the adult group, at 17.6 years.

Table 1 presents some of the demographic characteristics. In respect of marital status, a clear and significant difference was found between the two groups ($p < 0.01$), with 249 girls in the adolescent group, 81.6% (77–86%), being unmarried, compared with 63, 22.1% (17–26%), in the group of adult women.

Most of the adolescents lived with their parents and only 54, 17.7% (13–22%), reported that they lived independently. In the group of adult women, 60.7% (55–66%), reported living in their own home ($p < 0.01$), in households of 4.2 members on average, compared with an average household of 6.5 members in the case of the adolescent group.

In respect of employment, there was a significant difference between the two groups of women ($p < 0.01$); only 11.8% (8–15%) of the adolescents reported working, against 32.3% (21–38%) of the adult women, at the time of the interview (those unemployed were not asked for dates of termination of any previous employment).

One notable aspect of our results in respect of adolescents concerned is education. It was found that only 106, 34.7% (29–40), reported that they were continuing their studies following the birth of their child. Out of the 199 who reported not studying, the majority, 77.4% (71–83%), had given up their studies before having their baby.

In the sample of adolescents, we found that 270, 88.5% (85–92%), had not wanted to become pregnant; this compares with 163, 57.2% (51–63%) of the group of adult women ($p < 0.01$). Prior to this pregnancy, 3.0% of adolescents reported having had an abortion at some time, similar to 3.8% reporting this in the adult group.

Table 1. Demographic characteristics*

	Adolescents		Adults	
	n	%	n	%
Marital status				
Unmarried	249	81.6 (77–86)	63	22 (17–26)
Married	56	18.4 (14–23)	222	78 (73–82.7)
Education				
Yes	106	34.7 (29–40)	60	21 (16.3–26)
No	199	65.3 (60–70.6)	225	79 (74.2–84)
Working				
Yes	36	11.8 (8–15)	92	32.3 (27–38)
No	269	88.2 (84.6–92)	193	67.7 (62–73)
Home				
With parents	251	82.3 (78–86.6)	112	39.3 (34–45)
Independent	54	17.7 (13–22)	173	60.7 (55–66)

*$p < 0.01$.

No significant differences were found between the two groups in respect of the number of check-ups received during pregnancy. However, a difference was noted in the numbers reporting health problems during pregnancy ($p < 0.01$), 31% (26–36%) in adolescents and 17% (12.5–21%) in the adult group. Among the adolescents, anaemia, urogenital infections and vaginal haemorrhages, and among the adults, high temperature, anaemia, urogenital infections, were the most frequent problems.

Significant differences between the groups were not observed on the consumption of medications during pregnancy. In contrast, differences were reported on the consumption of toxic substances such as alcohol, tobacco and drugs (hashish and cocaine, in all cases); which can be seen in Figure 1. Table 2 gives an indication of quantities of these substances reported as consumed by subjects in the two groups. It can be seen that adult women consumed each type of toxic substance more frequently than the adolescents.

In respect of the characteristics of the birth, although the percentage of dystocic births was somewhat higher among the adolescents, at 10% (7–14%) compared with 6% (3–9%) in the adults, no significant differences were found between the two groups. Among the adolescents, dystocia through hypodynamia of the birth was more frequent, while among the adults this was caused by an anomalous presentation.

In respect of the data obtained from the Duke-Inc questionnaire on affective, confidential and social support received, we observed a significant difference between the two groups of mothers. Affective support was greater among adolescents ($p < 0.01$) whereas confidential support was greater in the adults ($p < 0.01$); no differences were observed in the social support reported.

Evaluating the family support received, significantly more support was reported by adolescent mothers than by the adults ($p < 0.01$). These results seem to indicate that, among adolescent mothers, the level of satisfaction in respect of the family function and affective support is good.

No significant differences were found between the babies of the two groups in respect of the existence of problems at birth nor in the main neonatal anthropometric parameters, as indicated in Table 3. Babies of the two groups were very similar.

A notable difference was found regarding the adoption of breast feeding ($p < 0.01$); it was observed that 61.6% (56–67%) of the adolescents followed this feeding method at least during the first 3 months, compared with 34% (28.5–34.5%) of adult mothers; among adults, bottle feeding was followed by 46% (40–52%) and a combination of both methods by 20% (15–24%). The feeding of the baby was supervised or regulated by a paediatrician in 93.5% (90.6–96%) of the cases in the adolescent group, and in 75.6% (70–80%) of cases in the adult group (Figure 2).

Lastly, it was found that the average length of time elapsing between the most recent birth and attendance at the Family Planning Centre was 10.3 months in the adolescents and 8.5 months in the adults. Recommendation on a method of contraception was the main motive for consultation in 91.5% (88–94%) of cases in adolescents, as against 65.2% (60–71%) of cases in adults.

Table 2. Toxic substances consumed during the pregnancy

	Adolescents (305)		Adults (285)		p
	n	%	n	%	
Tobacco					
Yes	96	32	120	45	$p < 0.01$
No	209	68.5	156	54.8	
Alcoholic drink					
Yes	62	20	94	33	NS
No	243	79.7	191	67	
Drugs					
Yes	5	2	8	3	NS
No	300	98.4	277	97.2	

NS: Not significant.

Figure 1. Consumption of toxic substances during pregnancy.

Discussion

The demographic characteristics of the sample of adolescent mothers in Cádiz tell us that most of them

Table 3. Average values of the main neonatal anthropometric parameters*

	Adolescents (305)	Adults (285)
Weight (grams)	3110.4 ± 435.2	3050.8 ± 582.3
Length (cm)	49.2 ± 2.1	48.9 ± 3.4
Cranial perimeter (cm)	34.1 ± 1.8	33.9 ± 2.0

* The anthropometric data refer to the average and standard deviation.
* p = Not significant.

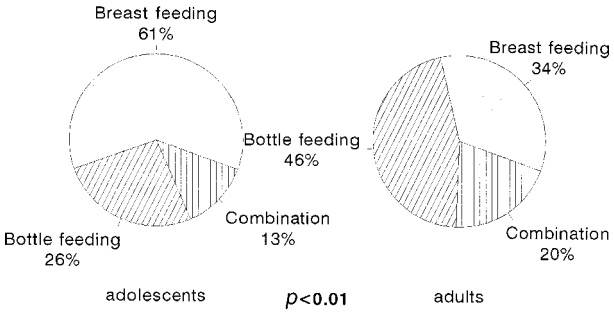

Figure 2. Differences in feeding of child.

are unmarried, live with their parents in homes which they share with more family members than the adult mothers. The adolescent mother continues living in the home where she grew up, but taking on a role that has recently become very different – that of a mother but still subjected to the family norms, rules and values that controlled her life as a child. The fact of not wanting the pregnancy should not be regarded as absolutely synonymous with not wanting motherhood, although some studies seem to find a significant parallelism between the two desires [8, 14]. The high percentages of unwanted pregnancy found in both groups seems to reflect serious inadequacies in health education and in the use of family planning measures that need to be addressed.

An important aspect of our results refers to the educational profile of the adolescent mothers studied. The finding that only one-third (34.7%) of the adolescents continue their education after the birth of their child is significant. The trend followed by the majority showed more and more giving up their education as the pregnancy progressed. These data reflect one of the most harmful consequences of juvenile maternity – the abrupt change that the adolescent suffers in her role in social life, changing from a quasi-child role, concerned with schoolwork, to that of a mother caring for her own child. This change usually involves her abandoning school or college. Studies of the long-term psychosocial consequences of adolescent maternity indicate that precocious maternity has a profound and adverse effect on the educational and vocational experiences of many adolescents (14).

With respect to health problems of adolescents during pregnancy, most studies find that anaemia is the most prevalent one [12, 23, 27]. A revealing finding indicates that there is now better monitoring of gestation in adolescent mothers with the increase in number of check-ups received during pregnancy by the two groups. For this reason, we believe that this difference could be due to the adult mothers making better use of the available health services.

Another significant finding in our results is that adult mothers aged 20 years and over consume more toxic substances, more frequently, during their pregnancy than adolescent mothers.

Considering the overall results of this study, we can conclude that juvenile pregnancy is not always synonymous with higher-risk pregnancy, by definition. Many adolescent mothers were aware of the dangers of consuming toxic substances during gestation; this attitude may have been acquired or reinforced by the health check-ups the young girls received during pregnancy.

Caution is necessary in evaluating the number of adolescents and adults reporting previous abortions, since this fact is often concealed as being considered very private and personal, sometimes impossible to confess, through fear of possible moral and legal consequences.

Our study coincides with those of other authors [23] in not revealing differences in the incidence of problems related to actual birth. Similarly, in respect of the presence of any kind of problem in the newborn, no significant differences are found between adolescent and adult mothers; the average values of length, weight and cranial perimeter are similar for both groups, as reflected also by other authors [28, 29]. Perinatal problems in the babies of adolescent mothers seem to show a tendency not only to become fewer in number but also less serious; this finding may be related to the improved monitoring of the pregnancy and birth among the adolescent group.

Another important finding is the relatively high percentage of adolescent mothers, compared with adults, who breast-feed; authors such as Oria de Rueda et al. [28] find results contrary to ours. Before becoming pregnant, very few adolescents have a clear opinion about breast-feeding [23], hence the information and advice provided in the check-ups during pregnancy is very important. It may be that the higher rate of breast feeding found in adolescent mothers has been influenced by the greater family and affective support this group reported receiving, in comparison with the adult group.

Considering the objectives set for our study, it can be concluded that although we have found demographic differences between these adolescents and the group of adult mothers, derived from their young age (education, employment, marital status, domiciliary dependence), pregnancy, birth and health condition of the baby in this group do not present differences from those of adult mothers. This situation could be influenced by the significant emotional support received by the adolescents. From the biological, physiological and neonatal perspectives, adolescence as such does not seem to constitute a risk, in comparison with adult mothers; adolescents may actually be receiving better care during pregnancy and after birth. The problem is centred more in the psychosocial repercussions for the young mother in respect of her change of role, abandoning of her education and vocational preparation, and lack of independence; nevertheless, adolescent pregnancy is one of today's principal public health problems, and efforts need to

be focused on identifying and resolving the causes [5], in other words, on correct primary prevention.

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