not visible in its normal position of the neck, grade 2 - thyroid gland was palpable and visible in its normal position of the neck.\(^8\)

*Measurement of thyroid gland volume by ultrasonography*

Measurement of thyroid gland volume by ultrasonography was performed by one examiner, by a real time ultrasound portable Mindray DP -1100 device (linear probe 7.5 MHz, length 4cm) while the child was lying on her/his back with the neck in an extended position. The examination technique is described in the IDD Newsletter.\(^9\) The volume of each lobe was estimated according to the formula for rotating ellipsoid.\(^10\)

The results of measurements were compared with the latest norms for the size of the thyroid gland determined ultrasonographically, as reported by the Zimmermann group.\(^11\)

The Body Surface Area (BSA) was obtained using the children’s height and weight measurements.

*Methods used for determining urinary iodine excretion*

Urine samples (1.5ml) were collected from the children, transported in refrigerator and frozen the same day at -20\(^\circ\)C. At the end of the field work we sent the collected samples to the Institute of Pathophysiology and Nuclear Medicine, Faculty of Medicine, University of Skopje, FYROM. They were examined by Method A, described on pages 163-167 of the publication “The correction of iodine deficiency in FYROM”.\(^12\)

*Iodine salt content*

Salt samples (150 mg) were brought by children from their households during the examination, transported and stored in a dry, dark and cold place. They were analyzed at the Public Health Institute RS, employing customarily used methods for KI\(^13\) and KJO\(_3\).\(^14\)

*Data collecting and processing methods*

The personal data of every child – date of examination, school name and location, child’s name and surname, sex, age, nationality, height and weight, thyroid gland palpation findings (grade 0, 1 or 2), serial number of urine and salt sample – were registered on a specially designed questionnaire. The data of the questionnaires were recorded on a specially designed EXCEL table and processed in it.

The data were processed for four parameters relevant to iodine deficiency: palpation of thyroid gland, iodine urinary excretion, thyroid gland volume measured by ultrasonography and content of iodine in salt. The results were derived and presented in tables. Statistical significance (t-test and chi-square) was set at 0.05. The results for each school were also derived separately.

**RESULTS**

*Results of thyroid gland palpation*

The thyroid gland was palpated in 1,196 children, out of a planned 1,200 (601 males and 595 females). The total goiter prevalence determined by palpation of the thyroid gland was 7.5% (5.9% goiter grade 1 and 1.6% goiter grade 2). Table 1 shows the prevalence of goiter separately in boys and girls, and in children living in urban and rural areas.

There was statistically significant difference in the prevalence of goiter between boys (5.3%) and girls (9.8%) (p<0.001) as well as between children living in urban (5.7%) and rural areas (10.2%), (p<0.001).

The percentage of children with goiter showed a wide range in the various schools (from 0% to 40%). Out of 30 schools, 12 had a percentage of children with goiter less than 5%, while 18 had >5%.

*Results of measurement of thyroid gland volume by ultrasonography*

The thyroid gland volume was measured by ultrasonography in 992 children (504 males and 488 fe-

<table>
<thead>
<tr>
<th>Total number of examinees</th>
<th>Number of examinees with goiter</th>
<th>Prevalence of goiter (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys</td>
<td>601</td>
<td>32</td>
</tr>
<tr>
<td>Girls</td>
<td>595</td>
<td>58</td>
</tr>
<tr>
<td>Urban area</td>
<td>718</td>
<td>41</td>
</tr>
<tr>
<td>Rural area</td>
<td>478</td>
<td>49</td>
</tr>
<tr>
<td>Total</td>
<td>1196</td>
<td>90</td>
</tr>
</tbody>
</table>