NEUROBEHAVIORAL PROFILE OF HEALTHY FULL-TERM NEWBORN INFANTS OF ADOLESCENT MOTHERS

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Abbreviations: NNNS: Neonatal Instensive Care Unit Network Neurobehavioral Scale

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ABSTRACT

Objective: To determine the neurobehavioral profile of healthy term neonates of adolescent mothers. **Design:** Cross-sectional study with prospective collection of data. **Setting:** 3rd level Maternity Hospital in São Paulo, Brazil. **Participant**s: 419 healthy newborns without analgesic/sedative use at labor, intrauterine drug exposure, multiple gestation, congenital malformations or infections. Patients had Apgar scores >3 at 1 minute and >7 at 5 minutes; they were adequate for gestational age, without any clinical problem. **Intervention:** The *Neonatal Intensive Care Unit Network Neurobehavioral Scale* (NNNS) was applied with 33±7 hours of life in a quiet and dark room, between feedings. **Outcome measures:** Mean, SD, and 5^{th}, 10^{th}, 25^{th}, 50^{th}, 75^{th}, 90^{th} and 95^{th} percentiles for each of 13 NNNS variables were determined and compared according to maternal age (12-14y *vs.* 15-17y *vs.* 18-19y) by ANOVA. **Results**: Mothers had 17±1.5 years, 50% white, 7.1±2.2 years of education, prenatal care in 96%, vaginal delivery in 73%, and local/regional anesthesia in 75%. Neonates had birth weight 3205±299g, gestational age 39.4±1.1 weeks, 55% male, 1 minute Apgar 8.2±1.3, and 5 minutes Apgar 9.6±0.6. NNNS scores (mean±SD): habituation: 6.86±1.49; attention: 5.73±1.32; arousal: 3.70±0.70; regulation: 6.06±0.74; orientation handling procedures: 0.36±0.26; quality of movements: 5.11±0.49; excitability: 2.48±1.68; lethargy: 4.04±1.82; nonoptimal reflexes: 3.67±1.35; asymmetry: 0.71±0.94; hypertonicity: 0.18±0.39; hypotonicity: 0.13±037; and stress/abstinence signs: 0.07±0.05. Infants of younger adolescent mothers were less lethargic than infants of older ones. **Conclusion**: This first description of the neurobehavioral profile of healthy term newborns of adolescent mothers can help to set normal standards for this population.

INTRODUCTION

Pregnancy in adolescence is a national public health problem in Brazil. In 2004, 655,290 (21.6%) born-alive infants in Brazil were children of 10 to 19 year-old mothers.[1] In contrast, pregnancy occurred in 0.4% of girls aged 15 to 19 years in Japan, 0.8% in Norway, 3.3% in the United Kingdom, 4.1% in Canada, and 6.1% in the USA.[2] Teen pregnancy is linked to other hazards, such as use of psychoactive substances, exposure to sexually transmissible diseases, violence, and psychopathologic disorders. Individually or in association, these factors can give rise to neurobehavioral disturbances in newborns.[3]

The *Neonatal Intensive Care Unit Network Neurobehavioral Scale* (NNNS) is a scale used to assess neurological integrity, behavioral function and the existence of stress and abstinence signs in newborn infants. It was designed for the *Maternal Lifestyle* study published in 2002 by Lester et al. in order to analyze how babies were affected by intra-uterine exposure to drugs.[4] The NNNS can be used for newborn infants with different gestational ages and varied biological risks (prematurity, restricted intra-uterine growth), diseases (perinatal asphyxia) or social hazards (improper prenatal care, intense maternal stress, low socioeconomic level).[5] As for the normality standards in this scale, there is only one published study of the neurobehavioral profile of 125 full-term healthy newborns, 30 hours old, whose mothers were 18 to 30 years old.[5]

Several factors can interfere with the neurobehavioral responses of newborn infants in their early days of life. Maternal factors include socio-demographic characteristics, such as mother's age and ethnicity, type of anesthesia applied during delivery, and use of licit and illicit drugs by the pregnant woman.[4,6-14] The main factors relevant to newborns include gender, nutritional condition, prematurity, hyperbilirubinemia, and perinatal asphyxia.[15-18] The possible influence of these factors – whether related to the mother, to the environment,

or intrinsic to the baby, – on newborn infants' behavioral response profiles suggests that, even though newborns are organized and structured individuals, their behavior is extremely vulnerable[4]. In this context, this study aimed to provide a description of the neurobehavioral profile of full-term healthy newborn infants of adolescent mothers in order to understand the most common patterns and their variations.

METHODS

This cross-sectional study with prospective collection of data was done in the Maternity Mário de Moraes Altenfelder e Silva maternity, a third-level city-owned hospital of São Paulo, Brazil. The study was approved by the hospital and by the Federal University of São Paulo Ethics Committee and was funded by a grant from FAPESP (State of São Paulo Research Support Foundation).

Neonates were included in the study according to following criteria: signed maternal informed consent; adolescent mothers 10 to 20 years old,[19] and full-term newborn infants defined as those with gestational age between 37 weeks and 41 weeks and 6 days[20] according to the best obstetric estimate or by the New Ballard method.[21] Neonates with conditions that could potentially interfere in their neurobehavioral assessment were excluded, such as those whose mothers had positive sorology for syphilis, toxoplasmosis, cytomegalovirus, or human immunodeficiency virus; administration of opioids, sedatives and/or anticonvulsants to mothers during the 24 hours prior to delivery; use of tobacco (any number of cigarettes/day), alcohol (except occasional use, i.e., less than 5 drinks during the pregnancy) or illicit drugs during pregnancy; multiple gestation; newborn infants whose mothers received general anesthesia for delivery; neonates with Apgar[22] scores less than 3 in the 1st minute or less than 7 in the 5th minute of life; infants with major

congenital malformations; small or large for gestational age;[23] and those needing vital sign monitoring or any therapeutic intervention on the day of the study.

The study consisted of the following steps, summarized as follows: 1) Maternal interview by the neonatologists with collection of data related to the socio-demographic and obstetrical characteristics of the adolescent mothers; 2) Application of the *Composite International Diagnostic Interview* (CIDI 2.1)[24] to the mothers by psychologists; 3) Clinical examination of the neonate with collection of data related to birth and clinical course previous to enrollment; 4) Neurobehavioral assessment of the infants by neonatologists with the NNNS[4]; and 5) Collection of maternal hair and neonatal meconium samples for analysis regarding the presence of marijuana and cocaine metabolites.

Intra-utero newborn infant exposure to tobacco, alcohol, marijuana, cocaine or other illicit drugs was identified by the *Composite International Diagnostic Interview*, version 2.1 (CIDI 2.1),[24] given to the mothers by psychologists. Marijuana and cocaine use during gestation were also identified by toxicological analysis of maternal hair and newborn infant meconium samples. Approximately 50 hairs from the mother were cut off near the scalp in the parietal-occipital region, and stored in laminated packs. The 3 cm segment near scalp was analyzed by a semi-quantitative enzymatic immunoassay (*Cozart Bioscience Ltd*, Oxford, UK), with cut values of 0.1 ng/mg of hair for cannabinoids and 1.0 ng/mg of hair for benzoylegonine. After initial decontamination with organic solvent, followed by aqueous washes,[25] all positive results were confirmed by gaseous chromatography and mass spectrometry. The sample was considered positive when both screening and confirmatory tests were positive. Meconium samples were collected in the first 48 hours of life to avoid a decreased concentration of drugs metabolized in the gestational period,[26] and analyzed by a homogeneous semi-quantitative enzymatic immunoassay (*Dade Behring*), with cut values

of 200 ng/mL for cannabinoids and 300 ng/mL for benzoylecgonine. No further confirmatory tests were done for positive results in meconium.

The NNNS[5] was assessed after 24 hours of life, when the global stress response to the birth process is already attenuated, and until 72 hours of life. The exam was carried out in a specific warm, calm environment, free of intense light, by one of four neonatologists previously trained in its use. After the NNNS evaluation was completed, the items assessed were grouped into 13 variables according to Lester and Tronick:[5] habituation, attention, arousal, regulation, orientation handling procedure, quality of movements, excitability, lethargy, non-optimal reflexes, asymmetry, hypertonicity, hypotonicity, and stress and abstinence signs.

For sample power estimation, Lester and Tronick's study[5] was consulted. This study lists typical numerical mean and standard deviation scores for all 13 variables of the NNNS in full-term healthy newborns. A sample size of 295 newborns would be required for a 99% confidence interval, with an amplitude of the variables' scores divided by their average standard deviation around 0.30. Considering a potential loss of results of about 10% of the patients, 321 newborns should be included in the study.

To describe the neurobehavioral profile of healthy full-term newborn infants of adolescent mothers, mean, standard deviation, minimum and maximum values, and 5^{th}, 10^{th}, 25^{th}, 50^{th}, 75^{th}, 90^{th}, and 95^{th} percentiles were determined for each one of the 13 NNNS variables. To verify the influence of very early maternal age on infants' neurobehavior, the infants were further divided in three groups according to maternal age: 12 to 14 years, 15 to 17 years, and 18 to 19 years. The NNNS results of these three groups were compared by ANOVA and Bonferroni post-hoc tests, being significant $p \leq 0.05$.

RESULTS

From July 2001 to November 2002, 3,685 babies were born in the hospital, and 928 (25.2%) of them were children of adolescent mothers. Among these, 792 (85.4%) were full-term newborn infants, but 373 were not included in the study because of one or more of the exclusion criteria: positive maternal serology for one or more congenital infections (25); general anaesthesia (1); maternal use of analgesics, sedatives and/or anticonvulsants on the day of delivery (34); multiple gestations (6); Apgar score less than 3 at 1 minute or less than 7 at 5 minutes of life (20); newborn infants small (191) or large (31) for gestational age; intra-uterine exposure to tobacco (159), alcohol (20), marijuana (50), cocaine (23) or other drugs, such as inhalants, stimulants and sedatives (2); congenital malformations and/or genetic syndromes (4); clinical problems during hospital stay (79); and need for vital sign monitoring or therapeutic intervention (84). Thus, 419 newborn infants were eligible to be included in the study.

The average age of the 419 mothers was 17±1.5 years old (variation: 12-19 years); 210 (50%) mothers were white, and 270 (64%) said they had stable partners. Only 134 (32%) mothers were attending school, and 44 (11%) were working during pregnancy. They had an average of 7.1±2.2 years of education (variation: 0-12 years). The average per capita monthly income was $79.00±$53.00 USD. The mean number of gestations was 1.2±0.5 (variation: 1-4). Prenatal follow-up was present in 404 (96%) adolescents who attended an average number of 7.0±2.7 visits (variation: 1-20), and 81% of them had attended five or more medical visits. Vaginal delivery occurred in 306 girls(73%), and 313 (75%) received spinal anaesthesia for delivery. Regarding the demographic maternal characteristics

according to mother's age (Table 1), younger adolescent mothers were more often single, studying during pregnancy and had a lower number of gestations.

According to the *Composite International Diagnostic Interview*, version 2.1,[24] depression was the psychiatric disease most prevalent among the studied adolescents (13%), followed by post-traumatic stress (6.2%), psychosis (2.9%), anxiety (2.6%), somatoform or dissociative disorders (1.2%), and bipolar disorders (0.7%). No differences were found among groups according to maternal age.

As for the newborns, 232 (55%) of them were boys. The average Apgar score at 1 minute was 8.2±1.3, and at 5 minutes, 9.6±0.6. The average gestational age was 39.4±1.1 weeks (variation: 37-42 incomplete weeks), and birthweight was 3,205±299g (variation: 2,380-4,010g). The NNNS was applied with 33±7 hours of life (variation: 24-51h), and each of the four neonatologists examined approximately the same number of newborn infants: 113 (27%), 97 (23%), 99 (24%) and 110 (26%) infants, respectively. The examination took 22±5 minutes (variation: 10-45 minutes). The average time from the last breastfeeding to the beginning of examination was 49±54 minutes (variation: 5-300 minutes). The neonatal characteristics of the groups divided according to maternal age did not show any significant difference (Table 2).

The mean scores, as well as standard deviation, variation and distribution of values on percentiles 5, 10, 25, 50, 75, 90 and 95 of all 13 variables of the NNNS are shown in Table 3.

The neurobehavioral profile of healthy full-term newborn infants of adolescent mothers can be described as follows, according to the 13 variables of the NNNS:

– **Habituation**: Response to visual and/or audible stimuli ceases after five or six repetitions of such stimuli.

- **Attention**: The baby moves head and eyes following the visual stimulus through a 30^{o} arc, and head and eyes turn to the audible stimulus. The infant is constantly alert.
- **Arousal**: The infant has normal movement, adequate to his/her sleep and wakefulness state, with moderate spontaneous and reactive activity. The baby reaches stage 6 more than twice after stimulus, though he/she spontaneously returns to lower stages at least twice, so the more frequent stage of sleep and wakefulness is stage 4. Irritability is just occasional.
- **Regulation**: The newborn shows increased head and shoulder tonus when pulled to sit. When held in a cuddled position in the examiner's arms and shoulders, the child relaxes and molds to the examiner. As a defensive response, the baby has unspecific activity, with a short latency period. Alertness has small variation, with response to stimulus undelayed. The global motor tonus is in medium level when the child is handled, with relaxation at rest. Movements are smooth, without tremors and startles. Infants reach wakefulness stage 6 during reflex tests of upper limbs and face. When the skin is examined, changes of color are observed, with slow recovery. As for self-quieting activity, some brief attempts, successes and a quick, not maintained insertion of hand in mouth are observed. When intervention is necessary, the child obtains comfort when held in arms.
- **Orientation Handling Procedures**: Two procedures are required for the orientation of visual and audible stimulus.
- **Quality of movements**: Movements are appropriate for the state of sleep and wakefulness, smooth movements with arcs of 90^{o} amplitude in less than half of the time,

with inexistent, light, or moderate spontaneous activity, and light or moderate reactive activity. There are no tremors, and startles appear only as a response to Moro's reflex.

- **Excitability**: The baby shows comfort when held in the examiner's arms and shoulders. Tonus level is normal or reduced and movements are smooth, with good amplitude. When babies reach stage 6 of sleep and wakefulness, they return to lower stages spontaneously. Nine or more changes of stage are observed during the examination. Irritability appears during less than half of the evaluation. Tremors – when observed – appear only in stages 5 and 6, and babies show no more than two startles.
- **Lethargy**: The baby remains in alert status, focusing and following the stimulus. The tonus level is appropriate, with light to moderate spontaneous and reactive activity. The newborn reaches stage 6 of sleep and wakefulness in the first or second third of the examination, with minor irritability.
- **Non-optimal reflexes**: Non-optimal response is observed in 4 of 15 reflexes applied.
- **Asymmetry**: There is no asymmetry in the reflexes response.
- **Hypertonicity**: No hypertonicity is observed in the assessed items.
- **Hypotonicity**: No hypotonicity is observed in the assessed items.
- **Stress and abstinence signs**: Three signs of stress and abstinence are observed while the NNNS is in progress.

Table 4 shows the mean and the standard deviation of the 13 NNNS variables for newborn infants divided according to maternal age. Neurobehavior of the three groups was similar except for the variable "Lethargy" ($p=0.041$). Babies of older adolescent mothers were more lethargic than the infants of younger ones. However, when multiple comparisons between groups were analyzed by the Bonferroni post-hoc test, no differences were found.

COMMENT

The teen pregnancy rate observed in this study is similar to the usual Brazilian rates[1] and those found in other studies.[27-30] Since pregnancy in adolescence has been increasing in Brazil in recent years, it must be seen as a public health issue.[27,29,30] Taking into account the association between risk behavior and gestation in adolescence, with possible interference in newborn infant behavior, the neurobehavioral evaluation of newborn infants of adolescent mothers is important. The adolescent mother is generally psycho-emotionally immature,[31] posing a risk to the mother-baby bonding. This bonding is further threatened since these babies can also be more disorganized, excitable, and hard to comfort than other babies. Therefore, the neurobehavioral profile of full-term healthy newborn children of adolescent mothers needs to be examined. Moreover, the establishment of normative data on neonatal neurobehavior would help to assess the consequences of risks commonly added when gestation occurs during adolescence, such as intra-uterine exposure to drugs and maternal psychiatric disorders, among others.

In relation to psychiatric disorders, a study of Swedish pregnant adult women[32] found a prevalence of 14.1%, with 10.2% suffering from depression, and 6.6% from anxiety. In non-pregnant teenagers, the prevalence of depression was 5.0% as described in a study in France.[33] Thus, the prevalence of psychiatric disorders observed in this study (depression 13%, post-traumatic stress disorder 6%, psychosis 3%, and anxiety 3%) is relatively high, and these disorders can increase the risk of neurobehavioral changes in the newborn infants.

Only one other study in the specialized literature has evaluated the neurobehavioral profile of full-term healthy newborns. Using the NNNS, Lester and Tronick[5] evaluated 125

full-term adequate to gestational age newborns with gestational ages between 38 weeks and 41 weeks and six days, Apgar score at 5 minutes greater than 6, and whose hospital discharge with their mothers took place on the third or fourth day of life. They excluded babies that were inpatients of the neonatal ICU, those with congenital malformations, chromosomal abnormalities, sensorial deficits, neurological diseases, twins, those under intra-uterine exposure to drugs, those who had gone through surgery and those who had received treatment for hyperbilirubinemia or were circumcised prior 24 hours before or after the neurobehavioral examination. Babies were also excluded from their study when mothers were less than 18 or over 39 years old, had not attended at least three prenatal visits, or had a disease that could interfere with their clinical evolution. The patients were evaluated 30±12 hours after birth. Lester and Tronick obtained the following mean scores for the NNNS variables: habituation 7.91±1.14; attention 5.30±1.04; arousal 4.16±0.81; regulation 5.00±0.82; orientation handling procedures 0.27±0.27; quality of movements 3.81±0.78; excitability 4.23±2.10; lethargy 6.32±3.24; non-optimal reflexes 4.32±1.73; asymmetry 1.93±1.33; hypertonicity 0.07±0.26; hypotonicity 0.55±0.76 and stress and abstinence signs 0.15±0.05. These values became the reference points for assessing the neurobehavioral profile of healthy term newborn infants.

The scores obtained in our study for newborn infants of adolescent mothers are similar to those of Lester and Tronick[5]. All of them are between the 5^{th} and the 95^{th} percentiles of Lester and Tronick's distribution, except for the variables "regulation" and "quality of movements." The patients we studied had better control of motor, physiological, and attention responses than those studied by Lester and Tronick. Movements were smoother, there were no tremors, startles occurred only during the response to Moro's

reflex, and fewer stress and abstinence signs were observed. However, such differences were quite subtle.

Since the average maternal age in the group of adolescents that we studied was relatively high, we divided them into three age groups (12-14 years, 15-17 years, and 18-19 years) in order to test the hypothesis that the younger the adolescent mother, the greater would be the differences in neurobehavior observed compared to infants born to adults. However, the scores of the variables “regulation” and “quality of movements” were similar among the groups, as were the others, except for the variable “lethargy.” Babies of older adolescent mothers were more lethargic than the infants of younger ones. The meaning of this finding should be further explored by additional studies.

The main limitation of this study regarding possible consequences of the pattern of neurobehavior found in neonatal infants born to adolescent mothers is its cross-sectional design. It would be interesting to analyze these infants longitudinally during the first year of life and subsequently. A single neurobehavior evaluation should be used only as a screening tool to identify potential neurobehavioral problems in these groups of newborns. Serial examinations are more sensitive to perinatal influences, and they are also a way to validate these tools. Despite this limitation, this description of the neurobehavioral profile of healthy term newborns of adolescent mothers can help clinicians to better understand the potential effects of maternal risk behaviors on their offspring.

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Table 1: Demographic characteristics of the adolescent mothers according to their age in years

	Total (n=419)	**12-14y (n=26)**	**15-17y (n=231)**	**18-19y (n=162)**	**p**
Maternal age (y)	17±1.5	14±0.6	16±0.7	18±0.5	**<0.001***
White race	210 (50%)	12 (46%)	23 (53%)	74 (46%)	0.311+
Married	270 (64%)	12 (46%)	143 (62%)	115 (71%)	**0.024**+
Studying	134 (32%)	12 (46%)	93 (40%)	29 (18%)	**<0.001**+
Years of school	7.1±2.2	5.5±1.7	7.1±2.0	7.4±2.4	**<0.001***
Working	44 (11%)	2 (8%)	12 (5%)	30 (18%)	**<0.001**+
Per capita income (U$/month)	79±53	82±73	77±50	82±54	0.641*
Number of gestations	1.2±0.5	1.0±0.0	1.1±0.4	1.4±0.7	**<0.001***
Prenatal care present	404 (96%)	24 (92%)	226 (98%)	154 (95%)	0.175+
Number of prenatal care visits	7.0±2.7	6.3±2.5	6.8±2.5	7.3±3.1	0.166*
Vaginal delivery	306 (73%)	20 (77%)	171 (75%)	112 (69%)	0.356+
Spinal anesthesia	313 (75%)	21 (81%)	171 (74%)	121 (75%)	0.755+
Phychiatric diseases					
- Depression	54 (13%)	0	32 (14%)	22 (14%)	0.128+
- Anxiety Disorders	11 (3%)	1 (4%)	5 (2%)	5 (3%)	0.787+
- Post-Traumatic Stress	26 (6%)	2 (8%)	13 (6%)	11 (7%)	0.681+
- Bipolar Disorders	3 (0.7%)	0	2 (0.9%)	1 (1%)	0.868+
- Psychotic Disorders	12 (3%)	1 (4%)	9 (4%)	2 (1%)	0.284+
- Somatoform Disorders	5 (1.2%)	0	2 (1%)	3 (2%)	0.571+

*:ANOVA; +chi-square test.

Table 2: Demographic characteristics of the newborn infants according to maternal age

	Total (n=419)	**12-14y (n=26)**	**15-17y (n=231)**	**18-19y (n=162)**	**p**
Male	232 (55%)	13 (50%)	125 (54%)	94 (58%)	0.633[+]
Gestational age (weeks)	39.4±1.1	39.5±1.1	39.3±1.1	39.4±1.1	0.626*
Birthweight (g)	3205±299	3270±259	3189±298	3218±304	0.323*
Apgar at 1 minute	8.2±1.3	8.0±1.4	8.1±1.3	8.3±1.2	0.486*
Apgar at 5 minutes	9.6±0.6	9.5±0.6	9.6±0.6	9.6±0.6	0.536*
NNNS Assessment					
Hours of life	33.2±6.9	33.1±7.8	33.1±6.8	33.3±6.9	0.952*
Minutes of assessment	22.5±5.4	22.9±5.1	22.4±5.2	22.5±5.7	0.892*
Minutes after feeding	48.7±54.2	47.7±60.6	47.7±50.0	50.4±59.1	0.885*

*:ANOVA; [+]chi-square test.

Table 3: NNNS scores distribution

	n	Mean	SD	Min	Max	P5	P10	P25	P50	P75	P90	P95
Habituation	250	6.86	1.49	3.33	9.00	4.33	4.67	5.67	7.00	8.33	8.67	9.00
Attention	381	5.73	1.32	2.14	8.57	3.29	4.00	4.71	5.86	6.71	7.43	7.57
Arousal	419	3.70	0.70	2.14	5.71	2.84	2.86	3.14	3.57	4.14	4.71	4.87
Regulation	419	6.06	0.74	3.73	7.92	4.87	5.07	5.57	6.08	6.57	6.93	7.23
Orientation procedures	419	0.36	0.26	0.00	1.00	0.00	0.00	0.13	0.38	0.50	0.75	0.88
Quality of movements	419	5.11	0.49	4.00	6.00	4.50	4.50	4.63	5.00	5.58	5.67	5.67
Excitability	419	2.48	1.68	0.00	7.00	0.00	0.00	1.00	2.00	4.00	5.00	5.00
Lethargy	419	4.04	1.82	0.00	13.00	2.00	2.00	3.00	4.00	5.00	6.00	8.00
Nonoptimal reflexes	419	3.67	1.35	0.00	7.00	1.90	2.00	3.00	4.00	5.00	5.00	6.00
Assimetry	419	0.71	0.94	0.00	6.00	0.00	0.00	0.00	0.00	1.00	2.00	2.10
Hipertonicity	419	0.18	0.39	0.00	2.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00
Hipotonicity	419	0.13	0.37	0.00	3.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00
Stress/Abstinence Signs	419	0.07	0.05	0.00	0.33	0.00	0.02	0.02	0.06	0.10	0.12	0.16

Min: minimum; Max: maximum; P: percentile;

Table 4: Mean (SD) NNNS scores of newborn infants according to maternal age in years

	Total (n=419)	**12-14y (n=26)**	**15-17y (n=231)**	**18-19y (n=162)**	**ANOVA**
Habituation	6.86 (1.49)	6.84 (1.38)	6.93 (1.51)	6.78 (1.49)	0.743
Attention	5.73 (1.32)	5.87 (1.30)	5.79 (1.34)	5.60 (1.29)	0.351
Arousal	3.70 (0.70)	3.76 (0.55)	3.72 (0.69)	3.68 (0.73)	0.774
Regulation	6.06 (0.74)	6.27 (0.62)	6.06 (0.75)	6.03 (0.74)	0.316
Orientation Procedures	0.36 (0.26)	0.36 (0.23)	0.37 (0.27)	0.34 (0.25)	0.681
Quality of movements	5.11 (0.49)	5.04 (0.46)	5.08 (0.49)	5.15 (0.49)	0.289
Excitability	2.48 (1.68)	2.31 (1.49)	2.50 (1.65)	2.49 (1.75)	0.858
Lethargy	4.04 (1.82)	3.50 (1.53)	3.90 (1.69)	4.31 (2.01)	**0.025**
Nonoptimal reflexes	3.67 (1.35)	4.08 (1.26)	3.57 (1.35)	3.73 (1.37)	0.139
Assimetry	0.71 (0.94)	0.85 (1.19)	0.74 (0.95)	0.64 (0.88)	0.426
Hipertonicity	0.18 (0.39)	0.19 (0.40)	0.19 (0.39)	0.15 (0.40)	0.656
Hipotonicity	0.13 (0.37)	0.00 (0.00)	0.14 (0.39)	0.13 (0.35)	0.188
Stress/Abstinence Signs	0.07 (0.05)	0.07 (0.06)	0.07 (0.05)	0.06 (0.05)	0.377