

Dataset Integrity Check for The Environmental Determinants of Diabetes in the Young (TEDDY) M55 Riikonen

Prepared by NIDDK-CR
December 1, 2022

Contents

1 Standard Disclaimer	2
2 Study Background	2
3 Archived Datasets	2
4 Statistical Methods	2
5 Results	3
6 Conclusions	3
7 References	3
Table A: Variables used to replicate Table 1 – Maternal and infant characteristics by maternal T1D and country in the TEDDY study (n = 8676)	4
Table B1: Comparison of values computed in integrity check to reference article Table 1 (United States) 5	
Table B2: Comparison of values computed in integrity check to reference article Table 1 (Finland).....	6
Table B3: Comparison of values computed in integrity check to reference article Table 1 (Germany).....	7
Table B4: Comparison of values computed in integrity check to reference article Table 1 (Sweden).....	8
Attachment A: SAS Code	9

1 Standard Disclaimer

The intent of this DSIC is to provide confidence that the data distributed by the NIDDK repository is a true copy of the study data. Our intent is not to assess the integrity of the statistical analyses reported by study investigators. As with all statistical analyses of complex datasets, complete replication of a set of statistical results should not be expected in secondary analysis. This occurs for a number of reasons including differences in the handling of missing data, restrictions on cases included in samples for a particular analysis, software coding used to define complex variables, etc. Experience suggests that most discrepancies can ordinarily be resolved by consultation with the study data coordinating center (DCC), however this process is labor-intensive for both DCC and Repository staff. It is thus not our policy to resolve every discrepancy that is observed in an integrity check. Specifically, we do not attempt to resolve minor or inconsequential discrepancies with published results or discrepancies that involve complex analyses, unless NIDDK Repository staff suspect that the observed discrepancy suggests that the dataset may have been corrupted in storage, transmission, or processing by repository staff. We do, however, document in footnotes to the integrity check those instances in which our secondary analyses produced results that were not fully consistent with those reported in the target publication.

2 Study Background

The TEDDY study was designed to follow children with and without a family history of type 1 diabetes (T1D) to understand the environmental factors that contribute to the disease. Newborn children younger than 4 months were screened for high-risk HLA alleles, and those with qualifying haplotypes were eligible for follow-up. Information is collected on medical information (infections, medication, immunizations), exposure to dietary and other environmental factors, negative life events, family history, tap water, and measurements of psychological stress. Biospecimens, including blood, stool, urine, and nail clippings, are taken at baseline and follow-up study visits. The primary outcome measures include two endpoints—the first appearance of one or more islet cell autoantibodies (GADA, IAA, or IA-2A), confirmed at two consecutive visits, and development of T1D. The cohort will be followed for 15 years, or until the occurrence of one of the primary endpoints.

The M55 study sought to describe milk feeding patterns and first weaning foods through the first year of life in infants with an increased genetic risk for T1D.

3 Archived Datasets

All data files, as provided by the Data Coordinating Center (DCC), are located in the TEDDY M55 folder in the data package. For this replication, variables were taken from the “M_55_ARIikonen_NIDDK_31July2014.sas7bdat” dataset.

4 Statistical Methods

Analyses were performed to replicate results for the data in the publication by Riiikonen et al. [1]. To verify the integrity of the data, only descriptive statistics were computed.

5 Results

For Table 1 in the publication [1], Maternal and infant characteristics by maternal T1D and country in the TEDDY study (n = 8676), Table A lists the variables that were used in the replication, and Tables B1-4 compare the results calculated from the archived data files to the results in Table 1. The results of the replication are within expected variation of the published results.

6 Conclusions

The NIDDK Central Repository is confident that the TEDDY M55 data files to be distributed are a true copy of the study data.

7 References

[1] Riikonen A, Hadley D, Uusitalo U, Miller N, Koletzko S, Yang J, Aronsson CA, Hummel S, Norris JM, Virtanen SM. Milk Feeding and First Complementary Foods During the First Year of Life in the TEDDY Study. *Maternal & Child Nutrition*, 14(4), e12611, October 2018. doi: <https://doi.org/10.1111/mcn.12611>

Table A: Variables used to replicate Table 1 – Maternal and infant characteristics by maternal T1D and country in the TEDDY study (n = 8676)

Table Variable	dataset.variable
Maternal age (years)	M_55_ARIikonen_NIDDK_31July2014.country M_55_ARIikonen_NIDDK_31July2014.diabetes M_55_ARIikonen_NIDDK_31July2014.maternal_age
Maternal pre-pregnancy BMI (kg/m ²)	M_55_ARIikonen_NIDDK_31July2014.country M_55_ARIikonen_NIDDK_31July2014.diabetes M_55_ARIikonen_NIDDK_31July2014.bmi
Mother's first child (%)	M_55_ARIikonen_NIDDK_31July2014.country M_55_ARIikonen_NIDDK_31July2014.diabetes M_55_ARIikonen_NIDDK_31July2014.mom_first_child
Maternal education (%)	M_55_ARIikonen_NIDDK_31July2014.country M_55_ARIikonen_NIDDK_31July2014.diabetes M_55_ARIikonen_NIDDK_31July2014.mom_education
Smoked during pregnancy (%)	M_55_ARIikonen_NIDDK_31July2014.country M_55_ARIikonen_NIDDK_31July2014.diabetes M_55_ARIikonen_NIDDK_31July2014.smoker
Birth weight (grams)	M_55_ARIikonen_NIDDK_31July2014.country M_55_ARIikonen_NIDDK_31July2014.diabetes M_55_ARIikonen_NIDDK_31July2014.babysweightgrams
Gestational age (weeks)	M_55_ARIikonen_NIDDK_31July2014.country M_55_ARIikonen_NIDDK_31July2014.diabetes M_55_ARIikonen_NIDDK_31July2014.gestational_age
5-minute Apgar score ≥ 9 (%)	M_55_ARIikonen_NIDDK_31July2014.country M_55_ARIikonen_NIDDK_31July2014.diabetes M_55_ARIikonen_NIDDK_31July2014.apgar_score
Caesarean section (%)	M_55_ARIikonen_NIDDK_31July2014.country M_55_ARIikonen_NIDDK_31July2014.diabetes M_55_ARIikonen_NIDDK_31July2014.delivery
Sex, girls (%)	M_55_ARIikonen_NIDDK_31July2014.country M_55_ARIikonen_NIDDK_31July2014.diabetes M_55_ARIikonen_NIDDK_31July2014.sex
Exclusive (breastfeeding)	M_55_ARIikonen_NIDDK_31July2014.country M_55_ARIikonen_NIDDK_31July2014.diabetes M_55_ARIikonen_NIDDK_31July2014.time_to_excl_stop
Overall (breastfeeding)	M_55_ARIikonen_NIDDK_31July2014.country M_55_ARIikonen_NIDDK_31July2014.diabetes M_55_ARIikonen_NIDDK_31July2014.time_to_brstfed_stop

Table B1: Comparison of values computed in integrity check to reference article Table 1 (United States)

	United States (n=3723)					
	Pub: Mother with T1D (n=127)	DSIC: Mother with T1D (n=127)	Diff. (n=0)	Pub: Other (n=3596)	DSIC: Other (n=3596)	Diff. (n=0)
Maternal Characteristics						
Maternal age (years)	29 (26-33)	29 (26-33)	0 (0)	30 (26-34)	30 (26-34)	0 (0)
Maternal pre-pregnancy BMI (kg/m ²)	24.0 (21.8-28.1)	24.0 (21.8-28.1)	0 (0)	24.1 (21.5-28.4)	24.1 (21.5-28.4)	0 (0)
Missing data (n)	5	5	0	149	149	0
Mother's first child (%)	51.5	51.5	0	40.1	40.1	0
Missing data (n)	26	26	0	946	946	0
Maternal education, more than high school (%)	92.3	92.3	0	89.7	89.7	0
Missing data (n)	36	36	0	1227	1227	0
Smoked during pregnancy (%)	9.9	9.9	0	10.7	10.7	0
Missing data (n)	6	6	0	123	123	0
Child Characteristics						
Birth weight (grams)	3582 (3070-3894)	3582 (3070-3894)	0 (0)	3439 (3070-3750)	3439 (3070-3750)	0 (0)
Missing data (n)	8	8	0	226	226	0
Gestational age (weeks)	37.5 (36.0-38.0)	37.5 (36.0-38.0)	0 (0)	40.0 (38.0-40.0)	40 (38.0-40.0)	0 (0)
Missing data (n)	1	1	0	7	7	0
5-minute Apgar score ≥ 9 (%)	57.6	57.6	0	79.5	79.5	0
Missing data (n)	75	75	0	2461	2461	0
Caesarean section (%)	67.5	67.5	0	35.0	35.0	0
Missing data (n)	75	1	74	2	2	0
Sex, girls (%)	46.5	46.5	0	49.5	49.5	0
Breastfeeding Duration (days)						
Exclusive	0.5 (0.5-7.0)	0.5 (0.5-7.0)	0 (0)	7.0 (0.5-56.0)	7.0 (0.5-56.0)	0 (0)
Missing data (n)	0	0	0	1	1	0
Overall	84.0 (28.0-280.0)	84.0 (28.0-280)	0 (0)	174.0 (42.0-365.0)	174.0 (42.0-365.0)	0 (0)
Missing data (n)	0	0	0	23	23	0

Table B2: Comparison of values computed in integrity check to reference article Table 1 (Finland)

	Finland (n=1833)					
	Pub: Mother with T1D (n=68)	DSIC: Mother with T1D (n=68)	Diff. (n=0)	Pub: Other (n=1765)	DSIC: Other (n=1765)	Diff. (n=0)
Maternal Characteristics						
Maternal age (years)	29 (25-33.5)	29 (25-33.5)	0 (0)	30 (27-33)	30 (27-33)	0 (0)
Maternal pre-pregnancy BMI (kg/m ²)	23.9 (22.6-27.3)	23.9 (22.6-27.3)	0 (0)	23.3 (21.1-25.9)	23.3 (21.1-25.9)	0 (0)
Missing data (n)	2	2	0	40	40	0
Mother's first child (%)	50.9	50.9	0	44.5	44.5	0
Missing data (n)	13	13	0	344	344	0
Maternal education, more than high school (%)	98.2	98.2	0	95.3	95.3	0
Missing data (n)	13	13	0	396	396	0
Smoked during pregnancy (%)	21.5	21.5	0	14.2	14.2	0
Missing data (n)	3	3	0	56	56	0
Child Characteristics						
Birth weight (grams)	3740 (3395-4100)	3740 (3395-4100)	0 (0)	3550 (3200-3880)	3550 (3200-3880)	0 (0)
Missing data (n)	0	0	0	4	4	0
Gestational age (weeks)	37 (36.2-38.2)	37 (36.2-38.2)	0 (0)	40 (39.0-40.3)	40 (39.0-40.3)	0 (0)
Missing data (n)	1	0	1	4	4	0
5-minute Apgar score ≥ 9 (%)	62.7	62.7	0	87.0	87.0	0
Missing data (n)	1	1	0	21	21	0
Caesarean section (%)	67.7	67.7	0	15.5	15.5	0
Missing data (n)	0	0	0	4	4	0
Sex, girls (%)	63.2	63.2	0	48.6	48.6	0
Breastfeeding Duration (days)						
Exclusive	15.0 (3.8-63.0)	15.0 (3.8-63.0)	0 (0)	21.0 (0.5-84.0)	21.0 (0.5-84.0)	0 (0)
Missing data (n)	0	0	0	2	2	0
Overall	189.5 (63.0-365.0)	189.5 (63.0-365.0)	0 (0)	247.0 (124.0-365.0)	247.0 (124.0-365.0)	0 (0)
Missing data (n)	0	0	0	8	8	0

Table B3: Comparison of values computed in integrity check to reference article Table 1 (Germany)

	Germany (n=595)					
	Pub: Mother with T1D (n=109)	DSIC: Mother with T1D (n=109)	Diff. (n=0)	Pub: Other (n=486)	DSIC: Other (n=486)	Diff. (n=0)
Maternal Characteristics						
Maternal age (years)	31 (29-35)	31 (29-35)	0 (0)	32 (28-35)	32 (28-35)	0 (0)
Maternal pre-pregnancy BMI (kg/m ²)	23.8 (23.8-27.1)	23.8 (21.8-27.1)	0 (2-0)	23.0 (20.6-26.2)	23.0 (20.6-26.2)	0 (0)
Missing data (n)	1	1	0	1	1	0
Mother's first child (%)	51.8	51.8	0	48.1	48.1	0
Missing data (n)	26	26	0	172	172	0
Maternal education, more than high school (%)	92.8	92.8	0	90.1	90.1	0
Missing data (n)	26	26	0	172	172	0
Smoked during pregnancy (%)	22.2	22.2	0	19.1	19.1	0
Missing data (n)	1	1	0	9	9	0
Child Characteristics						
Birth weight (grams)	3615 (3175-3960)	3615 (3175-3960)	0 (0)	3445 (3100-3740)	3445 (3100-3740)	0 (0)
Missing data (n)	0	0	0	0	0	0
Gestational age (weeks)	38.4 (38.0-40.0)	38.4 (38.0-40.0)	0 (0)	40 (38.3-40.0)	40.0 (38.3-40.0)	0 (0)
Missing data (n)	0	0	0	2	2	0
5-minute Apgar score ≥ 9 (%)	86.1	86.1	0	94.1	94.1	0
Missing data (n)	1	1	0	13	13	0
Caesarean section (%)	50.5	50.5	0	31.7	31.7	0
Missing data (n)	0	0	0	0	0	0
Sex, girls (%)	53.2	53.2	0	49.6	49.6	0
Breastfeeding Duration (days)						
Exclusive	7.0 (0.5-61.0)	7.0 (0.5-61.0)	0 (0)	35.0 (0.5-137.0)	35.0 (0.5-137.0)	0 (0)
Missing data (n)	0	0	0	0	0	0
Overall	167.0 (35.0-314.0)	167.0 (35.0-314.0)	0 (0)	199.5 (56.0-304.0)	199.5 (56.0-304.0)	0 (0)
Missing data (n)	0	0	0	2	2	0

Table B4: Comparison of values computed in integrity check to reference article Table 1 (Sweden)

	Sweden (n=2525)					
	Pub: Mother with T1D (n=53)	DSIC: Mother with T1D (n=53)	Diff. (n=0)	Pub: Other (n=2472)	DSIC: Other (n=2472)	Diff. (n=0)
Maternal Characteristics						
Maternal age (years)	31 (28-33)	31 (28-33)	0 (0)	31 (28-34)	31 (28-34)	0 (0)
Maternal pre-pregnancy BMI (kg/m ²)	24.8 (22.8-28.0)	24.8 (22.8-28.0)	0(0)	23.2 (21.2-26.3)	23.2 (21.2-26.3)	0 (0)
Missing data (n)	1	1	0	52	52	0
Mother's first child (%)	41.5	41.5	0	47.4	47.4	0
Missing data (n)	12	12	0	548	548	0
Maternal education, more than high school (%)	75.6	75.6	0	72.4	72.4	0
Missing data (n)	12	12	0	577	577	0
Smoked during pregnancy (%)	21.2	21.2	0	13.0	13.0	0
Missing data (n)	1	1	0	48	48	0
Child Characteristics						
Birth weight (grams)	3800 (3440-4230)	3800 (3440-4230)	0 (0)	3595 (3260-3935)	3595 (3260-3935)	0 (0)
Missing data (n)	0	0	0	1	1	0
Gestational age (weeks)	38.3 (37.7-39.6)	38.3 (37.7-39.6)	0 (0)	40.0 (38.9-40.9)	40.0 (38.9-40.9)	0 (0)
Missing data (n)	0	0	0	1	1	1
5-minute Apgar score ≥ 9 (%)	97.0	97.0	0	96.9	96.9	0
Missing data (n)	20	20	0	893	893	0
Caesarean section (%)	39.6	39.6	0	14.2	14.2	0
Missing data (n)	0	0	0	0	0	0
Sex, girls (%)	47.2	47.2	0	49.5	49.5	0
Breastfeeding Duration (days)						
Exclusive	0.5 (0.5-7.0)	0.5 (0.5-7.0)	0 (0)	28.0 (0.5-105.0)	28.0 (0.5-105.0)	0 (0)
Missing data (n)	0	0	0	0	0	0
Overall	191.0 (122.0-259.0)	191.0 (122.0-259.0)	0 (0)	210.0 (84.0-283.0)	210.0 (84.0-283.0)	0 (0)
Missing data (n)	0	0	0	9	9	0

Attachment A: SAS Code

```
libname dsic "X:\NIDDK\niddk-  
dr_studies6\TEDDY\private_orig_data\M_55_Ariikonen_NIDDK_Submission";  
/*****/  
/* TEDDY M55 */  
/* DSIC */  
/*****/
```

```
* creating a temp dataset;  
data m55; set dsic.M_55_Ariikonen_NIDDK_31July2014;  
run;
```

```
*Identifying the countries of interest;  
proc freq data=m55;  
tables country;  
run;
```

```
*mothers with T1D in each country;  
data diab; set m55;  
if /*diabetes = 2*/ mom_fdr = 1 then diabcat = 1; else diabcat = 0;  
run;
```

```
proc freq data=diab;  
tables diabcat*country/norow nopercnt missing;  
run;
```

```
/*****/  
/* United States */  
/*****/
```

```
/*MATERNAL CHARACTERISTICS*/
```

```
*maternal age;  
proc sort data=diab;  
by diabcat;  
run;
```

```
proc means data=diab n median q1 q3;  
var maternal_age;  
by diabcat ;  
where country = 1;  
run;
```

```
*BMI;  
proc means data=diab n median q1 q3 nmiss;  
var bmi;
```

```
by diabcat;
where country = 1;
run;
```

```
*Mother's first child;
proc freq data=diab;
tables mom_first_child*diabcat/norow nopercnt missing;
where country = 1;
run;
```

```
*Maternal education, more than high school;
proc freq data=diab;
tables mom_education*diabcat/norow nopercnt missing;
where country = 1;
run;
```

```
*smoking during pregnancy;
proc freq data=diab;
tables smoker*diabcat/norow nopercnt missing;
where country = 1;
run;
```

```
/*CHILD CHARACTERISTICS*/
```

```
*Birth weight;
proc means data=diab n median q1 q3 nmiss;
var babysweightgrams;
class diabcat;
where country = 1;
run;
```

```
*Gestational age (weeks);
proc means data=diab n median q1 q3 nmiss;
var gestational_age;
class diabcat;
where country = 1;
run;
```

```
*5 min apgar score;
proc freq data=diab;
tables apgar_score*diabcat/norow nopercnt;
where country = 1;
run ;
```

```
data diab2; set diab;
apcat = 0;
if apgar_score = . OR apgar_score = 99 then apcat = .;
if apgar_score = 9 OR apgar_score = 10 then apcat = 1;
```

```
run;
```

```
proc freq data=diab2;  
tables apcat*diabcat/norow nopercnt missing;  
where country = 1;  
run;
```

```
*caesarean section;  
proc freq data=diab;  
tables delivery*diabcat/norow nopercnt missing;  
where country = 1;  
run;
```

```
*sex girls;  
proc freq data=diab;  
tables Sex*diabcat/norow nopercnt /*missing*/;  
where country = 1;  
run;
```

```
/* BREASTFEEDIN DURATION*/  
*exclusive;  
proc means data=diab n median q1 q3 nmiss;  
var time_to_excl_stop;  
class diabcat;  
where country = 1;  
run;
```

```
*any/all;  
proc means data=diab n median q1 q3 nmiss;  
var time_to_brstfed_stop;  
class diabcat;  
where country = 1;  
run ;
```

```
/******  
/* FINLAND */  
/******
```

```
/*MATERNAL CHARACTERISTICS*/
```

```
*maternal age;  
proc means data=diab n median q1 q3 nmiss;  
var maternal_age;  
by diabcat ;  
where country = 2;  
run;
```

```
*BMI;
```

```
proc means data=diab n median q1 q3 nmiss;  
var bmi;  
by diabcat;  
where country = 2;  
run;
```

```
*Mother's first child;  
proc freq data=diab;  
tables mom_first_child*diabcat/norow nopercnt missing;  
where country = 2;  
run;
```

```
*Moternal education, more than high school;  
proc freq data=diab;  
tables mom_education*diabcat/norow nopercnt missing;  
where country = 2;  
run;
```

```
*smoking during pregnancy;  
proc freq data=diab;  
tables smoker*diabcat/norow nopercnt missing;  
where country = 2;  
run;
```

```
/*CHILD CHARACTERISTICS*/
```

```
*Birth weight;  
proc means data=diab n median q1 q3 nmiss;  
var babysweightgrams;  
class diabcat;  
where country = 2;  
run;
```

```
*Gestational age (weeks);  
proc means data=diab n median q1 q3 nmiss;  
var gestational_age;  
class diabcat;  
where country = 2;  
run;
```

```
*5 min apgar score;  
proc freq data=diab;  
tables apgar_score*diabcat/norow nopercnt;  
where country = 2;  
run ;
```

```
proc freq data=diab2;  
tables apcat*diabcat/norow nopercnt missing;
```

```

where country = 2;
run;

*caesarean section;
proc freq data=diab;
tables delivery*diabcat/norow nopercnt /*missing*/;
where country = 2;
run;

proc freq data=diab;
tables delivery*diabcat/norow nopercnt missing;
where country = 2;
run;

*sex girls;
proc freq data=diab;
tables Sex*diabcat/norow nopercnt /*missing*/;
where country = 2;
run;

/* BREASTFEEDIN DURATION*/
*exclusive;
proc means data=diab n median q1 q3 nmiss;
var time_to_excl_stop;
class diabcat;
where country = 2;
run;

*any/all;
proc means data=diab n median q1 q3 nmiss;
var time_to_brstfed_stop;
class diabcat;
where country = 2;
run ;

/*****/
/* GERMANY */
/*****/

/*MATERNAL CHARACTERISTICS*/

*maternal age;
proc means data=diab n median q1 q3 nmiss;
var maternal_age;
by diabcat ;
where country = 3;
run;

```

```

*BMI;
proc means data=diab n median q1 q3 nmiss;
var bmi;
by diabcat;
where country = 3;
run;

*Mother's first child;
proc freq data=diab;
tables mom_first_child*diabcat/norow nopercnt;
where country = 3;
run;

proc freq data=diab;
tables mom_first_child*diabcat/norow nopercnt missing;
where country = 3;
run;

*Maternal education, more than high school;
proc freq data=diab;
tables mom_education*diabcat/norow nopercnt;
where country = 3;
run;

proc freq data=diab;
tables mom_education*diabcat/norow nopercnt missing;
where country = 3;
run;

*smoking during pregnancy;
proc freq data=diab;
tables smoker*diabcat/norow nopercnt;
where country = 3;
run;

proc freq data=diab;
tables smoker*diabcat/norow nopercnt missing;
where country = 3;
run;

/*CHILD CHARACTERISTICS*/

*Birth weight;
proc means data=diab n median q1 q3 nmiss;
var babysweightgrams;
class diabcat;
where country = 3;
run;

```

```
*Gestational age (weeks);  
proc means data=diab n median q1 q3 nmiss;  
var gestational_age;  
class diabcat;  
where country = 3;  
run;
```

```
*5 min apgar score;  
proc freq data=diab2;  
tables apcat*diabcat/norow nopercent;  
where country = 3;  
run;
```

```
proc freq data=diab2;  
tables apcat*diabcat/norow nopercent missing;  
where country = 3;  
run;
```

```
*caesarean section;  
proc freq data=diab;  
tables delivery*diabcat/norow nopercent /*missing*/;  
where country = 3;  
run;
```

```
proc freq data=diab;  
tables delivery*diabcat/norow nopercent missing;  
where country = 3;  
run;
```

```
*sex girls;  
proc freq data=diab;  
tables Sex*diabcat/norow nopercent;  
where country = 3;  
run;
```

```
/* BREASTFEEDIN DURATION*/  
*exclusive;  
proc means data=diab n median q1 q3 nmiss;  
var time_to_excl_stop;  
class diabcat;  
where country = 3;  
run;
```

```
*any/all;  
proc means data=diab n median q1 q3 nmiss;  
var time_to_brstfed_stop;  
class diabcat;
```



```

where country = 3;
run ;

/*****/
/* SWEDEN */
/*****/

/*MATERNAL CHARACTERISTICS*/

*maternal age;
proc means data=diab n median q1 q3 nmiss;
var maternal_age;
by diabcat ;
where country = 4;
run;

*BMI;
proc means data=diab n median q1 q3 nmiss;
var bmi;
by diabcat;
where country = 4;
run;

*Mother's first child;
proc freq data=diab;
tables mom_first_child*diabcat/norow nopercnt;
where country = 4;
run;

proc freq data=diab;
tables mom_first_child*diabcat/norow nopercnt missing;
where country = 4;
run;

*Maternal education, more than high school;
proc freq data=diab;
tables mom_education*diabcat/norow nopercnt;
where country = 4;
run;

proc freq data=diab;
tables mom_education*diabcat/norow nopercnt missing;
where country = 4;
run;

*smoking during pregnancy;
proc freq data=diab;
tables smoker*diabcat/norow nopercnt;

```

```
where country = 4;  
run;
```

```
proc freq data=diab;  
tables smoker*diabcat/norow nopercent missing;  
where country = 4;  
run;
```

```
/*CHILD CHARACTERISTICS*/
```

```
*Birth weight;  
proc means data=diab n median q1 q3 nmiss;  
var babysweightgrams;  
class diabcat;  
where country = 4;  
run;
```

```
*Gestational age (weeks);  
proc means data=diab n median q1 q3 nmiss;  
var gestational_age;  
class diabcat;  
where country = 4;  
run;
```

```
*5 min apgar score;  
proc freq data=diab2;  
tables apcat*diabcat/norow nopercent;  
where country = 4;  
run;
```

```
proc freq data=diab2;  
tables apcat*diabcat/norow nopercent missing;  
where country = 4;  
run;
```

```
*caesarean section;  
proc freq data=diab;  
tables delivery*diabcat/norow nopercent /*missing*/;  
where country = 4;  
run;
```

```
proc freq data=diab;  
tables delivery*diabcat/norow nopercent missing;  
where country = 4;  
run;
```

```
*sex girls;  
proc freq data=diab;
```

```
tables Sex*diabcat/norow nopercent;  
where country = 4;  
run;
```

```
/* BREASTFEEDIN DURATION*/  
*exclusive;  
proc means data=diab n median q1 q3 nmiss;  
var time_to_excl_stop;  
class diabcat;  
where country = 4;  
run;
```

```
*any/all;  
proc means data=diab n median q1 q3 nmiss;  
var time_to_brstfed_stop;  
class diabcat;  
where country = 4;  
run ;
```