specific R-PDQ items subsequently passed these when made to perform in front of the investigator in the DDST. Cultural variations have been reported to increase referrals even with DDST (4). In the urban slums of Lucknow, the referrals with DDST were 8.7% (95% CI: 4.7-14.7%).

We conclude that since R-PDQ had questions that were possibly "difficult to interpret", had high referral rates for further screening for developmental delays and had bad correlation with DDST test it cannot be used as a first stage screening for developmental delay in the urban slums of Lucknow, India. Similar studies are needed from other parts of the country and on children belonging to different socio-economic strata before the results can be generalized. DDST may be considered for community screening for the urban slums here and in places with high levels of maternal illiteracy.

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Tobacco Use in Rural Indian Children

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Tobacco-related disease kills an estimated half million people a year in India (l). Most adult addicts to tobacco start young. Data on tobacco use by rural children or youth in India (2-4) are few and only recently available (5). This pilot survey assessed the degree, nature and pattern of tobacco use by children in rural areas and the need for a larger study.

Subjects and Methods

A Tamil, Gujarati or Kannada transla-

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tion of an internationally developed English questionnaire^) was administered to children in rural Southern Tamil Nadu (STN); rural Gujarat; and slum semiurban areas in Bangalore, Karnataka. Reverse translation checked validity of questions. Interviewees were anonymous.

In STN, trained health educators of an ongoing School Health Education Program in Oddanchatram orally questioned 10-11, 12-13 and 15-20 year olds in the 5th, 7th and +1 (11th) classes of four village schools. Children anonymously wrote answers in the classroom. In rural Gujarat, nurse volunteers (Health Circle), from the School of Nursing, P.S. Medical College, Karamasad, administered the Gujarati questionnaire in a nearby village where they ran a clinic. As most interviewees were illiterate, interviewers wrote the verbal, anonymous, confidential, answers to oral questions. Teachers and a school doctor asked Kannada and/or Tamil questions to children in a slum school of Bangalore, Karnataka. The children wrote answers anonymously in the classroom.

Data were combined as they were few but similar in the three places. The X^2 for linear trend in proportions (7) tested the relation between *(i)* awareness of its health hazard, and *(ii)* significant person-users in the child's world, with each of children's ever or current smoking, chewing, or snuff use, of tobacco.

Odds ratios (OR) of tobacco use in each form were calculated and tested for each score of awareness trend of its health hazard with "least" as baseline (OR=1). The rate of "significant person-users per child" in each place was the ratio of tobacco users among significant persons in the child's world (father, mother, siblings, teacher, friends) to the children. We tested the odds of each type of tobacco use, now or ever, associated with trend in this rate.

Results

School boys (M) exceeded girls (F) among the 335 children interviewed *(Table I)*. The M:F ratio increased with age in fulltime students. More girls than boys did not attend school. Nearly 20% of the girls did not know their age. The largest sample was from STN, the only place where data could be age, stratified.

Most girls, except as snuff, hardly use tobacco. At least 10% boys chewed now or ever had, while 8% now, and nearly 18% boys ever, smoked (bidis usually) *(Table II)*. Upto 38% boys and 12% girls had experi-

TABLE I -*Age, Gender and Occupation Distribution.*

Age	Students*		Student Workers* or Nonstudents		
(yrs)	Male	Female	Male	Female	Persons
<10	8	4	2	9	23
10-12	74	24	21	7	126
13-14	84	18	10	1	113
> = 15	42	12	0	1	55
Unknown	0	18	0	0	18
Total	208	76	33	18	335
(%)	(62.1)	(22.7)	(9.9)	(5.4)	(100)

14/55 disqualified answers on Occupation in Karnataka.

TABLE II - *Tobacco Use-Ever or Now*

Gender/Age (years)	Total	Chew		Smoke		Snuff	
	n	Ever	Now	Ever	Now	Ever	Now
Males, all							
n	241						5
(%)		(12)	(9.5)	(17.8)	(7.9)	(38.2)	
S. Tamilnadu only, Age Stratified							
n	178						
10-12 (%)	64	(10.9)	(28.1)	(10.9)	0	(64.1)	(3.1)
13-14 (%)	82	(14.6)	0	(20.7)	(2.4)	(45.1)	1
> = 15 (%)	32	0	0	(28.1)	(12.5)	(31.3)	1
Females, all							
n	94						
(%)		0	0	0	0	(11.7)	1

n=number, (%) = percentages

mented with snuff. Boys had experimented by 10 years age or earlier, the frequency decreased with age from 64% in 10-12 year olds to 31% in > 15 year olds.

The harm of smoking was better known (68% boys, 94% girls) to children than of chewing/applying (44% boys, 63% girls) or snuffing (51% boys, 64% girls) tobacco. Such ignorance was significantly associated with smoking tobacco, ever (p=0.0004) or now (p=0.0001), and its ever use as snuff (p=0.00115).

More than one adult person in each child's family and world (teachers, friends, unspecified people) was a tobacco user in STN and Gujarat (OR-1.3, 1.5, respectively) and 1.2, overall (Karnataka <1). Ever smoking was associated with an increased rate of such users per child (p=0.00036).

Regarding the possibility of future use of tobacco, 83% of 94 girls and 49% of 241 boys said "No" while 11% girls and 47% boys were ambivalent. Only 1 boy said "yes". The rest did not answer.

Discussion

In this pilot study, direct and reverse translation of the modified English questionnaire (6); standardized, pretested, child-focussed survey techniques, ensured clear questions and mostly lucid authentic replies. A few unclear answers were disqualified. The children's private, individual, anonymous replies to health educators, school doctor, nurses, not school teachers, prevented bias due to "fear of teacher" or shame. However, some vitiating factors are small numbers, missing data; inability to validate answers in a laboratory or by requestioning, which would violate anonymity needed for authenticity. Findings may be underestimates as older or younger children may start tobacco use. Though randomly selected, interviewee bias to school children less than 15 years old is

possible. However, in balance, these data are reasonably valid, reliable, and useful to assess the need for a larger study.

In an earlier report from India, 13% boys and 10% girls of 6271 Goan 9-20 year old school children(2) applied tobacco-mishri mostly, creamy snuff (tobacco tooth-paste), chewed and smoked. Their private, English medium school, higher socioeconomic background addressing parental tobacco use differs from our poor rural children of lower socio-economic parents with less health awareness who are more representative of India. This, local or sample size differences may also explain our boys' higher frequencies of snuff, bidi smoke or chew, than in Goa, Delhi, or Agra(5). Others' validation methods are not stated.

Snuff use or smoking tobacco is associated with ignorance of its harm unlike in the West (8,9) or urban India(l0), where peer and advertising pressures affect even knowledgeable youngsters to smoke. Use by other persons with a significant effect on children also affects them.

In the present study, more males were in school fulltime and more girls were nonschoolers with increasing age and also among those who worked. This reflects the well known biases against educating girls especially as they grow older. Even though the numbers are small, the following are reasonable conclusions: *(i)* Nearly 50% of rural children, school boys more than girls, experiment with tobacco, mostly as snuff (nashya,.chhinkni), even by 10 years' age. (*ii*) Snuff use decreases while smoking and chewing increase with age. (iii) Smoking is a better known health hazard than chewing or snuff use. Such knowledge is significantly associated with reduced ever or current tobacco use. (*iv*) Tobacco use by elders influences its use by the child, (*v*) A larger study with objectively validated answers from 6 to 20 year olds, in and out of, school, is needed.

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Hepatic Profile in Asphyxia Neonatorum

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Perinatal asphyxia is one of the leading causes of neonatal mortality in India. In addition to hypoxic-ischemic brain injury and neurological deficits, there is evidence of multi-system insult (l). Hepatic dysfunction is caused by redistributing cardiac output away from nonvital viscera to the heart, brain and adrenal glands (2). The present study was carried out to determine the extent of liver dysfunction following asphyxia.

Subjects and Methods

This observational investigation comprised a study group of 70 newborns with an Apgar score of ≤ 7 at 1 minute. Fifty babies with an Apgar score of > 7 at 1 minute, matched for gestation, birthweight and sex, comprised the control group. Severity of asphyxia was graded as mild if Apgar score was 5-7, moderate if 3-4, and severe if Apgar was < 3(3). Venous blood samples of the neonates were collected within 24 hours of birth. The estimations included SGPT, prothrombin time and serum proteins. All biochemical tests were carried .out by standard methods (4). Elevated SGPT of more than 40 IU/L or more than twice the control group, reduction in prothrombin index of less than 85% and reduction in serum proteins of less than 4.5 g/dl were considered abnormal. Prothrombin time could be done only in 44 babies due to non availability of investigations during odd hours. Postmortem liver biopsy was done in all the 32 patients who died (4 had mild, 9 had moderate and 19 had severe asphyxia). The histopathological hepatic changes were categorized as follows (5):

(a) Mild-Central vein dilated and congested, mild dilatation of the sinusoids with mild congestion, portal triad congested with mononuclear cell infiltration and foci of extramedullary hemopoiesis in the sinusoids.

(b) Moderate-Along with above changes, hepatocytes showed diffuse microvesicular fatty changes.

(c) Severe—Along with all above changes, centrilobular hepatocytes showed moderate to severe fatty change.

Results and Discussion

Out of 70 newborns, 9 (12%) were mild-

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