

## Prevalence and factors associated with alcohol use among pregnant adolescents<sup>1</sup>

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**Aim:** to identify alcohol use and the associated factors in pregnant adolescents of the municipality of Teresina-PI. **Method:** this is cross-sectional study with 256 pregnant adolescents whose data were obtained through questionnaires covering socioeconomic, pregnancy and alcohol consumption characteristics and through the application of the Alcohol Use Disorders Identification Test, an instrument developed by the World Health Organization for screening for the excessive use of alcohol. **Descriptive statistical analysis** was performed using the chi-square test and odds ratio. **Results:** the study indicates a prevalence of 32.4% for alcohol use during pregnancy in adolescents. Of these, 36.1% had scores consistent with risky use. The factors associated with an increased risk of alcohol use during pregnancy are: not having a partner, living on less than 1 minimum wage, not being religious, performing up to 3 prenatal consultations, having suffered violence and alcohol use in previous pregnancies. **Conclusion:** a high prevalence of alcohol consumption by pregnant adolescents and various risk factors involved in this process were identified. These data reflect the need for the use, by nurses, of screening technologies for alcohol consumption during pregnancy and health promotion strategies among groups of adolescents.

**Descriptors:** Pregnancy in Adolescence; Epidemiology; Nursing; Mental Health.

<sup>1</sup> Paper extracted from Doctoral Dissertation "Uso de álcool por adolescentes grávidas: prevalência e fatores associados" presented to Universidade Federal do Piauí, Teresina, PI, Brazil.

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## Introduction

The consumption of alcohol entails a strong cultural symbolism due to its involvement in religious rituals, commemorations and gatherings in general, and creates dependence in people, therefore it is a habit that does not respect ethnicity, religion, gender, or social conditions. Data from the Household Survey I on Psychotropic Drug Use in Brazil, carried out in 2001, by the Brazilian Center for Information on Psychotropic Drugs (CEBRID) and involving the population of the 107 largest cities in the country, indicated a prevalence of lifetime alcohol use of 68.7% in the Brazilian population between 12 and 65 years of age, being higher in males (77.3%) than females (60.6%), further indicating that 11.2% of the population were dependent on alcohol. In the Household Survey II on Psychotropic Drug Use in Brazil, carried out in 2005 by the same center, in the 108 largest cities of the country, it was verified that the prevalence of lifetime alcohol use had increased to 74.6%, with a percentage of 83.5% estimated for males and 68.3% for females, with the rate of dependence of the population studied being around 12.3%<sup>(1-2)</sup>.

The data indicate an increase in alcoholic beverage consumption for the female population, which carries with it biopsychosocial specificities that make the drinking behavior in women a complex phenomenon, due to their social context, as well as the consequences to their health and to their social relationships. Furthermore, with the increase in the use of alcohol by women, there is also an increase in the early onset of such use, often associated with risky behavior in the aspect of the exercise of sexuality, exposing adolescents to a possible unplanned early pregnancy<sup>(3)</sup>. In some situations, for adolescents, the discovery of pregnancy is not, however, a reason for the interruption of alcohol consumption, forgetting that this behavior produces damage not only for themselves, but for the life that is being created. A study on the epidemiological profile of pregnant adolescents shows that, in relation to alcohol consumption, 26.6% admitted having drunk at least once during pregnancy, and 2.8% in an abusively way<sup>(4)</sup>.

The abusive use of alcohol in the early weeks of pregnancy may be associated with cases of spontaneous abortion, and its consumption between the 3<sup>rd</sup> and 8<sup>th</sup> week of pregnancy could increase the risk of physical deformities in the fetus. The effect of alcohol on the newborn is manifested through the Fetal Alcohol Syndrome (FAS), which is characterized by: alterations in motor coordination, joint abnormalities,

cardiac malformations, reduced intellectual capacity, among others, which affects 33% of children born to mothers who used more than 150g of ethanol per day. In addition, children of women who consumed alcohol moderately may present agitation, suction deficiency during feeding, irritability, sweating and abnormal sleep patterns, characterizing a condition of abstinence syndrome<sup>(5)</sup>.

Alcohol use during pregnancy is related to some factors such as not having a partner, not being religious, and the presence of depressive episodes and episodes of violence, which would favor the acquisition or intensification of the habit<sup>(6-9)</sup>. In this context, this study becomes relevant due to alcohol consumption during pregnancy being a practice that has serious repercussions for the mother and fetus. To investigate the prevalence, the characterization of this consumption and the associated factors becomes necessary to give visibility to the problem, as well as in the formulation of strategies for the reduction and prevention of alcohol use during pregnancy. It is also important with regard to the knowledge of health professionals, who need to be sensitized and trained to create spaces and opportunities in which the pregnant woman can reveal the presence of alcoholism, risk groups can be identified, and procedures for detection of this problem during the prenatal consultation can be developed. This ensures better quality of care for the pregnant woman and the fetus, as well as contributing to the decrease in the coefficients of maternal and infant morbidity and mortality and the incidence of prematurity. Thus, this study aimed to identify alcohol use among pregnant adolescents in a municipality in northeastern Brazil and to evaluate the factors associated with this use.

## Method

This is a cross-sectional study, performed in all the Primary Health Units which operate the Family Health Strategy in Teresina/Piauí/Brazil. The source population consisted of 658 pregnant women below 20 years of age (monthly mean for 2009), included in the report of the Primary Healthcare Information System (SIAB) of the municipality of Teresina. The inclusion criteria considered in the study were: pregnant women 10 to 19 years, 11 months and 29 days of age (adolescent age group according to WHO), who were undergoing prenatal care and that consented to their participation in the research (or the guardian in the cases of children under 18). For the sample size calculation a presumed

prevalence of 26.6%<sup>(4)</sup>, a 4% tolerable error and a confidence level of 95% were considered, obtaining a sample of 280, which was subjected to stratified probability proportional sampling, according to the health coordination to which these women were linked: Southern Region (33.4%); Central/Northern Region (33.6%) and Eastern/Southeastern Region (33%).

Data collection was performed through the completion of forms divided into two parts: part 1 contained issues referring to the sociodemographic and gestational variables, the alcohol consumption characteristics and the specificities of alcohol use in the pregnancy; part 2 included the Alcohol Use Disorders Identification Test (AUDIT), an instrument developed by the World Health Organization as a simple screening method for the excessive use of alcohol<sup>(10)</sup>. A total of 256 forms were applied, in the period May to July 2010, mostly on the day of the prenatal consultation, in a private room, respecting the privacy of the pregnant woman. However, in some cases, an active search for pregnant women in the residences was necessary. The loss of 8.6% of the study population was primarily due to changes of address among the pregnant women and refusals to participate in the study.

For the statistical analysis, SPSS 12.0 for Windows was used. The dependent variable of the study was the use of alcohol during the current pregnancy, classified dichotomously (yes/no). The quantitative variables were measured using the mean and standard deviation and the qualitative variables by absolute and relative frequencies. Later, some categorical variables were transformed into dichotomous ones for the performance of the tests: schooling (up to 4 years of study/over 4 years of study), marital status (with partner/without partner), religion (religious/nonreligious), number of prenatal consultations (up to 3 consultations/more than 3 consultations). Pearson's chi-square test and the

Odds ratio (OR) were used to assess the strength of association of the variables that presented correlation with the dependent variable ( $p < 0.05$ ). The study was approved by the Medical Ethics Commission of the Municipal Health Foundation of Teresina and by the Research Ethics Committee of the Federal University of Piauí (CAAE No. 0208.0.045.000-09). As this study involved human subjects, the requirements of the Guidelines and Standards for Research Involving Human Subjects governed by Resolution 196/96 of the National Health Council were fulfilled, and the subjects or their guardians signed the Terms of Free Prior Informed Consent.

## Results

The sample consisted of pregnant adolescents aged from 13 to 19 years ( $X=17.0$  and  $s=1.63$ ). The prevalence of alcohol consumption at some moment in life among the adolescents was 73.8% ( $n=189$ ), with a mean age of onset of 14.20 years ( $s=2.00$ ), and the prevalence of Alcohol use by the adolescents during pregnancy was 32.4% ( $n=83$ ). It is noteworthy that among the adolescents who reported using alcohol at some point in life ( $n= 189$ ), there was continuity of the habit during pregnancy in 43.9%.

Table 1 shows the distribution of pregnant adolescents who used or did not use alcohol during the pregnancy according to the socioeconomic variables. A predominance of alcohol use during pregnancy in the 17-19 years age group (57.8%) was verified, as well as in those with over 4 years of education (84.3%), unmarried (69.9%), a family income below the poverty level (77.1%), without their own income (96.4%), Catholic (75.9%) and those who came from the Capital (67.5%). It is worth mentioning that among the pregnant women who reported not being religious, 56.2% did not use alcohol in this pregnancy.

Table 1 - Distribution of the pregnant adolescents who used or did not use alcohol during the pregnancy according to the socioeconomic variables. Teresina, PI, Brazil, 2010 ( $n=256$ )

Variables	Alcohol consumption during the pregnancy				Total	
	Yes		No		n	%
	n	%	n	%		
Age group						
10-14	3	3.6	8	4.6	11	4.3
15-16	32	38.6	65	37.6	97	37.9
17-19	48	57.8	100	57.8	148	57.8
Schooling						
no education	0	.0	2	1.1	2	.8

(continue...)

Table 1 - (continuation)

Variables	Alcohol consumption during the pregnancy				Total	
	Yes		No		n	%
	n	%	n	%		
Up to 4 years of study	13	15.6	24	13.9	37	14.5
Over 4 years of study	70	84.3	147	85.0	104	84.7
Marital status						
married/with partner	25	30.1	95	54.9	120	46.9
Single	58	69.9	78	45.1	136	53.1
Family income						
up to 1	64	77.1	93	53.8	157	61.3
above 1	19	22.9	78	45.1	97	37.9
no information	0	.0	2	1.1	2	.8
Financial independence						
without income	80	96.4	160	92.5	240	93.8
with income	3	3.6	13	7.5	16	6.2
Religion						
no religion	18	21.7	14	8.1	32	12.5
Catholic	63	75.9	131	75.7	194	75.8
Others	2	2.4	28	16.2	30	11.7
Origin						
Capital	56	67.5	128	74.0	184	71.9
Piauí State	16	19.3	21	12.1	37	14.4
other States	7	8.4	17	9.8	24	9.4
no information	4	4.8	7	4.1	11	4.3
Total	83	100.0	173	100.0	256	100.0

Regarding the gestational variables, Table 2 shows that the pregnant women who used alcohol in this pregnancy were in the 3<sup>rd</sup> trimester of pregnancy (79.5%) were primiparous (68.7%), had no history of abortion (83.1%), did not plan their current pregnancy

(91.6%), while 69.9% claimed to use contraceptive methods. Regarding the prenatal consultations, 53.0% of the pregnant adolescents performed up to 3 consultations and 50.6% reported complications during the pregnancy.

Table 2 - Distribution of the pregnant adolescents who used or did not use alcohol during the pregnancy according to the gestational variables. Teresina, PI, Brazil, 2010 (n=256)

Variables	Alcohol consumption during the pregnancy				Total	
	Yes		No		n	%
	n	%	n	%		
Gestational age (trimester)						
1 <sup>st</sup> trimester	2	2.4	5	2.9	7	2.7
2 <sup>nd</sup> trimester	13	15.7	32	18.5	45	17.6
3 <sup>rd</sup> trimester	66	79.5	132	76.3	198	77.4
no information	2	2.4	4	2.3	6	2.3
Previous pregnancies						
No	57	68.7	139	80.4	196	76.6
Yes	26	31.3	34	19.6	60	23.4
Occurrence of abortion						
No	69	83.1	157	90.8	226	88.3
Yes	14	16.9	16	9.2	30	11.7
Planning of the pregnancy						
Yes	7	8.4	48	27.8	55	21.5
No	76	91.6	125	72.2	201	78.5

(continue...)

Table 2 - (continuation)

Variables	Alcohol consumption during the pregnancy				Total	
	Yes		No		n	%
	n	%	n	%		
Contraceptive use						
Yes	58	69.9	120	69.4	178	69.5
No	25	30.1	53	30.6	78	30.5
No. of prenatal consultations						
up to 3	44	53.0	64	37.0	108	42.2
more than 3	39	47.0	108	62.4	147	57.4
no information	0	.0	1	.6	1	.4
Complications in the pregnancy						
No	41	49.4	107	61.9	148	57.8
Yes	42	50.6	64	37.0	106	41.4
no information	0	.0	2	1.1	2	.8
Total	83	100.0	173	100.0	256	100.0

Regarding the characterization of alcohol consumption during pregnancy, it can be observed in Table 3 that there is a predominance of first consumption in the private environment (49.3%) and in 50.6% of the cases the offer was made by friends. Regarding the place of current consumption, alcohol was consumed more often in public places (59%) and the most consumed beverage was beer (78.3%). In relation to having a family history of alcohol consumption 75.9%

responded affirmatively. The use of other drugs during the pregnancy period was reported by 10.8% of the pregnant adolescents, 63.9% denied involvement in any type of violence due to alcohol consumption, 37.4% had abandoned everyday activities due to alcohol use and 41% reported having some physical and/or social problems as a result of alcohol use. Among the reasons cited for the consumption of alcohol the influence of friends/family/media (41.0%) was highlighted

Table 3 - Characteristics of the pregnant adolescents regarding alcohol consumption according to the use or not of alcohol during the pregnancy. Teresina, PI, Brazil, 2010 (n=189)

Variables	Alcohol consumption during the pregnancy				Total	
	Yes		No		n	%
	n	%	n	%		
Place of first use of alcohol						
Private	45	49.3	55	51.9	100	52.9
Public	31	37.3	40	37.7	71	37.6
do not remember	7	8.4	11	10.4	18	9.5
Offer of alcohol use						
Friends	42	50.6	52	49.1	94	49.7
Family members	8	9.6	10	9.4	18	9.5
Alone	31	37.4	39	36.8	70	37.1
Others	2	2.4	5	4.7	7	3.7
Place of greatest use of alcohol						
Private	34	41.0	42	39.6	76	40.2
Public	49	59.0	64	60.4	113	59.8
Use of alcohol by family members						
No	18	21.7	30	28.3	48	25.4
Yes	63	75.9	76	71.7	139	73.5
no information	2	2.4	0	.0	2	1.1
Most consumed beverage						
Beer	65	78.3	72	67.9	137	72.5
Spirits	16	19.3	34	32.1	50	26.4

(continue...)

Table 3 - (continuation)

Variables	Alcohol consumption during the pregnancy				Total	
	Yes		No		n	%
	n	%	n	%		
Others	2	2.4	0	.00	2	1.1
Use of other drugs						
No	74	89.2	99	93.4	173	91.5
Yes	9	10.8	7	6.6	16	8.5
Violence due to alcohol use						
No	53	63.9	99	93.4	152	80.4
Yes	30	36.1	7	6.6	37	19.6
Abandonment of activities						
No	52	62.6	95	89.6	147	77.8
Yes	31	37.4	11	10.4	42	22.2
Physical and/or social problems due to the use of alcohol						
No	49	59.0	92	86.8	141	74.6
Yes	34	41.0	14	13.2	48	25.4
Reason for the use of alcohol						
fun/relaxation	19	22.9	29	27.4	48	25.4
influence of friends/family/media	34	41.0	35	33.0	69	36.5
other reasons	21	25.3	21	19.8	42	22.2
Not sure	9	10.8	21	19.8	30	15.9
Total	83	100.0	106	100.0	189	100.0

Figure 1 shows the distribution of the pregnant adolescents who used alcohol during their current pregnancy, according to the zone in which they were

classified by AUDIT. It can be verified that 36.1% presented risky use, 27.7% possible dependence, 25.3% harmful use and 10.8% low risk.

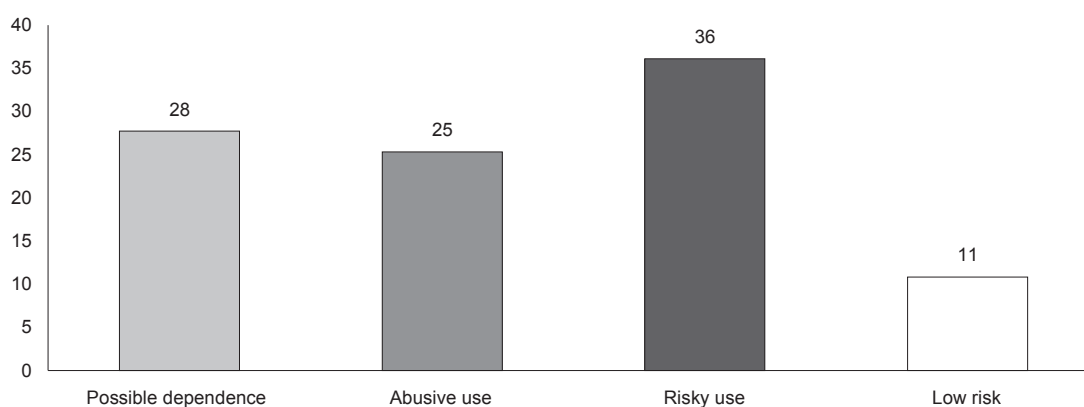


Figure 1 - Pattern of alcohol consumption by pregnant adolescents during the pregnancy. Teresina, PI, Brazil, 2010 (n=83)

Table 4 shows the correlation of alcohol use during the pregnancy with socioeconomic, gestational and consumption variables, considering those which presented significance: having a partner ( $p<0.001$ ), earning up to 1 minimum wage ( $p<0.001$ ), not being

religious ( $p<0.002$ ), being primiparous ( $p<0.039$ ), planning of the pregnancy ( $p<0.000$ ), performing up to 3 prenatal consultations ( $p<0.045$ ), presence of complications during the pregnancy ( $p<0.046$ ), age less than 14 years at the start of alcohol consumption

( $p < 0.014$ ), having suffered violence ( $p < 0.001$ ), not having abandoned daily habits due to alcohol use ( $p < 0.001$ ), not having physical and/or social problems

as a result of alcohol use ( $p < 0.001$ ) and alcohol use in previous pregnancies ( $p < 0.001$ ).

Table 4 - Analysis of the correlation and odds ratio for alcohol use during pregnancy according to the socioeconomic and gestational variables and the consumption characteristics of the sample population. Teresina, PI, Brazil, 2010

	OR	CI 95%	X <sup>2</sup>	p*
Schooling	1.04	0.50-2.14	0.09	.924
Marital status	2.83	1.62-4.93	13.84	.001
Family income	2.83	1.56-5.12	13.24	.001
Religion	3.15	1.48-6.70	9.48	.002
Previous pregnancies	1.87	1.03-3.39	4.26	.039
Occurrence of abortion	0.50	0.23-1.09	3.15	.076
Planning of the pregnancy	0.24	0.10-0.56	12.40	.000
No. of prenatal consultations	1.90	1.12-3.24	6.22	.045
Complications in the pregnancy	1.71	1.01-2.91	3.99	.046
Age at start of alcohol use	2.10	1.15-3.82	5.98	.014
Use of alcohol by family members	1.38	0.70-2.70	0.89	.346
Occurrence of violence	5.47	2.53-11.83	25.80	.001
Abandonment of daily activities	5.15	2.39-11.08	19.59	.001
Occurrence of physical and/or social problems	4.56	2.24-9.30	18.93	.001
Use of alcohol in previous pregnancies	3.85	1.84-8.04	14.07	.001

\* Chi-square test

## Discussion

The prevalence of lifetime alcohol use for the adolescents in this study is higher than that presented by the National Survey on Psychotropic Drug Use among Elementary and Secondary Students of the Public Network, conducted in 2004, in 27 Brazilian capitals, in which a prevalence of lifetime alcohol use of 65.2%<sup>(11)</sup> was observed. The mean age at the initiation of alcohol use found is similar to studies in which it is reported that the first experiences with alcohol occur at around 10 to 15 years of age<sup>(12-13)</sup>. Such behavior, associated with the permissive attitude of society, is a clear demonstration that the laws are not being complied with; in addition, there is stimulation of the consumption triggered mainly by commercial advertisements related to alcoholic beverages, which indicates the need to review the advertising legislation.

The prevalence of alcohol use during pregnancy in this study was also higher than the study of the sociodemographic profile of pregnant adolescents, whose prevalence was 26.6%, with 2.8% using alcohol abusively<sup>(4)</sup>. This fact characterizes a situation of vulnerability which requires urgent and specific approaches to promote changes in the situation encountered. It is noticeable in this study that the pregnant adolescents with a history of alcohol use in

pregnancy were 3.85 times more likely to repeat the habit than those who did not use in previous pregnancies.

The results of this study when showing the single conjugal situation as a risk condition for alcohol consumption in the pregnancy period, corroborate the data of the scientific literature, which indicates a three times higher occurrence of alcoholic beverage consumption during pregnancy among single women when compared with married women<sup>(6)</sup>. This is probably because the pregnancy in single women, in general, is associated with other risk factors for alcoholic beverage consumption, such as low schooling, low socioeconomic status and unplanned pregnancy. Regarding the low socioeconomic status, prevalent among pregnant adolescents who used alcohol during pregnancy, an income below 1 minimum wage represented a risk factor. This correlation between socioeconomic status and alcohol consumption has been shown in another study, which found that it is among the lower classes that the harmful use of alcohol is presented more expressively<sup>(14)</sup>. The religion variable was shown to have a significant association, with the nonreligious pregnant adolescents 3.15 times more likely to use alcohol during the pregnancy. Being religious has been identified as an important protective factor for health<sup>(7)</sup>. The planning of the pregnancy appeared as a protective factor against alcohol consumption during the pregnancy. Adolescent

pregnancy is most often unplanned and is associated with high levels of misinformation, a result of the lack of quality sex education, not discussing this subject in the family, and the lack of educational programs in schools and health institutions<sup>(15)</sup>. Added to this is the fact that the consumption of alcohol at least once in life increases by 2.5 times the risk of the adolescent presenting risky behavior regarding sexual and reproductive health and may lead to an unwanted pregnancy<sup>(16)</sup>.

In the risk estimate analysis, an association between alcohol consumption and the occurrence of complications during pregnancy was demonstrated. Exposure to alcohol during pregnancy can increase the risk of mortality and the incidence of various negative consequences for the health of the women and the course of pregnancy, as well as causing harm to newborns, such as deformities, low birth weight, perinatal mortality and fetal alcohol syndrome<sup>(5)</sup>. Furthermore, the data indicated by the analysis of AUDIT regarding the pattern of risky consumption presented by the majority of pregnant adolescents becomes relevant in the context of this study. Alcohol consumption by adolescents is usually performed in a heavy way, presenting episodes of abuse (binge drinking), behavior that increases the risk for a number of social and health problems<sup>(17-18)</sup>.

The relationship between episodes of violence and alcohol consumption by pregnant adolescents was presented, with these victims of violence presenting a 5.47 times greater risk of consuming alcohol during the pregnancy period. This data reaffirms a study on the impact of violence on the pregnancy, which showed that the victimized adolescents were more conducive to smoking, using alcohol and using other drugs<sup>(19)</sup>.

Regarding the prenatal care, it was verified in this study that a low number of consultations (up to 3) appeared as a risk factor for alcohol consumption during the pregnancy. Non-adherence to prenatal consultations hinders identification and intervention regarding this risky behavior during the pregnancy, therefore, these actions should appear as priorities in the agenda of health professionals. Among the strategies to be used for this purpose, the use of screening instruments that allow the detection of the problem at the first prenatal appointment should be considered as an important tool for the planning of preventive and intervention actions. A study carried out with family health teams concluded that screening and brief interventions for alcohol use can be effectively applied within a prenatal routine, where the professionals not only use it to provide a diagnosis, but also for the identification of risk factors<sup>(20)</sup>.

## Conclusions

The study shows a high prevalence of alcohol use by pregnant adolescents, with this consumption being significantly associated with low socioeconomic status, instability in the marital relationship, not being religious, multiparity, early onset of alcohol use, low adherence to prenatal consultations, use of alcohol in a previous pregnancy, episodes of violence, abandonment of daily habits and the occurrence of physical and/or social problems due to the alcohol use, verifying these conditions as risk factors for alcohol consumption during pregnancy. The findings regarding the pattern of alcohol consumption are also highlighted and show high percentages of heavy alcohol use, being classified as more than 50% in the areas of abusive use and possible dependence, with this study demonstrating a dose-dependent association with the occurrence of complications during pregnancy.

Low prenatal coverage as a risk factor, suggests the need to reformulate the prenatal care practices, taking into consideration the lack of routines and instruments that assist health professionals in prevention actions and the early diagnosis of the consumption alcohol during the pregnancy. The adequate evaluation of this consumption is an essential condition for the prevention of Fetal Alcohol Syndrome and the delayed effects on the neurological development in children of pregnant women who consumed alcohol. These findings may have diverse implications for nurses, especially for those whose daily practice includes prenatal care, who need to include these new screening technologies for the early detection of alcohol consumption during pregnancy. This also applies to those working with groups of adolescents, aiming for the adoption of preventive behavior faced with alcohol consumption.

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