

Risk Factors and Prevention of Children's Poisoning with Lead in Georgia

Dali Kekelidze

The doctoral thesis is submitted to the Faculty of Natural Sciences and Medicine of Ilia State University for the degree of Doctor of Philosophy in Public Health

PhD Program in Public Health

Scientific Supervisor - Iagor Kalandadze, PhD. Professor, Ilia State University



ILIA STATE UNIVERSITY

Ilia State University

Tbilisi, 2025

As the author of the submitted dissertation, I declare that this thesis is my original work and contains no material previously published or submitted by others, except where duly acknowledged and cited in accordance with academic standards.

Name, Surname: Dali Kekelidze

აბსტრაქტი

ეს სადოქტორო კვლევა წარმოადგენს ტყვიის მოშხამვის შესახებ რისკ-ფაქტორების და სოციალური-დემოგრაფიული დეტერმინანტების სიღრმისეულ ანალიზს, დასავლეთ და აღმოსავლეთ საქართველოს შერჩეული მუნიციპალიტეტების მიხედვით. კვლევა ჩატარდა კროს-სექციური გამოკითხვის გზით 2024 წლის მარტიდან ივლისამდე, საქართველოს ექვს მუნიციპალიტეტში, დასავლეთ საქართველო: ბათუმი, ზუგდიდი და ოზურგეთი; აღმოსავლეთ საქართველო: გორი, მცხეთა და რუსთავი. სტანდარტიზებული კითხვარის მეშვეობით შეფასდა მონაწილეთა ინფორმირებულობა ტყვიის მოშხამვის სიმპტომებისა და რისკ-ფაქტორების შესახებ, ინფორმაციის წყაროები, სოციალური და დემოგრაფიული მახასიათებლები, ასევე გარემოსდაცვითი და ქცევითი რისკის ფაქტორები. შერჩეულ იქნა 768 სრულწლოვანი პირი, პროპორციულად მუნიციპალიტეტების მოსახლეობის რაოდენობის მიხედვით. რაოდენობრივი ანალიზი განხორციელდა აღწერითი სტატისტიკის, ჯვარედინი ტაბულაციებისა და Chi-square ტესტების გამოყენებით SPSS-ის პროგრამაში.

კვლევამ აჩვენა, რომ აღმოსავლეთ მუნიციპალიტეტებში განსაკუთრებით რუსთავი და მცხეთა, რომლებიც გამოირჩეოდნენ განათლების, დასაქმების და შემოსავლის მაღალი დონით, გამოვლინდა ტყვიასთან დაკავშირებული რისკების უფრო მაღალი ცნობადობა. ხოლო დასავლეთ მუნიციპალიტეტებში, როგორცაა ზუგდიდი და ოზურგეთი, აღინიშნებოდა შედარებით დაბალი სოციალური ეკონომიკური მდგომარეობა და შეზღუდული ცოდნა ტყვიის ზემოქმედების წყაროებისა და ჯანმრთელობაზე ზემოქმედების შესახებ. ტელევიზია რჩებოდა მთავარ ინფორმაციის წყაროდ, თუმცა ციფრული მედიის როლი იზრდებოდა ქალაქებში. ჯანდაცვის პროფესიონალების მონაწილეობა ტყვიის მოწამვლაზე საგანმანათლებლო აქტივობებში მინიმალური იყო ყველა რეგიონში.

გარემოსდაცვითი და ქცევითი რისკფაქტორები – მათ შორის დაზიანებული საცხოვრებელი პირობები, ბავშვების მიერ ნიადაგის ან საღებავის ანაფხეკის პირში მოხვედრა, პროფესიული ზემოქმედება და პოტენციურად დაბინძურებული იმპორტირებული პროდუქციის გამოყენება – განსხვავდებოდა

მუნიციპალიტეტების მიხედვით და ასახავდა ზემოქმედების მრავალფეროვან გზებს. ეს მიგნებები ხაზს უსვამს მიზანმიმართული და კონტექსტზე მორგებული საზოგადოებრივი ჯანმრთელობის ინტერვენციების აუცილებლობას.

კვლევის საფუძველზე გაცემული რეკომენდაციებია: ცნობიერების ამაღლების კამპანიები, ტყვიის რისკების შესახებ ინფორმაციის დანერგვა ჯანდაცვისა და სკოლების პროგრამებში, სამომხმარებლო პროდუქტებზე რეგულაციების გაუმჯობესება, მონიტორინგის სისტემების განვითარება ტყვიის შემცველობის ტესტირებით და რესურსების სამართლიანი განაწილება მაღალი რისკის მქონე ტერიტორიებზე. ეს კვლევა წარმოადგენს მნიშვნელოვან მტკიცებულებას ეფექტიანი პოლიტიკისა და მრავალსექტორული სტრატეგიების დასაგეგმად, რომლებიც მიზნად ისახავენ ტყვიის მოწამვლის ტვირთის შემცირებას საქართველოში.

Abstract

This PhD study offers a comprehensive analysis of lead poisoning awareness, risk factors, and socio-demographic determinants across selected municipalities in Western and Eastern Georgia. A cross-sectional survey was conducted from March to July 2024 across six Georgian municipalities: Batumi, Zugdidi, and Ozurgeti in Western Georgia; and Gori, Mtskheta, and Rustavi in Eastern Georgia. Using a standardized questionnaire, the survey assessed participants' knowledge of lead poisoning symptoms and risk factors, sources of information, socio-demographic characteristics, and environmental and behavioral exposure patterns. The sample comprised 768 adults, proportionally selected according to municipal population sizes. Quantitative analysis employed descriptive statistics, cross-tabulations, and Chi-square tests using SPSS. The study found that Eastern municipalities, particularly Rustavi and Mtskheta, had higher education, employment, and income levels, which corresponded with greater awareness of lead-related risks. In contrast, Western municipalities like Zugdidi and Ozurgeti showed lower socio-economic status and limited knowledge of lead exposure sources and health effects. Television was the predominant information source, though digital media were increasingly significant in urban areas. Healthcare professionals' involvement in lead poisoning education was minimal across all regions.

Environmental and behavioral risk factors—including deteriorated housing, children's ingestion of soil or paint chips, occupational exposures, and use of potentially contaminated imported goods—varied by municipality, reflecting diverse exposure pathways. These findings highlight the urgent need for targeted, context-specific public health interventions.

Based on these results, recommendations include culturally tailored awareness campaigns, integration of lead risk education into healthcare and school programs, enhanced regulation of consumer products, improved surveillance systems with blood lead level testing, and equitable resource allocation focusing on high-risk areas. This research provides vital

evidence to support effective policies and multi-sectoral strategies aimed at reducing the burden of lead poisoning in Georgia.

DEDICATION

This dissertation is dedicated to my beloved family. There were hard moments during this journey when I felt like giving up and it was your unwavering support and encouragement that carried me through. Without your love, I would not have made it to the end.

I also dedicate this work to all the health care professionals, friends and colleagues who stand on the frontlines every day to protect and promote the health of our communities. I am proud to work alongside you in this essential field.

ACKNOWLEDGMENTS

I am profoundly thankful to Professor Iagor Kalandadze, my distinguished supervisor, for his consistent support, insightful advice, and exceptional expertise during my PhD studies. His mentorship has significantly influenced the direction of this research and my development in an academic way.

I am sincerely thankful to the faculty of Natural Sciences and Medicine of Ilia State University, with special appreciation to Dean Elene Zhuravlova, Head of the School of Medicine Ivane Abiatari, and the administrative staff. I want to thank Professor George Gotsadze and Nino Mirzikashvili for their encouragement and guidance. I am grateful to my committee members for generously offering their time and for their insightful comments that strengthened my research.

I extend my profound gratitude to the participants of these studies, whose generous contributions of time and thoughtful reflections during interviews greatly enriched this research.

Last, but certainly not least, I am genuinely grateful for the emotional and intellectual support I received from Antoine Pogorzelski (Expertise France), Anne Roue Le Gall (EHESP), Benoît Van Gastel (EHESP), Michèle Legeas (EHESP), and Guilhem Dardier (EHESP). I want to express my sincere appreciation to them.

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Abbreviation

- 1.BLL- Blood Lead Level
- 2.GAELP- Global Alliance to Eliminate Lead Paint
3. IQ- Intelligency quotient
4. IHME- Institute for Health Metrics and Evaluation
5. MICS- Multiple Indicator Cluster
6. NCDC- National Center for Disease Control and Public Health of Georgia
7. Pb- Lead
8. PPm- Parts per million
9. UNEP- United Nations Environment Programme
10. UNICEF- United Nations International Children's Emergency Fund
11. USA- The United States of America
12. WHO- World Health Organization
13. SDH-Social Determinants of Health

You will see by it, that the Opinion of this mischievous Effect from Lead, is at least above Sixty Years old; and you will observe with Concern how long a useful Truth may be known, and exist, before it is generally receiv'd and practis'd on.

Benjamin Franklin, 1786

Chapter 1. Background and Literature Review

1.1 Introduction

Lead is a high cumulative and polytropic metal, which is found in nature in the Earth's crust. Pollution of environment with the lead is one of the most active issues in the world. Children are especially unprotected from harmful effect of the lead. Almost all systems are damaged, it especially gives bad results to damage of nervous system.

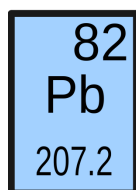
Conduct of systemic review and meta-analysis to establish programs elaborating and priorities of future researches are an important, which has been actually conducted in the various countries recently.

It should be noted, that meta-analysis and systemic review about the lead's exposition in children have not been conducted in Georgia. There have been made small researches, although, research of the MICS, which was implemented in the whole area of Georgia, was found, that in Adjara, Guria, Samegrelo, Zemo Svaneti and Imereti, lead level in blood of more than 50% children was $>5 \mu\text{g/dL}$, what is a disturbed index.

At the same time, there has not been found specific sources of lead's pollution and exposition at children in Georgia.

Therefore, any scientific works or researches are an important to find the sources of lead's exposition in children in Georgia and to define prevention measures in the future, in order, the government, and health specialists to implement effective control to decrease the exposition of lead in children.

1.2. Lead and its effect at public health



The lead is a chemical element, which is marked by Pb symbol (Latin - plumbum, origin of its name is an unknown) and its atomic number is 82(Mikheil Boldyrav,et al.2018) Pb is presented in the fourteenth group of the main group of metals in the periodic system of chemical elements. It is a natural toxic metal, which is found in the Earth's crust. Its widespread use causes extensive ecological pollution, effects on people, and public health problems worldwide. The primary source of environmental pollution is the extraction of the lead, industrial using and recycling of secondary raw. In addition, in some countries have been used lead substitute paints, dope fuel, and three-quarters of all production comes to the production of lead replacement batteries. The lead is also used in the other many products, paints, glass-fittings, dishes, crystal, ceramics, jewelries, cosmetic products and toys. Water, which is flowed in pipes contained the lead, may be also contained the lead (WHO,2010).

In the body, the lead gets in the brain, kidneys and bones. To determine effect of the lead on people, should determine the lead in the blood.

The lead accumulated in the bones during pregnancy is in the blood and makes negative effect to development of fetus. (WHO,2010).

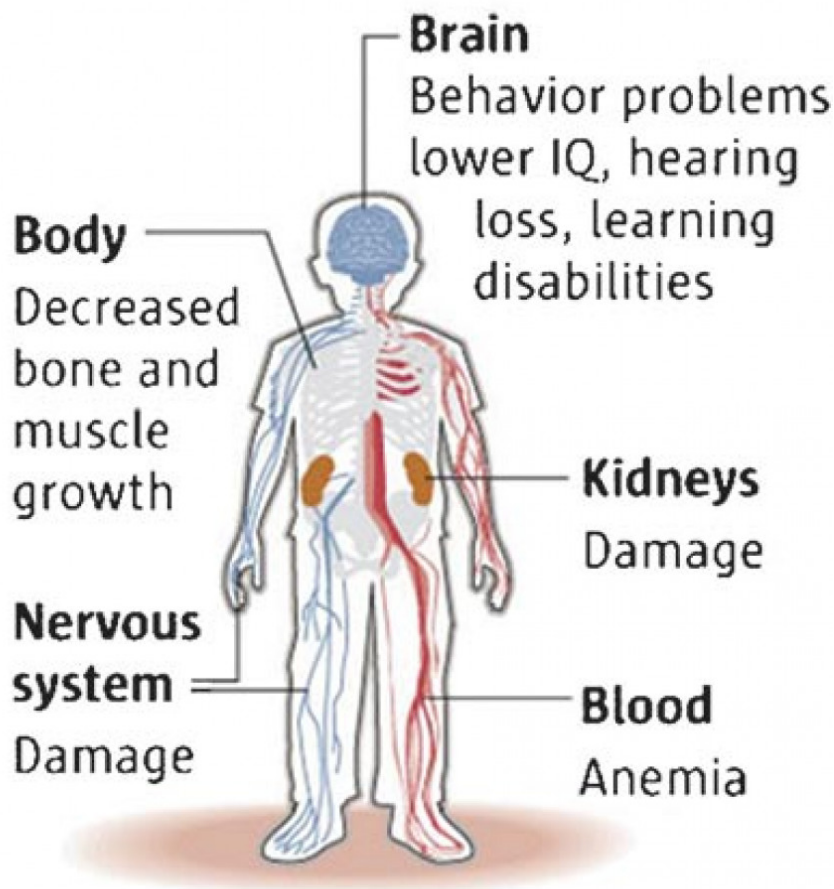
The lead causes: encephalopathy, psychological disorders, degrade of intellectual development, logopathy, anaemia, damage of bony tissue, disorder of kidney's function, chronic disease of kidney, degrade of sperms number, hypertrophy, ischemic disease, abdominal pain, disorder of fetus mature, small weight of fetus during giving birth, spontaneous abortion, premature birth, late in sexual mature (WHO European Centre for Environmental and Health,2020).

Effect of the lead especially causes trouble in the central nervous system of children (Needleman 2004;Delgado CF et al. 2018) .

Lead exposure can affect nearly every part of the children's body. (Image 1.)

Image 1. Health effect of lead poisoning in children

CHILDREN



Koller et al. (2004) the lead effects more at children due to three reasons:

- 1) Children swallow dust of the lead from the environment due to putting fingers in mouth and chewing paint (Needleman 2004);
- 2) Absorption of lead in children is faster than in adults (ATSDR,2007);
- 3) The nervous system of children is more protected from the effects of lead (Lidsky & Scheider, 2003), because lead crosses the blood-brain barrier and damages the brain (Janders et al., 2009).

Children absorb about 50% of the lead faster than adults –only 6% (ATSDR,2007; NCHH,2012); therefore, special attention is paid to the poisoning of children with lead. In addition, the adults secrete 99% of the lead from the body, the children – only 32%. (IATSDR,2007).

It should be noted that the chronic effects of lead may cause demotion of IQ, anaemia, and bone' pathology (ATSDRb,2012). Poisoning with lead causes demotion of IQ. (strayhorn et al.2012; Miranda et al. 2009; Chen et al.2007).

According to the opinion of Lanphear et al. (2000), children's IQ is greatly affected by chronically low lead levels, compared with the acute effect of a large dose.

As a result of the chronic effects of lead on children's age, their cognitive development potential should not be the same as that of adults, without exposure to lead. (WHO,2010).

The lead binds haemoglobin and decreases iron levels, also it encumbers absorption of iron from food, it is a danger for pregnant women, because the lead transfers to the fetus with blood circulation and causes many pathologies (EPA,2012; Miranda et al., 2010).

1.3. Environmental pollution of lead

Lead is a common pollutant in the ecosystem. Lead realized into the environment makes its way into the air, soils, and water (EGLE).

Lead air emissions have historically been predominantly from vehicle and industrial exhaust gases with varying lead levels in gasoline and diesel fuels (MINNESOTA Pollution Control Agency). Homes near busy roadways or near fences with chipped or peeling paint sometimes have high amounts of lead in the soil (m DEPARTMENT of Health). It is estimated that children can be exposed to lead in soil by touching, breathing, or playing in lead-contaminated soil.

1.4. Lead Poisoning History

The lead is one of founded metal by humans, which had been extracted by old Jews and Egyptians on 4000 BC yet, it was used as cargo in fishing nets, for covering dishes and in cosmetic products (Hemberg 2000; Jewish 2012).

Old Romans actually used the lead, wine-growers were sure, if they keep the wine in lead's can, taste will be better (Lessler 1998; Gilfillan 1965).

Negative results of effect of lead exposition were found in the II century BC (Needleman 2004.p.209). Hippocrates, the father of medicine (BC 370), was the first person, who associated the lead with clinical symptoms (H.A. Waldron 1966).

From the beginning of the 20th century, the use of lead began to be widely used in paints, because it provided brightness to the paint, prevented mildew and the development of corrosion (San-Diego,2012; EPA,2000).

In 1922, the motor-car industry began using lead in petrol to increase manufacturing and to protect engines from detonation (Teichman,Coltrein,Prouty&Bir 1993).

From 1800, the scientists described negative effect of lead on children and adults and connected it to the lead substitute paints, petrol and dust of polluted ground (Markowitz&Rosner 2000).

Firstly, Austrian scientist Jefferis Turner presented scientific research in 1897, which referred to the poisoning of a child with lead (Roser et al.2005). This was followed by various research, as a result of which, in most of Europe and Australia, from 1909 till 1930, the prohibition of using lead in paints began (Hernberg 2000). In the United States, in 1971, laws were enacted to reduce lead usage (Toxipedia, 2012).

In the USA, from 1972 till 1986, was begun prohibit of ethylated petrol in the country (EPA 2012;Bridbord&Hanson 2009; Pirkle et al.1994), In 1978-1991, in the USA, content of lead was decreased with 78% in humans' blood, what was connected to decrease of lead substitute in the ethylated paint and petrol.

1.5. Lead Exposure as a Global Health Problem

Lead pollution of the environment is one of the most current issues in the world. According to the UNEP, lead is recognized as one of the global pollutants, which necessitates priority control.

According to the calculations of IHME, in 2016, approximately 540,000 deaths worldwide were attributed to lead exposure, highlighting the far-reaching effects of lead on human health. In this case, the highest death rate is in low and middle-income countries.

Lead pollution of environment is studied in many countries, data with regard to the countries are considerably different.

According to national research conducted in France in 2008 to 2009, the average concentration of lead in the blood of children aged 6 months to 6 years was 14.9 µg/dL. This rate has been decreased for the last 15 years, but it is still noteworthy. Water is a contributing

factor to lead poisoning, including lead-contaminated houses, passive smoking, newly completed repair works, and stripped paint (Anne Ethhevers et al., 2013).

According to the research conducted in Montreal, the average concentration of lead in the blood of children from 0 months to 7 years varies according to the seasons of the year. In winter, a predictable $BLL > 5 \mu\text{g/dL}$ was observed in children (0-6%). In the summer, the increase is significantly more (5-25%). Drinking water is the main reason for lead poisoning (Elise Deshommes et al. 2013).

The research conducted in Shanghai showed that the concentration of lead in the blood of children from 0 months to 6 years makes up $22.49 \mu\text{g/dL}$, which has improved compared with the previous years, but is higher than in developed countries (Jia Cao et al. 2014).

As a result of analysis concluded research in Mexico in 1978-2010 was found, that concentration of lead in the blood of children in the city and village made up accordingly 8.85 and $22.24 \mu\text{g/dL}$, after stopping of using ethylated petrol in the city, this rate was decreased till $5.35 \mu\text{g/dL}$, in the village it was much more (Jack Caravans et al., 2014).

According to Unicef & Pure Earth (2020), every third child in the world, 800 million, has a level of lead in the blood of more than $5 \mu\text{g/dL}$.

Based on prospective research of SOOH et al. 2018, which was conducted in pregnancies and children up to 5 years, a gender difference in lead effects was revealed; in particular, the lead exposure had a greater impact on girls than boys.

From 1970, in air, water, food products, dust and soil in the USA the lead significantly was decreased, but for those children, who live in houses build till 1978, still is revealed increasing of lead substitute in the blood, because in build houses till 19778 were used lead substitute paints (Brown MJ, Margolis S). Conducted research in the USA, in the state of Michigan in 2014-2018, found that dust released as a result of the destruction of old buildings caused an increase in lead content in the blood of 6-year-old children (Bezold et al. 2020).

On behalf of the U.S. Congress, the Superfund Amendments and Reauthorization Act of 1986(SARA) was studied for the lead effect on children and found that 6 million children

to 7 years or younger who live in old houses are exposed to lead content in paint. (Mushak P&Cricetti AF 1989)

As a result of research conducted in North Carolina from 2011 to 2018, it was found that the presence of lead in spices was one of the main reasons for lead poisoning in children (Angelon-Jaetz K et al. 2018).

Pb content in blood and bones was studied in children aged 3 to 15 years, and higher activity was revealed in those groups with elevated lead levels in both blood and bones. This was particularly associated with a high content of Pb (Yanfen et al. 2018).

According to conducted researches in China in 2016, lead content was higher in 36% of toys, than this is permitted by normative standards in the USA and EU (Shen Z et al. 2018). Poisoning of children with lead causes a decline in immunity, impairing the immune function of T lymphocytes and erythrocytes (Zhao z et al. 2004). Zheng J et al. found in their research on children aged 0-7 years that lead ingestion has a greater impact on children than lead inhalation. Even small amounts of lead pollution, especially from dust on floors, significantly alter blood lead levels in children (Oulnote Y et al. 2013).

Firstly, the USA Environmental Protection Agency (US EPA) focuses on decreasing lead content (Pb) in children (NIH, 2016; US EPA, 2018). Based on 26 years of meta-analysis research, the average concentration of lead in various environments (soil, water, dust, food) was found, which is necessary for further modeling the effects of lead on at-risk groups (Jessica J. Frank et al., 2016).

Meta-analysis of data on lead content conducted by Bret Ericson et al. in 2018, covering India from 2010 to 2018. The effects of lead poisoning on lifespan and IQ levels were studied. Despite the removal of ethylated gasoline, the incidence rate of the disease remains high and noteworthy.

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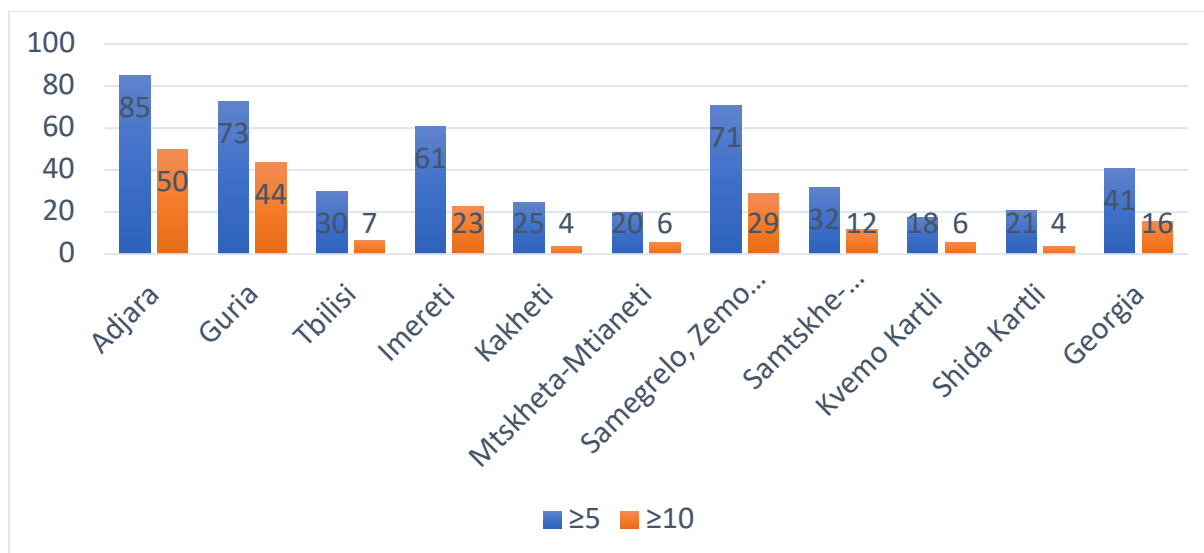
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1.6. Lead exposure as a Public Health Problem in Georgia

According to the World Health Organization (WHO), lead is one of the 10 chemical substances that cause major public health issues and require protection for the health of children, women, and workers from member states (WHO; Lead Poisoning and Health).

It should be noted that studies on lead poisoning have been actively conducted in Georgia recently. The Multi Indicator Cluster Survey (MICS) was carried out in Georgia in 2018 and is the largest household research in the world. It was found that the concentration of lead in 41% of children is equal to or exceeds 5 µg/dL, and children living in Adjara, Guria, Samegrelo/Zemo Svaneti, and Imereti are at high risk (Unicef,2019). (Figure 1)

Figure 1. ≥ 5 µg/dL and ≥ 10 µg/dL lead Prevalence (%)



Environmental NGOs with citizens' initiative groups, supporting by Sweden Government and fund “Orbeliani Georgia”, to study concentration of the lead in the dust of Tbilisi Street and in 268 things from daily consumptions of families, took samples from selected 17 families throughout Tbilisi, where 29 persons were revealed with concentration of lead in the blood, and from them 19 were children (Giorgi Diasamidze 2019).

According to data of National Agency of Food, 2.38% of food samples taken from 2012 to 2017 were contaminated with lead (Guranda Avkopashvili et al. 2018).

Under the initiative of the National Center for Disease Control and Public Health, the Centers for Disease Control and Prevention of the USA, and Pure Earth, research was conducted in July 2019 to study the concentration of lead in various environments (soil, dust, paint, water, spices). Increased lead content was found in spices, particularly high in Adjara, attributed to the falsification of spices. (Pure Earth).

1.7. Prevention programs and awareness

WHO works on guidelines for the prevention and management of lead content, in order to provide protection of children's and adults' health by politicians and specialist off public health.

It should be noted, that mental deficiency caused by the lead was entered in official list of diseases by the World Health Organization (WHO), T56.0-Toxic effects of lead and its compounds. (ICD10 classification).

In 2002, at the World Summit on Sustainable Development, the governments called for the complete removal of lead-containing paints. By fully eradicating lead-containing paints, the countries will promote the achievement of the following sustainable development goals:

- 🌍 3.9: By 2030,substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination (United Nations, Goal 3).

- 🌍 12.4:By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impact on human health and the environment(United Nations, Goal 12).

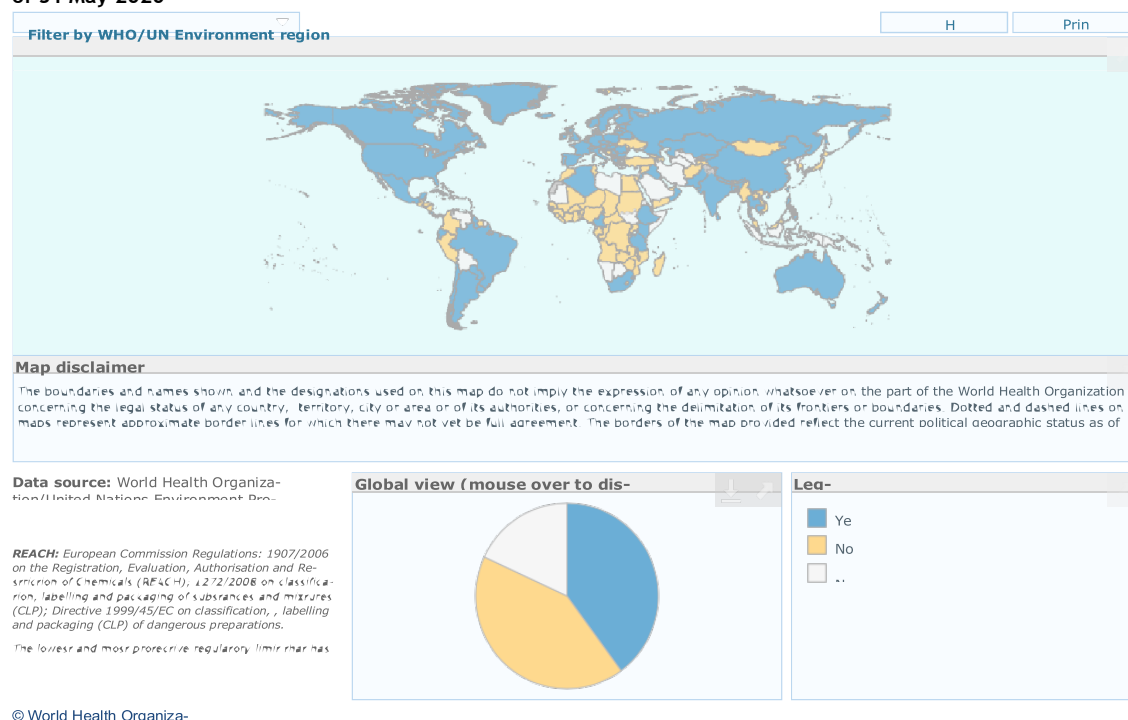
Global Alliance to Eliminate Lead Paint (Lead Paint Alliance) was formed in 2011, the purpose of which is to promote the production of lead substitute paints and the stopping of the realization (WHO,2011).

According to research conducted by the World Health Organization and the EU's environmental program, which was jointly coordinated by the alliance of lead paints, as of June 30, 2018, only the governments of 69 countries confirmed that they have a control mechanism for lead content in paints as defined under the law (UN environmental programme, 2018).

The WHO, in collaboration with the United Nations Environment Programme (UNEP), established the Global Alliance to Eliminate Lead Paint (GAELP). The purpose of the Global Alliance is to promote the production of lead substitute paints and reduce or prohibit their use (UN Environment Programme). As of May 31, 2020, only 39% of countries have confirmed that they possess legally binding controls on the production, import, sale, and use of lead paints (WHO, 2020). The WHO, in collaboration with the United Nations

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Map1: WHO member states with legally-binding controls on lead paint, as of 31 May 2020



In order to protect the population from harmful exposure and to prevent diseases associated with the environment, under decree N680 of the government of Georgia, dated December 29, 2018, was approved a national action plan of environment and health (NEHAP_2), one of the tasks of which is to eliminate the lead from paints and to establish the relevant legislative limits. (NCDC,2018)

According to the National Center for Disease Control and Public Health of Georgia (NCDC), in 1999, Georgian law mandated a maximum lead content in gasoline of 13 mg/liter. A scheduled phase-out of lead in gasoline was ordered in 2000, setting a maximum

allowable lead concentration of 5 mg/liter by 2005. This deadline was later delayed until 2007 due to difficulties with enforcement and potential negative social factors.

The lowest and most protective regulatory limit set in countries for lead in residential and decorative paints is 90 parts per million (ppm) total lead content (UNEP, 2018).

Some countries have established a clear legal limit on the total lead content in paints (UNEP,2018). (Table 1).

Table 1. Legal limit on the total Lead content in paints

Countries	Legal limits on Lead in paint
Argentina	600ppm
Brazil	600ppm
Canada	90ppm
Costa Rica	600ppm
Chile	600ppm
Dominica	600ppm
Guyana	600ppm
India	90ppm
Jordan	600ppm
Kenya	90ppm
Nepal	90ppm
Mexico	600ppm
Oman	600ppm
Panama	600ppm
Philippines	90ppm
Sri Lanka	600ppm
South Africa	600ppm
Switzerland	100ppm
Tanzania	90ppm
Thailand	100ppm
The United States of America	90ppm
Uruguay	600ppm

Chapter 2. Social Determinants of Health (SDH)

The WHO defines the social determinants of health (SDH) as “the circumstances in which people are born, grow, work, live, and age, and the broader set of forces and systems shaping the conditions of daily life (Pan American Health Organization).

Widely acknowledged by public health professionals working in environmental health and health promotion, this definition considers a broad spectrum of health determinants, which Marc Lalonde, a Canadian politician and former Minister of Health and Welfare, categorized into four key groups in 1974 and is known as “(PAHO). (Table 2).

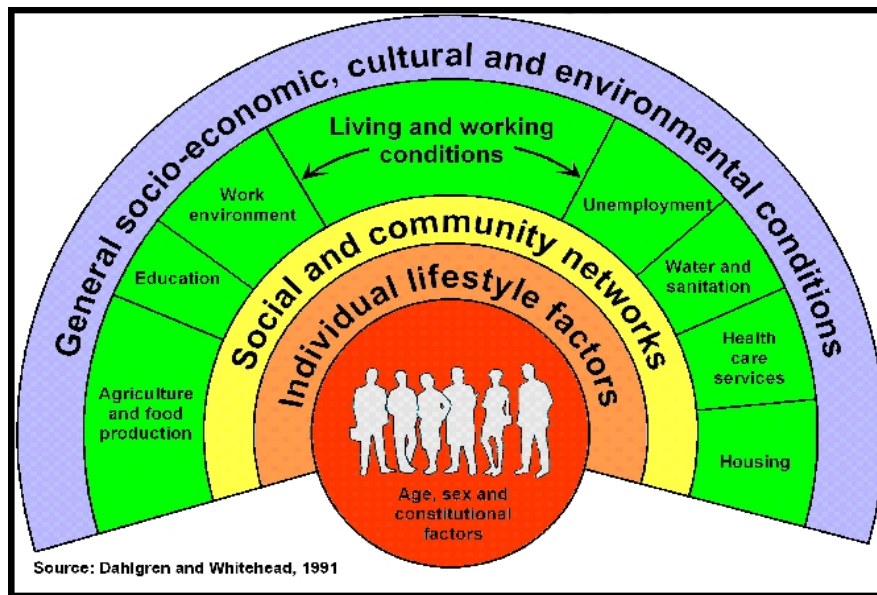
Table 2. Main Characteristics of the four main categories of determinants to address health according to Lalonde (1974)

Determinants Category	Examples of determinants	Main characteristics
Human biology	Individual, genetic and biological factors, such as age, sex and hereditary characteristics.	Factors that cannot be modified
Environments	○ Factors linked to the state of the physical environments in which people live: air, water, soil, etc. ○ Factors linked to the living environment: housing, transport, public facilities, etc. ○ Factors linked to social environment: family, friends, employment, poverty, etc.	Factors that cannot be modified individually, but needs action to promote health through public policies

Lifestyle	Behavioral factors based on individual decisions: risk behavior, addictions, diet, education, work, physical activity, etc.	Factors that depend on individual decisions, but which are often influenced by socio-cultural environment and living conditions
Organization of healthcare	Factors linked to the healthcare system: accessibility and quality of both preventive and curative healthcare provision, primary health care, etc.	Factors influenced by health policies and the socio-cultural environment

In 1991 the Dahlgren and Whitehead model was developed by Göran Dahlgren and Margaret Whitehead and often is referred as the “rainbow model” due to its visual layout and organizes the social determinants of health to explain how different social, economic, and environmental factors influence health. (Figure 2). (Public Health England, 2018).

Figure 2: The Dahlgren and Whitehead model of the main determinants of health



When we are talking about social determinants of lead poisoning in children, it considers social, economic, and environmental conditions that increase children's risk of being exposed to lead. These determinants include factors such as:

- ✚ **Housing Quality** (Children living in older houses are at higher risk of exposure to lead-based paint, peeling paint, and lead dust).
- ✚ **Socioeconomic Status** (Families with low-income budgets may have limited access to safe housing, lack the financial resources for doing lead testing, and may not properly take nutrients).
- ✚ **Parents' Education and Awareness** (Families lacking education or public health information may not be aware of lead's harmful impact on children's health and how to prevent it).
- ✚ **Occupational Exposure and Hobbies** (Parents or other family members living with the child or children who work or have hobbies such as auto repair, construction, working with firearms, and painting ceramics, metals, and colored pigments, etc., may bring lead dust on their clothes, tools, or equipment, thereby exposing their children through indirect contact).

These social determinants demonstrate that lead poisoning in children is not solely a consequence of environmental exposure, but rather a complex issue rooted in broader social

and economic inequalities. Addressing lead exposure requires a holistic, equity-focused approach—one that not only targets the environmental sources of lead but also the underlying social conditions that increase risk and hinder prevention. Recognizing and responding to these factors is essential for reducing disparities and protecting the health and development of children.

Chapter 3. Purpose of the Study

The goal of my PhD research is to analyse risk factors and develop preventive recommendations for addressing lead poisoning in children in Georgia.

In Georgia, there is limited official documentation regarding environmental sources of lead exposure, including air, soil, water, household paint, cosmetics, jewelry, food, and domestic products. Although these sources may contain high concentrations of lead, few studies have explored their potential contribution to lead poisoning in children. Given this gap, my research focuses on examining the social determinants of lead poisoning.

The following tasks were established to achieve the goal of the research:

1. To develop a standardized questionnaire for use by public health professionals and other relevant stakeholders to identify risk factors associated with lead poisoning in children.
2. To conduct a population-based study in Western Georgia that assesses the social determinants contributing to childhood lead poisoning.
3. To conduct a population-based study in Eastern Georgia with a similar focus on identifying relevant social determinants.
4. To develop a set of preventive strategies aimed at eliminating or reducing lead exposure among children in Georgia.

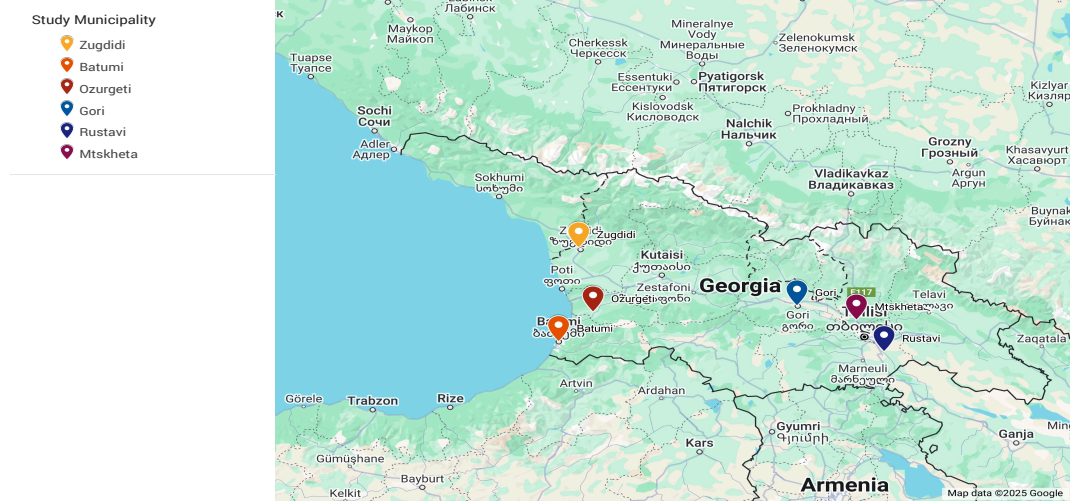
A more detailed description of the study design, data collection methods, and analytical procedures is provided in **Chapter 4: “Materials and Methods.”**

Chapter 4. Materials and Methods

4.1. Description of the study Area

Georgia is located at the eastern end of the Black Sea on the southern flanks of the main crest of the Greater Caucasus Mountains (Britannica n.d.). The geography area is 69,700 sq km, and the total population is 4,900,961. The national language is Georgian. The most common ethnic groups are Georgian 86.8%, Azeri 6.3%, Armenian 4.5%, and other 2.3% (CIA n.d.). 48% of the population are male, and 52% are female (National Statistics Office of Georgia 2024). The main economic activities include cultivating agricultural products like grapes, citrus fruits, and hazelnuts; mining manganese, copper, and gold; and producing alcoholic and non-alcoholic beverages. Essentially, Georgia leads exports in copper ore, cars, fertilizers, iron alloys, and wine. It also imports cars, refined petroleum, natural gas, packaged medicine, and copper ore. The real GDP per capita is \$22,200 (2023est). (CIA n.d.). In April 2019, the Government released the data on lead prevalence in children's blood collected during the MICS. The results showed that regions in western Georgia had a much higher lead prevalence than the country's eastern regions (National Statistics Office of Georgia 2024). Therefore, decided conducted study in the following western Georgian Regions: Batumi municipality, the capital of Georgia's Autonomous Republic of Adjara (Wikipedia 2024); Ozurgeti municipality, the capital of the west Georgian province of Guria (Wikipedia, "Ozurgeti," 2024) and Zugdidi, a municipality in the west of Georgian historical province of Samegrelo (Wikipedia, "Zugdidi," 2024) and in the following eastern Georgian Regions where was lowest lead prevalence to better undersetting influence of social determinants of health in the impact of spreading lead poisoning in Georgia: Gori municipality located in the region of Shida Kartli (Gori City Hall 2024); Mtskheta municipality located in Mtskheta-Mtianeti region (Wikipedia, "Mtskheta Municipality," 2024) and Rustavi, a municipality located in the south-eastern Georgia (Encyclopedia Britannica 2025) .(Map 2.). Study was approved by the LEPL ILIA STATE UNIVERSITY Committee of ethical norms (reference number: R/82-24). Wasn't collected any personally identifiable information to maintain confidentiality and anonymity.

Georgia Map



Map2. Selected study areas

4.2. Sample size Calculation

The sample size for the selected citizens' interviewing population was calculated using Cochran's sample size formula:

$$n_0 = \frac{Z^2 \cdot p \cdot (1 - p)}{e^2}$$

where 95% of confidence level $z = 1.96$; the margin of error is 5% ($E = 0.05$), and the assumed response distribution is 50% ($P = 0.5$); $n = (1.96)^2 \times 0.5 \times 0.5 / (0.05)^2 = 3.8416 \times 0.25 / 0.0025 = 384.16$. For the street survey, the sample size was approximately 384. Given the division of the country into western and eastern parts, a separate sample of approximately 384 respondents was required for each region. To ensure sufficient results, I have calculated the population of each selected municipality using Geostat data for the year 2023 (Geostat, "Population by Regions and Self-Governed Units," 2024), and the sample size for

each municipality was calculated in proportion to its population compared to the municipality's total population. The final sample size per western municipality by interviewing the population was Batumi—206, Ozurgeti—66, and Zugdidi—112 and the final sample size per eastern municipality by interviewing the population was Mtskheta-65, Gori-150 and Rustavi- 169.

4.3. Data Collection

It was a cross-sectional study. For the data collection, was used questionnaires, which provided information through face-to-face interviews. The first section required sociodemographic information, the second aimed to determine from where respondents are getting information about lead poisoning, the third concerned awareness of lead poisoning issues, section four concerned knowledge of lead's impact on health, section five aimed questions identifying potential risks that may cause lead poisoning. A street survey was conducted from March to July 2024 among only adult (≥ 18 years) Batumi, Ozurgeti, Zugdidi, Mtskheta, Gori and Rustavi residents. For this study was selected busy locations in each municipality, such as malls, markets, parks, and shopping streets. The interviewing process started with a brief description of the study, after which the passerby was asked for oral informed consent to participate. On average, it took 15 minutes to complete questionnaires.

4.4. Statistical Analysis

The interviewers' responses were identified, imported to Excel, and analyzed using IBM SPSS version 23. Descriptive statistics were presented for the sociodemographic distribution. Cross-tabulation analysis was used to determine associations between variables. The Chi-Square test was used to analyze whether there was a significant relationship between the variables.

Chapter 5. Results and Discussion

5.1. Western Georgia

5.1.1 Socio-Demographic Characteristics of the Interviewing Respondents

This section overviews the sociodemographic characteristics of respondents from Batumi, Zugdidi and Ozurgeti. The overall sample included 384 participants, with 206 from Batumi, 112 from Zugdidi and 66 from Ozurgeti.

In Batumi, the largest proportion of respondents (33.5%) were aged 25–34, followed by those aged 18–24 (24.8%). In Zugdidi, the 35–44 age group dominated (32.1%), while in Ozurgeti, the majority of residents were aged 45–54 (28.8%). When considering the overall sample, the 25–34 age group was most represented (25.8%), respondents aged 65 and over represented the lowest proportion (6.0%). Regarding gender distribution the majority of the respondents were females from Batumi (55.8%) and Ozurgeti (56.1%). On the other hand, Zugdidi had a higher proportion of male respondents (52.7%).

A majority of respondents across all municipalities reported having children. The highest proportion was observed in Ozurgeti (72.7%), followed by Zugdidi (67.0%) and Batumi (59.2%). Overall, 63.8% of respondents reported having a children, while 36.2% not.

The three municipalities showed differences in levels of educational achievement. Overall, secondary education was the most frequently reported level, with 51.0% of participants having completed it. In Ozurgeti, 72.7% of the respondents reported having secondary education. Bachelor's degrees were also common, particularly in Zugdidi (52.7%) and Batumi (45.6%). Master's degrees (3.9%) and doctoral degrees (0.3%) were reported in Batumi.

Employment levels were high across all three municipalities. Overall, 63.3% of respondents were employed, with Ozurgeti reporting the highest rate (66.7%), followed by Batumi

(64.6%) and Zugdidi (58.9%). Unemployment rates were low, ranging from 8.9% to 12.1%. Notably, Zugdidi had a higher percentage of housewives (24.1%) compared to Batumi (7.3%) and Ozurgeti (18.2%).

Respondents were also asked whether a child under the age of six lived in their household. A total of 37.2% of respondents reported having at least one child under six, with the highest proportion in Batumi (40.8%) and the lowest in Ozurgeti (24.2%).

The majority of respondents reported a monthly family income >1500 GEL (52.4%). Batumi had the highest percentage (67.0%), while Ozurgeti had the lowest (12.1%). In contrast, Ozurgeti had a notably high proportion of respondents in the 501–1000 GEL income (37.9%). A small percentage of respondents across all locations either did not know their income (7.3%) or found it difficult to answer (7.6%).

Table 3. Socio-demographic characteristics of the interviewing respondents (Western Georgia)

			Municipality			Total
			Batumi	Zugdidi	Ozurgeti	
Age	18-24	N	51	13	9	73
		%	24,80%	11,60%	13,60%	19,00%
	25-34	N	69	20	10	99
		%	33,50%	17,90%	15,20%	25,80%
	35-44	N	27	36	9	72
		%	13,10%	32,10%	13,60%	18,80%
	45-54	N	19	28	19	66
		%	9,20%	25,00%	28,80%	17,20%
	55-64	N	25	13	13	51
		%	12,10%	11,60%	19,70%	13,30%
	65+	N	15	2	6	23
		%	7,30%	1,80%	9,10%	6,00%
Gender	Male	N	91	59	29	179
		%	44,2%	52,7%	43,9%	46,6%
	Female	N	115	53	37	205
		%	55,8%	47,3%	56,1%	53,4%
Parental status	Has children	N	122	75	48	245
		%	59,2%	67,0%	72,7%	63,8%
	Has no children	N	84	37	18	139
		%	40,8%	33,0%	27,3%	36,2%

Education	Incomplete secondary	N	1	0	0	1
		%	0,5%	0,0%	0,0%	0,3%
	Secondary education	N	95	53	48	196
		%	46,1%	47,3%	72,7%	51,0%
	Bachelor's degree	N	94	59	18	171
		%	45,6%	52,7%	27,3%	44,5%
	Master's degree	N	15	0	0	15
		%	7,3%	0,0%	0,0%	3,9%
Employment status	Employed	N	133	66	44	243
		%	64,6%	58,9%	66,7%	63,3%
	Unemployed	N	22	10	8	40
		%	10,7%	8,9%	12,1%	10,4%
	Pensioner	N	3	1	0	4
		%	1,5%	0,9%	0,0%	1,0%
	Housewife	N	33	8	2	43
		%	7,3%	24,1%	18,2%	14,1%
Child under the age of 6 living in respondents home	Yes	N	84	43	16	143
		%	40,8%	38,4%	24,2%	37,2%
	No	N	122	69	50	241
		%	59,2%	61,6%	75,8%	62,8%
Monthly family income categories (Georgian Lari)	<250	N	1	0	0	1
		%	0,5%	0,0%	0,0%	0,3%
	251-500	N	4	2	5	11
		%	1,9%	1,8%	7,6%	2,9%
	501-1000	N	18	1	25	44
		%	8,7%	0,9%	37,9%	11,5%
	1001-1500	N	25	31	14	70
		%	12,1%	27,7%	21,2%	18,2%
	>1500	N	138	55	8	201
		%	67%	49,2%	12,1%	52,4%
	Don't know	N	6	16	6	28
		%	2,9%	14,3%	9,1%	7,3%
	Hard to answer	N	14	7	8	29
		%	6,8%	6,3%	12,1%	7,6%
	Total	N	206	112	66	384
		%	100%	100%	100%	100%

5.1.2 Distribution of Lead Poisoning Information

Table 4 shows the respondent's distribution of lead poisoning information. Batumi had the highest percentage of respondents who reported receiving information about lead

poisoning (78.6%), followed by Zugdidi (70.5%) and Ozurgeti (57.6%). In contrast, the proportion of individuals who had not received any information was highest in Ozurgeti (42.4%).

Respondents who indicated they had received information were also asked to identify their sources. Television was the most commonly reported medium across all cities, with the highest use in Zugdidi (88.8%), followed by Ozurgeti (84.6%) and Batumi (67.1%). Social networks were a notable source of information in Batumi (22.0%) but were scarcely mentioned in Zugdidi (2.5%) and Ozurgeti (7.7%). Other sources, such as acquaintances or medical workers, were mentioned rarely in all three municipalities.

Table 4. Distribution of Lead Poisoning Information (Western Georgia)

Characteristics	Batumi	Zugdidi	Ozurgeti	Pearson's chi-squared test
Receiving information about lead poisoning				0.026
Yes	78.6%	70.5%	57.6%	
No	20.4%	29.5%	42.4%	
Hard to answer	1.0%			
Where do you get information about lead poisoning? *				0.001
Television	67.1%	88.8%	84.6%	
Radio	1.2%	1.3%		
Social networks	22.0%	2.5%	7.7%	
Acquaintances/friends	4.9%	7.5%	7.7%	
Medical workers	4.9%			

*Only the data of those respondents who gave YES answer about receiving information were analyzed

5.1.3 Respondent's awareness on Lead poisoning issues

The results (Table 5) show that the most mentioned symptom of lead poisoning among respondents from Batumi was disturbance in growth and development (54.9%), learning disabilities (18.0%) and concentration problems (9.2%). In Zugdidi, the most frequently mentioned symptom was concentration problems (33.0%), while in Ozurgeti, the most common responses were disturbance in growth and development (31.8%) and learning

disabilities (18.2%). A substantial proportion of respondents in Ozurgeti (37.9%) reported that they found it difficult to answer, suggesting limited awareness in this municipality.

Awareness of specific sources of lead exposure varied across locations. A higher percentage of respondents in Batumi correctly identified air contaminated with lead as a source of lead poisoning compared to those in Zugdidi and Ozurgeti. Similarly, Batumi residents demonstrated greater awareness of soil contamination, lead-substituted foods, and lead-containing household utensils. In contrast, respondents from Zugdidi and Ozurgeti were more likely to deny the link between these factors and lead poisoning or to indicate uncertainty.

Half of the respondents in Batumi recognized lead-substituted foods as a potential source of poisoning (50.5%), compared to 24.1% in Zugdidi and 18.2% in Ozurgeti. Likewise, 48.5% of respondents in Batumi acknowledged the risk posed by household utensils containing lead, while the corresponding figures were notably lower in Zugdidi (18.8%) and Ozurgeti (21.2%).

The perception of toys made with lead-substitute materials also differed among cities. Batumi again demonstrated the highest level of awareness, with 76.7% recognizing the risk, followed by Zugdidi (54.5%) and Ozurgeti (59.1%). Although the majority of respondents in all cities believed that lead-substitute paints were linked to lead poisoning, this belief was less consistently held compared to other sources of exposure.

Table 5. Interviewing respondent's awareness on lead poisoning issues (Western Georgia)

<i>Characteristics</i>	<i>Batumi</i>	<i>Zugdidi</i>	<i>Ozurgeti</i>	<i>Pearson's chi-squared test</i>
<i>A major symptom associated with lead poisoning</i>				0.000
<i>learning disability</i>	18,0%	12.5%	18.2%	
<i>Disturbance of the growth and development process</i>	54.9%	42.9%	31.8%	
<i>concentration problems</i>	9.2%	33.0%	7.6%	
<i>Speech difficulties</i>	4.9%	4.5%	4.5%	
<i>Difficulty in reading</i>	4.4%			
<i>Hard to answer</i>	8.7%	7.1%	37.9%	
<i>Are lead-substitute paints related to lead poisoning?</i>				0.109
<i>Yes</i>	85.9%	79.5%	77.3%	
<i>No</i>	6.8%	3.6%	6.1%	
<i>Hard to answer</i>	7.3%	17.0%	16.7%	
<i>Whether or not lead poisoning is linked to lead-contaminated air?</i>				0.000
<i>Yes</i>	40.3%	5.4%	15.2%	
<i>No</i>	47.1%	74.1%	62.1%	
<i>Hard to answer</i>	12.6%	20.5%	22.7%	
<i>Whether or not lead poisoning is associated with lead-contaminated soil?</i>				0.000
<i>Yes</i>	27.7%		1.5%	
<i>No</i>	60.7%	79.5%	75.8%	
<i>Hard to answer</i>	11.7%	20.5%	22.7%	
<i>Whether or not lead poisoning is linked to lead-substitute foods?</i>				0.000
<i>Yes</i>	50.5%	24.1%	18.2%	
<i>No</i>	37.9%	61.6%	56.1%	
<i>Hard to answer</i>	11.7%	14.3%	25.8%	
<i>Are household utensils containing lead linked to lead poisoning?</i>				0.000
<i>Yes</i>	48.5%	18.8%	21.2%	
<i>No</i>	39.8%	57.1%	50.0%	
<i>Hard to answer</i>	11.7%	24.1%	28.8%	
<i>Are lead-substitution toys related to lead poisoning?</i>				0.000
<i>Yes</i>	76.7%	54.5%	59.1%	
<i>No</i>	16.5%	33.9%	16.7%	
<i>Hard to answer</i>	6.8%	11.6%	24.2%	
<i>Whether or not lead poisoning is associated with lead replacement jewelry?</i>				0.000
<i>Yes</i>	29.6%		6,1%	
<i>No</i>	51.5%	74.1%	57.6%	
<i>Hard to answer</i>	18.9%	25.9%	36.4%	
<i>Are lead-containing cosmetic products linked to lead poisoning?</i>				0.000
<i>Yes</i>	44.7%	3.6%	3.0%	
<i>No</i>	40.8%	71.4%	54.5%	
<i>Hard to answer</i>	14.6%	25.0%	42.5%	

5.1.4 knowledge of lead's impact on health

Figure 3 shows respondents' knowledge of the health effects of lead poisoning. For cardiovascular disease, interviewing respondents don't have knowledge that lead poisoning can cause it. The respondents who said NO are as follows: In Batumi, 46.1%; Zugdidi, 42.9%

and in Ozurgeti, 19.7%. Most respondents answered that they don't know if lead poisoning can cause cardiovascular disease (CVD). Knowledge of lead poisoning causing anemia was poor. The higher percentage of those who answered "NO" was from Batumi (35.0%). The most common answer by respondents in all municipalities was "Don't Know." The distribution is as follows: Batumi (48.5%), Zugdidi (38.4%), and Ozurgeti (68.2%). In the case of whether lead poisoning can cause kidney failure, most respondents aren't aware. The highest percentage of those who said "NO" was observed in Zugdidi (57.1%) and Batumi (47.6%). The major interviewing respondents in all municipalities answered "Don't know" (Batumi (49.5%), Zugdidi (41.7%) and Ozurgeti (69.7%).

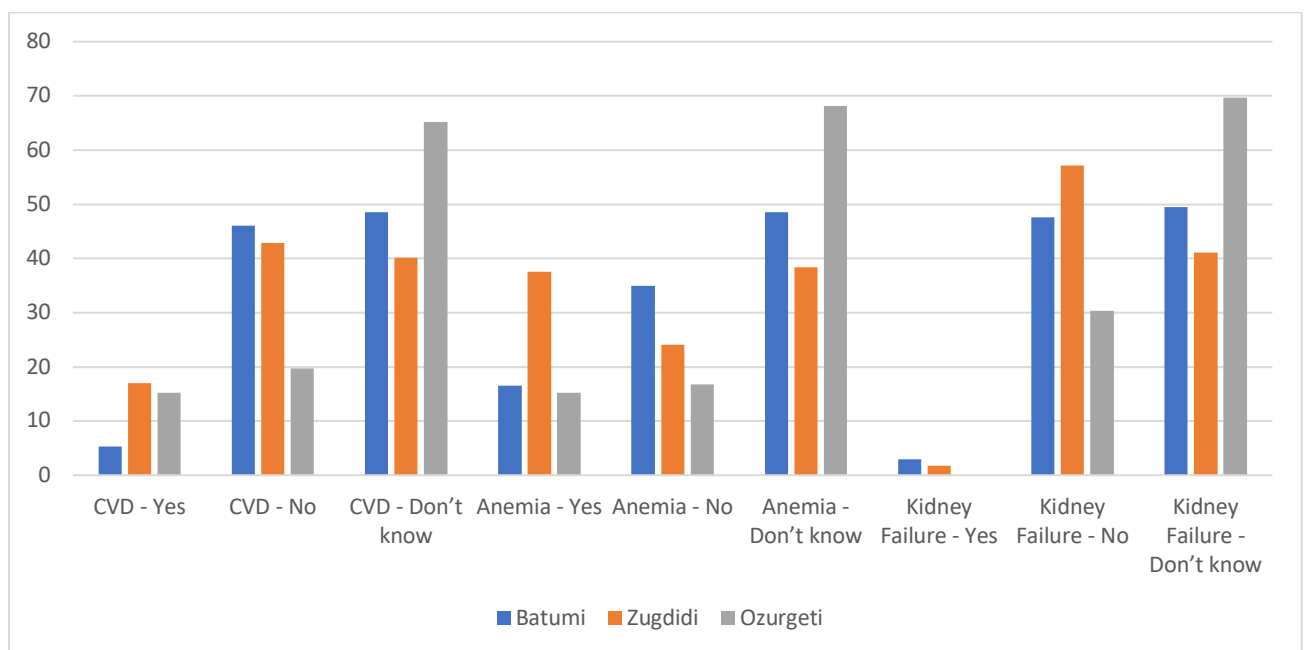


Figure 3. Interviewing respondent's knowledge of lead impact on health (Western Georgia)

Figure 4 shows participants' opinions from three municipalities about whether or not children are at a high risk of lead poisoning. Most participants think children are at a high risk of lead poisoning.

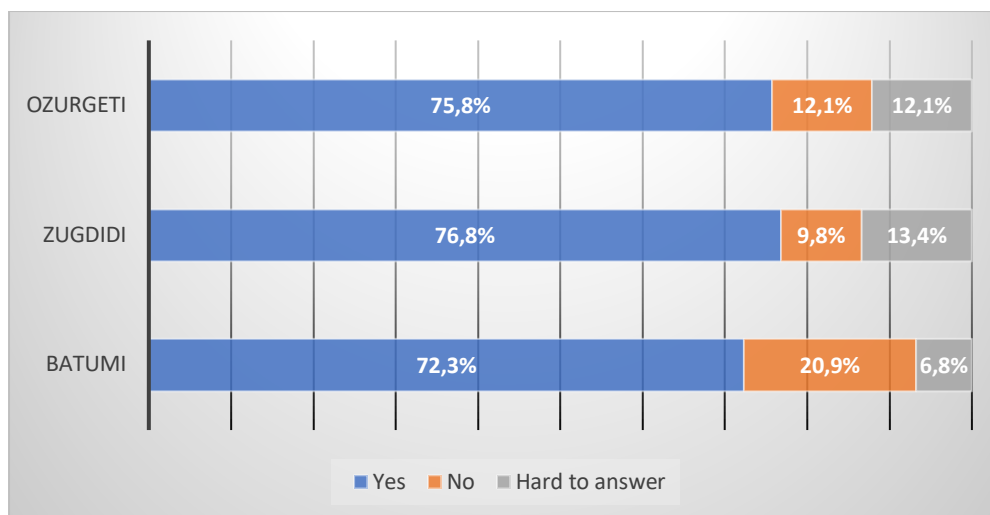


Figure 4. Do you believe that children are at a higher risk of lead poisoning?(Western Georgia)

5.1.5. Respondent's Knowledge of the Effects of Lead Poisoning Risk Factors on Health

Respondents from Zugdidi showed the highest proportion (26.8%) of individuals who believe that lead very significantly affects health, compared to only 13.6% in Batumi and none reported in Ozurgeti. In contrast, 33.3% of respondents in Ozurgeti responded "Maybe," suggesting a greater degree of uncertainty or lack of clear understanding regarding the health effects of lead.

Nearly all respondents in Zugdidi (95.5%) consider regular wet cleaning important for human health, slightly higher than Batumi (86.9%) and Ozurgeti (86.4%). However, Ozurgeti had a relatively higher proportion (9.1%) of respondents who said they "Don't know".

In Batumi, 43.7% of respondents considered the use of medical and cosmetic products important for health, in stark contrast to much lower rates in Zugdidi (3.6%) and Ozurgeti (7.6%). The high proportion of "Don't know" responses in Zugdidi (29.5%) and Ozurgeti (33.3%). Batumi interviewing respondents (43.7%) viewed a paint chip or chip that can be painted with lead substitute paint important for health, much higher than in Zugdidi (17.0%) and Ozurgeti (3.0%). In Ozurgeti was showed a high level of uncertainty (34.8%).

Zugdidi respondents (58.0%) were more likely to consider playing on the ground important for a child's health, compared to Batumi (49.0%) and especially Ozurgeti (10.6%). Interestingly, more than half of Ozurgeti respondents (54.5%) considered this unimportant.

Respondents of Batumi were more likely (52.9%) to view the use of lead substitute spices in food preparation more important rather in Zugdidi (43.8%) and Ozurgeti (22.7%). Ozurgeti had the highest percentage of respondents (69.7%) considering it unimportant. A higher proportion of Batumi respondents (34.5%) acknowledged the importance of industrial waste as a health issue, while the majority in Zugdidi (60.7%) and Ozurgeti (80.3%)

considered it unimportant. Table 6 presents respondent's knowledge of how lead poisoning risk factors affect Health.

Table 6. Respondent's knowledge of how lead poisoning risk factors affect health (Western Georgia)

Characteristics	Batumi	Zugdidi	Ozurgeti	Pearson's chi-squared test
Do you think lead affects health as a metal?				0.000
No	7.8%		19.7%	
Significantly	4.4%	0.9%	4.5%	
Maybe	21.4%	24.1%	33.3%	
Has an impact	52.9%	48.2%	42.4%	
Very significantly	13.6%	26.8%		
How important it is for human health to regularly clean the house in a wet manner?				0.006
Important	86.9%	95.5%	86.4%	
Unimportant	9.7%	0.9%	4.5%	
Don't know	3.5%	3.6	9.1%	
How important is the use of medical and cosmetic products for human health?				
Important	43.7%	3.6%	7.6%	0.000
Unimportant	52.9%	67.0%	59.1%	
Don't know	7.9%	29.5%	33.3%	
How important is a paint chip or chip that can be painted with lead substitute paint for health				0.000
Important	43.7%	17.0%	3.0%	
Unimportant	51.5%	63.4%	62.1%	
Don't know	4.9%	19.6%	34.8%	
How important is playing on the surface of the ground for a child's health?				0.000
Important	49.0%	58.0%	10.6%	
Unimportant	47.1%	31.3%	54.5%	
Don't know	3.9%	10.7%	34.8%	
How important is the use of lead substitute spices in food preparation on human health?				0.000
Important	52.9%	43.8%	22.7%	
Unimportant	42.7%	37.5%	69.7%	
Don't know	4.4%	18.8%	7.6%	
How important is industrial waste for human health?				0.000
Important	34.5%	9.8%	10.6%	
Unimportant	57.3%	60.7%	80.3%	
Don't know	8.3%	29.5%	9.1%	

5.1.6. Potential risks that can cause lead poisoning

Table 7 shows the potential risks that can cause lead poisoning. respondents were asked whether they or someone they know had ever been diagnosed with high blood lead levels. In Batumi, 18.0% responded "yes," while in Zugdidi, 36.6% and Ozurgeti, 34.8%. The majority in Batumi (73.8%) responded "no," compared to Zugdidi (63.4%) and Ozurgeti (65.2%) in. A small proportion (8.3%) in Batumi selected "hard to answer."

The proportion of respondents who reported living in or regularly visiting an older home or area with peeling or damaged paint was highest in Ozurgeti (50.0%), followed by Batumi (37.6%), and lowest in Zugdidi (25.5%). The majority of respondents in Zugdidi (74.5%) and Batumi (62.4%) answered "no," while in Ozurgeti 50.0% responded "yes" and 50.0% "no".

Among respondents living with children, a concerning number reported that children put their hands or non-food items, such as paint chips or soil, in their mouths. This behaviour was most commonly reported in Ozurgeti (68.8%), followed by Zugdidi (39.1%) and Batumi (34.5%). A majority in Batumi (51.2%) and in Zugdidi (45.7%) denied that children put non-food items in their mouths. In Ozurgeti, this figure dropped to just 25.0%. A small number of respondents in all three municipalities were unsure, with "hard to answer" responses reported by 14.3% in Batumi, 15.2% in Zugdidi, and 6.3% in Ozurgeti.

Respondents were also asked whether they had a job or hobby that may involve lead exposure. These activities included bridge or auto repair, ceramic painting, and work involving metals or pigments. The highest proportion of responses was recorded in Ozurgeti (60.6%), followed by Zugdidi (54.5%) and Batumi (49.0%). Approximately half of the respondents in Batumi (50.0%) reported "no," while 1.0% selected "hard to answer."

If the family is using products from other countries (such as medicines, spices, foods, or utensils) was reported by a majority of respondents in all three municipality. The highest usage was seen in Batumi (85.8%), followed by Zugdidi (79.8%) and Ozurgeti (69.7%). A minority in each municipality reported not using such products (9.3% in Batumi, 17.3% in Zugdidi, and 21.2% in Ozurgeti), while 4.9%, 2.9%, and 9.1% respectively selected "hard to answer."

Table 7. Potential risks that can cause lead poisoning (Western Georgia)

<i>Characteristics</i>	<i>Batumi</i>	<i>Zugdidi</i>	<i>Ozurgeti</i>	<i>Pearson's chi-squared test</i>
<i>Have you or someone you know ever had high blood lead levels?</i>				0.000
Yes	18.0%	36.6%	34.8%	
No	73.8%	63.4%	65.2%	
Hard to answer	8.3%			
<i>Do you live in or regularly visit on older home or other area with peeling or damaged paint?</i>				0.004
Yes	37.6%	25.5%	50.0%	
No	62.4%	74.5%	50.0%	
<i>Does a child living in your household put their hands or non-food items, such as paint chips or soil, in their mouth? (The question will be asked if the household member where the respondent lives is a child)</i>				0.152
Yes	34.5%	39.1%	68.8%	
No	51.2%	45.7%	25.0%	
Hard to answer	14.3%	15.2%	6.3%	
<i>Do you have a job or hobby that involves exposure to lead? (For example: bridge painting/repair; auto repair and electronics repair; painting ceramics; metal and colored pigments).</i>				0.359
Yes	49.0%	54.5%	60.6%	
No	50.0%	45.5%	39.4%	
Hard to answer	1.0%			
<i>Does your family use products from other countries, such as medicines, spices, food, or utensils?</i>				0.023
Yes	85.8%	79.8%	69.7%	
No	9.3%	17.3%	21.2%	
Hard to answer	4.9%	2.9%	9.1%	

The Pearson Chi-Square indicates a statistically significant association between the municipalities and characteristics.

5.2 Eastern Georgia

5.2.1 Socio-Demographic Characteristics of the Interviewing Respondents

This section overviews the sociodemographic characteristics of respondents from Gori, Mtskheta and Rustavi. The overall sample included 384 participants, with 150 from Gori, 65 from Mtskheta and 169 from Rustavi.

In Rustavi, the largest proportion of respondents (33.7%) were aged 35–44, followed by the 45–54 age group (22.5%). In Mtskheta, most respondents were aged 45–54 (26.2%), while in Gori, this age group also led with 24.7%. When considering the overall sample, the 35–

44 age group was the most represented (25.8%), while those aged 65 and over were the least (7.0%).

Regarding gender distribution, the majority of respondents in Gori (68.7%) and Rustavi (62.1%) were female. In contrast, Mtskheta had an almost even gender split, with slightly more males (49.2%) than females.

A significant majority of respondents reported having children. The highest proportion was observed in Gori (75.3%), followed by Mtskheta (72.3%) and Rustavi (66.3%). Overall, 70.8% of respondents had children, while 29.2% did not.

Secondary education was the most frequently reported level of educational attainment across all three municipalities (51.0% overall), especially in Mtskheta (58.5%) and Gori (54.0%). Bachelor's degrees were also commonly reported, particularly in Rustavi (45.0%) and Gori (44.7%). Master's degrees were most notable in Rustavi (8.9%), while no doctoral degrees were reported in any location.

Employment levels were relatively high, with Rustavi reporting the highest employment rate (66.9%), followed by Gori (64.0%). Mtskheta had the lowest employment rate (50.8%). Unemployment ranged from 6.0% in Gori to 14.8% in Rustavi. Notably, Mtskheta had the highest proportion of housewives (23.1%) compared to Gori (11.3%) and Rustavi (7.7%).

Regarding the presence of young children in the household, 36.5% of all respondents reported having at least one child under the age of six. Mtskheta had the highest proportion (43.1%), while Gori and Rustavi had similar figures (34.7% and 35.5%, respectively).

When looking at monthly family income, the largest income group overall was those earning more than 1500 GEL (30.5%). Rustavi had the highest percentage in this category (39.6%), followed by Mtskheta (36.9%) and Gori (17.3%). Gori had the highest proportion of respondents in the 501–1000 GEL income range (27.3%). Mtskheta (33.8%) and Rustavi (33.7%) had substantial shares of respondents who either found it hard to answer or did not know their income, compared to Gori (12.7%).

Table 8. Socio-demographic characteristics of the interviewing respondents (Eastern Georgia)

			Municipality			Total
			Gori	Mtskheta	Rustavi	
Age	18-24	N	15	4	20	39
		%	10.0%	6.2%	11.8%	10.2%
	25-34	N	32	13	32	77
		%	21.3%	20.0%	18.9%	20.1%
	35-44	N	28	14	57	99
		%	18.7%	21.5%	33.7%	25.8%
	45-54	N	37	17	38	92
		%	24.7%	26.2%	22.5%	24.0%
	55-64	N	21	11	18	50
		%	14.0%	16.9%	10.7%	13.0%
	65+	N	17	6	4	27
		%	11.3%	9.2%	2.4%	7.0%
Gender	Male	N	47	32	64	143
		%	31.3%	49.2%	37.9%	37.2%
	Female	N	103	33	105	241
		%	68.7%	50.8%	62.1%	62.8%
Parental status	Has children	N	113	47	112	272
		%	75.3%	72.3%	66.3%	70.8%
	Has no children	N	37	18	57	112
		%	24.7%	27.7%	33.7%	29.2%
Education	Incomplete secondary	N	2	2	1	5
		%	1.3%	1.3%	0.6%	1.3%
	Secondary education	N	81	38	77	196
		%	54.0%	58.5%	45.6%	51.0%
	Bachelor's degree	N	67	24	76	167
		%	44.7%	36.9%	45.0%	43.5%
	Master's degree	N	0	1	15	16
		%	0.0%	1.5%	8.9%	4.2%
	Doctoral degree	N	0	0	0	0
		%	0.0%	0.0%	0.0%	0.0%
Employment status	Employed	N	96	33	113	242
		%	64.1%	50.8%	66.9%	63.0%
	Unemployed	N	9	9	25	43
		%	6.0%	13.8%	14.8%	11.2%
	Pensioner	N	13	3	9	25
		%	8.7%	4.6%	5.3%	6.5%
	Housewife	N	17	15	13	45
		%	11.3%	23.1%	7.7%	11.7%
Child under the age of 6 living in respondents home	Yes	N	52	28	60	140
		%	34.7%	43.1%	35.5%	36.5%
	No	N	98	37	109	244
		%	65.3%	56.9%	64.5%	63.5%

Total		N	150	65	169	384
		%	100.0%	100.0%	100.0%	100.0%
Monthly family income categories (Georgian Lari)	<250	N	2	0	1	3
		%	1.3%	0.0%	0.6%	0.8%
	251-500	N	5	4	3	12
		%	3.3%	6.2%	1.8%	3.1%
	501-1000	N	41	6	8	55
		%	27.3%	9.2%	4.7%	14.3%
	1001-1500	N	39	9	25	73
		%	26.0%	13.8%	14.8%	19.0%
	>1500	N	26	24	67	117
		%	17.3%	36.9%	39.6%	30.5%
	Don't know	N	18	0	8	26
		%	12.0%	0.0%	4.7%	6.8%
	Hard to answer	N	19	22	57	98
		%	12.7%	33.8%	33.7%	25.5%
	Total	N	150	65	169	384
		%	100%	100%	100%	100%

5.2.2 Distribution of Lead Poisoning Information

Table 9 shows the respondent's distribution of lead poisoning information. Mtskheta had the highest percentage of respondents who reported receiving information about lead poisoning (89.2%), closely followed by Rustavi (87.0%). Gori had the lowest proportion of informed respondents (62.7%) and the highest share of individuals who had not received any information (36.0%). A very small percentage of respondents in Gori (1.3%) selected "Hard to answer", while none in Mtskheta or Rustavi did.

Among those who had received information, television was the most common source across all three municipalities. It was most frequently cited in Gori (71.6%) and Rustavi (68.9%), while Mtskheta had a somewhat lower reliance on television (55.2%).

Social networks emerged as a significant source in Mtskheta (22.4%) and Rustavi (25.2%), compared to just 7.4% in Gori. Meanwhile, acquaintances and friends were more frequently cited in Gori (15.8%) and Mtskheta (12.1%) than in Rustavi (6.0%).

Medical workers were mentioned as an information source more in Mtskheta (8.6%) than in Gori (4.2%), and not at all in Rustavi. Radio was rarely mentioned, with only 1.7% in

Mtskheta identifying it as a source. Respondents who selected "Hard to answer" made up a negligible portion (1.1% in Gori, 0% elsewhere).

Table 9. Distribution of Lead Poisoning Information (Eastern Georgia)

Characteristics	Gori	Mtskheta	Rustavi	Pearson's chi-squared test
Receiving information about lead poisoning				0.000
Yes	62.7%	89.2%	87.0%	
No	36.0%	10.8%	13.0%	
Hard to answer	1.3%	0.0%	0.0%	
Where do you get information about lead poisoning? *				0.000
Television	71.6%	55.2%	68.9%	
Radio	0.0%	1.7%	0.0%	
Social networks	7.4%	22.4%	25.2%	
Acquaintances/friends	15.8%	12.1%	6.0%	
Medical workers	4.2%	8.6%	0.0%	
Hard to answer	1.1%	0.0%	0.0%	
*Only the data of those respondents who gave YES answer about receiving information were analyzed				

5.2.3 Respondent's awareness on Lead poisoning issues

The results (Table 10) show that in Gori and Rustavi, the most commonly reported symptom was disruption in growth and development, identified by 47.3% and 47.9% of respondents, respectively. In contrast, learning disabilities were the leading response in Mtskheta (36.9%), followed closely by growth-related concerns. Although concentration difficulties were mentioned in all three cities, they remained relatively low, ranging from 4.7% in Rustavi to 9.2% in Mtskheta. A considerable proportion of respondents in Gori (22.7%) and

Rustavi (18.3%) stated they found it hard to answer, potentially indicating weaker awareness in these areas compared to Mtskheta (7.7%).

Respondents were also asked about their perceptions of potential sources of lead exposure. A strong majority in all three municipalities recognized lead-substitute paints as a cause of lead poisoning, with the highest awareness in Rustavi (89.3%) and Mtskheta (87.7%), and slightly less in Gori (68.7%).

When considering environmental exposures, awareness of lead-contaminated air varied. Half of Rustavi's respondents (50.9%) linked air pollution to lead poisoning, while this belief was less common in Gori (39.3%) and Mtskheta (33.8%). In both Gori and Mtskheta, over half of participants denied this connection, suggesting a possible gap in public health communication.

Knowledge about lead in soil was limited across the board. Rustavi once again demonstrated relatively higher awareness (23.1%), while far fewer respondents in Gori (18.7%) and Mtskheta (12.3%) made this connection. The majority in each city either denied the link or were uncertain.

When asked about lead-substituted foods, awareness was highest in Rustavi (52.7%) and Gori (47.3%), whereas Mtskheta trailed behind at 38.5%. Still, many respondents across all cities either dismissed or were unsure about the potential risks posed by contaminated food products.

Perceptions of lead-containing household utensils showed further variation. In Gori, more than half of respondents (52.0%) believed in the risk, followed by Mtskheta (46.2%) and Rustavi (42.0%). Notably, over half of Rustavi respondents rejected the idea that household items could be a source of exposure. Awareness of toys made from lead-substitute materials was highest in Gori (76.7%), with lower but notable recognition in Rustavi (59.1%) and Mtskheta (54.5%). In Rustavi, however, nearly a quarter of respondents (24.2%) indicated they were unsure, pointing to inconsistent understanding.

Regarding lead-substitute jewelry, respondents were largely skeptical or unaware. Only 29.6% in Gori considered it a potential source, while in Mtskheta, awareness was particularly low (6.1%). The majority in all three cities denied or were uncertain about the association.

When it came to lead-containing cosmetic products, recognition of risk was highest in Rustavi (26.6%), but significantly lower in Gori (12.7%) and Mtskheta (6.2%). A substantial number of participants in both Gori and Mtskheta found this question difficult to answer, indicating a lack of widespread knowledge on this specific issue.

Table 10. Interviewing respondent's awareness on lead poisoning issues (Eastern Georgia)

<i>Characteristics</i>	<i>Gori</i>	<i>Mtskhet a</i>	<i>Rustavi</i>	<i>Pearson's chi- squared test</i>
<i>A major symptom associated with lead poisoning</i>				0.001
<i>learning disability</i>	20.7%	36.9%	28.4%	
<i>Disturbance of the growth and development process</i>	47.3%	36.9%	47.9%	
<i>concentration problems</i>	5.3%	9.2%	4.7%	
<i>Speech difficulties</i>	4.0%	3.1%	0.0%	
<i>Low academic performance at school</i>		4.6%	0.6%	
<i>Difficulty in reading</i>		1.5%		
<i>Hard to answer</i>	22.7%	7.7%	18.3%	
<i>Are lead-substitute paints related to lead poisoning?</i>				0.000
<i>Yes</i>	68.7%	87.7%	89.3%	
<i>No</i>	22.0%	7.7%	5.9%	
<i>Hard to answer</i>	9.3%	4.6%	4.7%	
<i>Whether or not lead poisoning is linked to lead-contaminated air?</i>				0.041
<i>Yes</i>	39.3%	33.8%	50.9%	
<i>No</i>	50.7%	55.4%	45.0%	
<i>Hard to answer</i>	10.0%	10.8%	4.1%	
<i>Whether or not lead poisoning is associated with lead-contaminated soil?</i>				0.011
<i>Yes</i>	18.7%	12.3%	23.1%	
<i>No</i>	69.3%	70.8%	72.8%	
<i>Hard to answer</i>	12.0%	16.9%	4.1%	
<i>Whether or not lead poisoning is linked to lead-substitute foods?</i>				0.110
<i>Yes</i>	47.3%	38.5%	52.7%	
<i>No</i>	41.3%	47.7%	42.0%	
<i>Hard to answer</i>	11.3%	13.8%	5.3%	
<i>Are household utensils containing lead linked to lead poisoning?</i>				0.008
<i>Yes</i>	52.0%	46.2%	42.0%	
<i>No</i>	35.3%	49.2%	52.7%	
<i>Hard to answer</i>	12.7%	4.6%	5.3%	
<i>Are lead-substitution toys related to lead poisoning?</i>				0.000
<i>Yes</i>	76.7%	54.5%	59.1%	
<i>No</i>	16.5%	33.9%	16.7%	
<i>Hard to answer</i>	6.8%	11.6%	24.2%	
<i>Whether or not lead poisoning is associated with lead replacement jewelry?</i>				0.299
<i>Yes</i>	29.6%		6.1%	
<i>No</i>	51.5%	74.1%	57.6%	
<i>Hard to answer</i>	18.9%	25.9%	36.4%	
<i>Are lead-containing cosmetic products linked to lead poisoning?</i>				0.000
<i>Yes</i>	12.7%	6.2%	26.6%	
<i>No</i>	57.3%	61.5%	66.9%	
<i>Hard to answer</i>	30.0%	32.3%	6.5%	

5.2.4 knowledge of lead's impact on health

Figure 5 shows respondents' knowledge of the health effects of lead poisoning. In terms of cardiovascular disease (CVD), most respondents were unsure whether it is linked to lead

poisoning. The “Don’t know” response dominated in Rustavi (66.9%), followed by Mtskheta (44.6%) and Gori (46.7%). Only a small share of participants recognized the connection: 25.3% in Gori, 13.8% in Mtskheta, and just 5.9% in Rustavi. Meanwhile, a considerable proportion outright denied any association, particularly in Mtskheta (41.5%) and Gori (28.0%).

Knowledge about lead poisoning’s potential to cause anemia was similarly limited. While around one-quarter of respondents in each municipality affirmed this link—26.0% in Gori, 24.6% in Mtskheta, and 23.7% in Rustavi—many expressed uncertainty. The highest level of unawareness was again in Rustavi, where 65.1% selected “Don’t know,” followed by Gori (45.3%) and Mtskheta (40.0%). Interestingly, a sizeable number in Mtskheta (35.4%) and Gori (28.7%) denied any connection.

As for kidney failure, recognition of a link with lead poisoning was particularly low. Affirmative responses were rare, with only 11.3% in Gori, 7.7% in Mtskheta, and a mere 2.4% in Rustavi acknowledging it. The majority of respondents either did not know—most notably in Rustavi (64.5%)—or believed there was no connection at all, as seen in Mtskheta (44.6%) and Gori (39.3%).

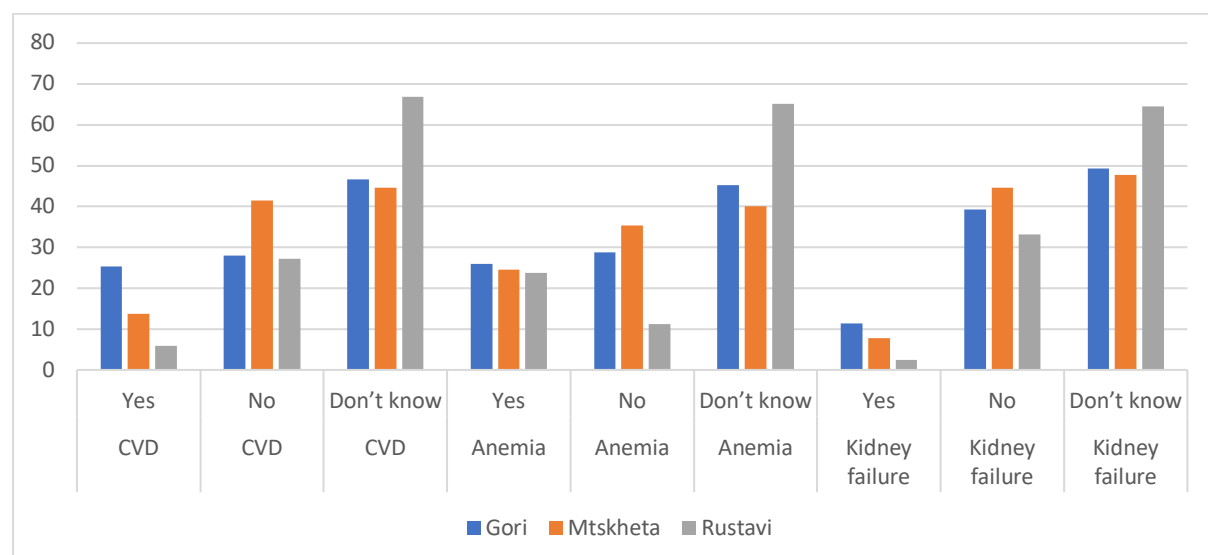


Figure 5. Interviewing respondent's knowledge on lead impact on health (Eastern Georgia)

Figure 6 shows participants' opinions from three municipalities about whether or not children are at a high risk of lead poisoning. Most participants think children are at a high risk of lead poisoning.

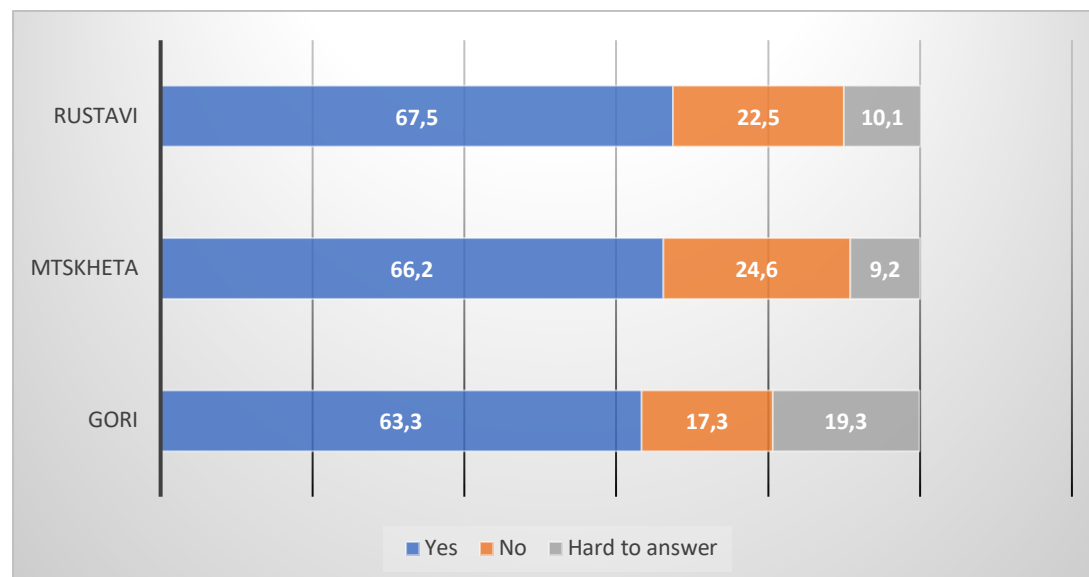


Figure 6. Do you believe that children are at a higher risk of lead poisoning? (Eastern Georgia)

5.2.5. Respondent's Knowledge of the Effects of Lead Poisoning Risk Factors on Health

Respondents from Rustavi showed the highest proportion (18.3%) of individuals who believe that lead very significantly affects health, compared to 12.3% in Mtskheta and 11.3% in Gori. A majority in all three cities agreed that lead has an impact on health, with Rustavi leading at 55.0%, followed by Mtskheta (44.6%) and Gori (40.0%). Notably, uncertainty was most pronounced in Mtskheta, where 33.8% responded "Maybe," compared to 28.0% in Gori and 22.5% in Rustavi.

Mtskheta respondents (87.7%) were most likely to consider regular wet cleaning important for human health, slightly more than Rustavi (84.0%) and significantly more than Gori (73.3%). Gori had the highest proportion of respondents (19.3%) who considered it unimportant.

The use of medical and cosmetic products for health was viewed as important by 29.0% in Rustavi, higher than in Gori (21.3%) and Mtskheta (12.3%). However, Mtskheta showed a markedly high level of uncertainty, with 52.3% selecting “Don’t know,” compared to 33.3% in Gori and only 18.3% in Rustavi.

Regarding the importance of paint chips or paint that can be replaced with a lead substitute, Mtskheta again had the highest share of respondents (33.8%) who considered it important, compared to 24.3% in Rustavi and 24.0% in Gori. Mtskheta also had the lowest proportion of “Don’t know” responses (7.7%), while Gori exhibited the highest uncertainty (28.7%).

When asked about the importance of playing on the ground for a child’s health, similar proportions across cities considered it important—Rustavi (47.9%), Mtskheta (47.7%), and Gori (41.3%). However, a substantial share in Gori (42.0%) considered it unimportant, higher than in Rustavi (36.1%) and Mtskheta (29.2%).

The use of lead substitute spices in food preparation was seen as important by 58.5% of respondents in Mtskheta, followed by Rustavi (55.0%) and Gori (44.7%). Gori also had the highest share of respondents (44.7%) who viewed it as unimportant, while Mtskheta had the lowest (26.2%).

In terms of recognizing industrial waste as a health issue, around one-fifth of respondents in each city (Rustavi: 20.1%, Gori: 19.3%, Mtskheta: 15.4%) viewed it as important. The majority in all three locations considered it unimportant, with the highest percentage in Gori (54.7%). Mtskheta once again had the highest share of uncertain respondents (35.4%). Table 11 presents respondent’s knowledge of how lead poisoning risk factors affect Health.

Table 11. Respondent's knowledge of how lead poisoning risk factors affect health (Eastern Georgia)

<i>Characteristics</i>	<i>Gori</i>	<i>Mtskhet a</i>	<i>Rustavi</i>	<i>Pearson's chi squared test</i>
<i>Do you think lead affects health as a metal?</i>				0.000
No	10.7%	4.6%	3.0%	
Significantly	10.0%	4.6%	1.2%	
Maybe	28.0%	33.8%	22.5%	
Has an impact	40.0%	44.6%	55.0%	
Very significantly	11.3%	12.3%	18.3%	
<i>How important it is for human health to regularly clean the house in a wet manner?</i>				0.006
Important	73.3%	87.7%	84.0%	
Unimportant	19.3%	6.2%	7.7%	
Don't know	7.3%	6.2%	8.3%	
<i>How important is the use of medical and cosmetic products for human health?</i>				
Important	21.3%	12.3%	29.0%	0.000
Unimportant	45.3%	35.4%	52.7%	
Don't know	33.3%	52.3%	18.3%	
<i>How important is a paint chip or chip that can be painted with lead substitute paint for health</i>				0.016
Important	24.0	33.8%	24.3%	
Unimportant	47.3%	58.5%	53.8%	
Don't know	28.7%	7.7%	21.9%	
<i>How important is playing on the surface of the ground for a child's health?</i>				0.355
Important	41.3%	47.7%	47.9%	
Unimportant	42.0%	29.2%	36.1%	
Don't know	16.7%	23.1%	16.0%	
<i>How important is the use of lead substitute spices in food preparation on human health?</i>				0.071
Important	44.7%	58.5%	55.0%	
Unimportant	44.7%	26.2%	32.5%	
Don't know	10.7%	15.4%%	12.4%	
<i>How important is industrial waste for human health?</i>				0.687
Important	19.3%	15.4%	20.1%	
Unimportant	54.7%%	49.2%	51.5%	
Don' know	26.0%	35.4%	28.4%	

5.2.6. Potential risks that can cause lead poisoning

Table 12 shows the potential risks that can cause lead poisoning. Respondents were asked whether they or someone they know had ever been diagnosed with high blood lead levels. The highest proportion of “yes” responses was reported in Rustavi (26.6%), followed by Mtskheta (20.0%) and Gori (14.0%). A majority of respondents in Gori (81.3%) answered “no,” in contrast to lower proportions in Rustavi (67.5%) and especially Mtskheta (58.5%). Notably, 21.5% of respondents in Mtskheta selected “hard to answer,” significantly higher than in Gori (4.7%) and Rustavi (5.9%).

The proportion of respondents who reported living in or regularly visiting an older home or area with peeling or damaged paint was highest in Mtskheta (46.2%), followed by Gori (41.3%) and Rustavi (33.1%). Meanwhile, 57.3% in Gori and 47.7% in Mtskheta responded “no,” while Rustavi had the highest rate of uncertainty, with 20.1% selecting “hard to answer.”

Among respondents living with children, a notable proportion reported that children put their hands or non-food items, such as paint chips or soil, in their mouths. This behavior was most commonly reported in Mtskheta (60.0%), slightly higher than Gori (45.8%) and Rustavi (44.8%). In contrast, a larger share in Gori (52.1%) denied such behavior, followed by 35.8% in Rustavi and 32.0% in Mtskheta. The highest level of uncertainty was observed in Rustavi (19.4%), compared to 8.0% in Mtskheta and only 2.1% in Gori.

Respondents were also asked whether they had a job or hobby that may involve lead exposure. Such activities were most frequently reported in Gori (54.0%), followed by Mtskheta (50.8%) and Rustavi (43.2%). Rustavi had the highest proportion of “no” responses (56.8%), while Mtskheta (49.2%) and Gori (46.0%) had lower rates.

Use of products from other countries (such as medicines, spices, foods, or utensils) was most common in Gori (78.7%), followed by Mtskheta (67.7%) and Rustavi (55.6%). However, Rustavi had a noticeably higher proportion of respondents (40.2%) reporting that they do not use such products, compared to 19.3% in Gori and 12.3% in Mtskheta. Uncertainty was highest in Mtskheta, where 20.0% selected “hard to answer,” compared to 4.1% in Rustavi and 2.0% in Gori.

Table 12. Potential risks that can cause lead poisoning (Eastern Georgia)

<i>Characteristics</i>	<i>Gori</i>	<i>Mtskheta</i>	<i>Rust avi</i>	<i>Pearson's chi- squared test</i>
<i>Have you or someone you know ever had high blood lead levels?</i>				0.000
Yes	14.0%	20%	26.6%	
No	81.3%	58.5%	67.5%	
Hard to answer	4.7%	21.5%	5.9%	
<i>Do you live in or regularly visit on older home or other area with peeling or damaged paint?</i>				0.000
Yes	41.3%	46.2%	33.1%	
No	57.3%	47.7%	46.7%	
Hard to answer	1.3%	6.2%	20.1%	
<i>Does a child living in your household put their hands or non-food items, such as paint chips or soil, in their mouth? (The question will be asked if the household member where the respondent lives is a child)</i>				0.027
Yes	45.8%	60.0%	44.8%	
No	52.1%	32.0%	35.8%	
Hard to answer	2.1%	8.0%	19.4%	
<i>Do you have a job or hobby that involves exposure to lead? (For example: bridge painting/repair; auto repair and electronics repair; painting ceramics; metal and colored pigments).</i>				0.146
Yes	54.0%	50.8%	43.2%	
No	46.0%	49.2%	56.8%	
<i>Does your family use products from other countries, such as medicines, spices, food, or utensils?</i>				0.000
Yes	78.7%	67.7%	55.6%	
No	19.3%	12.3%	40.2%	
Hard to answer	2.0%	20.0%	4.1%	

The Pearson Chi-Square indicates a statistically significant association between the municipalities and characteristics.

5.3. Discussion

This study provides a detailed discussion of the key findings by comparing data from Western and Eastern Georgia, highlighting how socio-demographic factors, levels of awareness,

knowledge of symptoms and risk factors of lead poisoning, and the role of social determinants shape vulnerability to lead poisoning.

- Across both regions, the majority of respondents were middle-aged (35–44 years), predominantly female, and most had at least one child. respondents from Eastern Georgia , particularly in Rustavi and Gori were reported higher employment rates compared to those in Western areas, with Ozurgeti showing the lowest levels. Municipalities in Eastern Georgia—particularly Rustavi and Mtskheta—exhibited higher levels of formal education, with a greater share of respondents holding bachelor's or master's degrees, as well as a higher percentage of full-time employment. Rustavi also showed a notable concentration of higher-income individuals (earning >1500 GEL per month), indicating possible socioeconomic gradients that influence both health literacy and access to information. These regional differences are important to consider, as socioeconomic status and education levels are well-established predictors of health knowledge and engagement with public health initiatives. The comparatively lower rates of education and employment in areas like Zugdidi and Ozurgeti may help explain the reduced awareness of lead poisoning risks in these municipalities.
- Respondents in Eastern Georgia (Mtskheta and Rustavi) were more likely to report having received information on lead poisoning than those in Western Georgia, particularly in Zugdidi and Ozurgeti. Gori, however, was an outlier within the Eastern municipalities, with the lowest information rate (62.7%). In both regions, television remained the most cited source of information, but social networks were increasingly important, especially in Rustavi. This suggests that while traditional media still plays a key role, digital outreach strategies may be more effective in urban or economically active areas. The near absence of information provided by healthcare professionals in both regions is concerning and indicates a missed opportunity for medically grounded, trust-based education on lead exposure risks. Both regions demonstrated limited awareness of lead poisoning symptoms, with many respondents struggling to identify specific health effects. “Distribution of the growth and

development” were the most recognized symptoms, especially among respondents in Rustavi, Gori, and Batumi. “Learning disabilities” were also frequently identified, especially in Mtskheta and Ozurgeti. In Western Georgia, Batumi residents consistently demonstrated higher awareness across a broad range of lead sources. Over half of respondents correctly identified lead-substituted foods and household utensils as potential risks, with even greater recognition of risks posed by toys and contaminated air. This suggests a comparatively well-informed population that may benefit from more robust public health infrastructure or greater access to environmental health information. In contrast, Zugdidi and Ozurgeti residents showed significantly lower levels of awareness. In both cities, less than a quarter of respondents recognized household utensils as a source of lead, and fewer still acknowledged the dangers of lead-substituted foods. A considerable proportion of participants expressed uncertainty or outright denial about the link between environmental sources such as air and soil contamination. These findings suggest a critical need for targeted health education in these municipalities, where the understanding of lead risks is particularly limited. A similar regional trend is evident in Eastern Georgia, although with some differences. Rustavi stands out for relatively high awareness, especially regarding lead-substitute paints (recognized by nearly 90% of respondents) and air pollution. Rustavi respondents also demonstrated better knowledge of less obvious sources such as cosmetics and jewelry, although overall awareness of these was still modest. Gori followed closely in some categories, especially in recognizing risks from household utensils and toys, but showed weaker knowledge of environmental factors like contaminated air and soil. Mtskheta consistently displayed the lowest awareness across most categories, particularly for lead in air, soil, cosmetics, and jewelry—highlighting a substantial gap in public health education. When comparing Western and Eastern municipalities, it is evident that Batumi and Rustavi exhibit the highest levels of awareness within their respective regions. However, even in these relatively informed cities, understanding of less-publicized sources—such as cosmetics, jewelry, and soil—remains limited. On the other end

of the spectrum, Ozurgeti and Mtskheta emerge as the least informed municipalities, with high rates of uncertainty or misinformation about nearly all potential sources of lead exposure

- Knowledge on lead's impact on health and its link to chronic conditions such as cardiovascular disease (CVD), anemia, and kidney failure was generally low across all municipalities, with a dominant trend of uncertainty and misinformation.
- Most participants from all municipalities think children are at a high risk of lead poisoning.
- Across Eastern Georgia, Rustavi showed the highest awareness of lead's health risks, with 18.3% believing it significantly affects health and 55.0% acknowledging its general impact. Mtskheta and Gori trailed slightly, though uncertainty was highest in Mtskheta (33.8%). Regular wet cleaning was most valued in Mtskheta (87.7%), while Gori had the lowest agreement (73.3%) and the highest share who found it unimportant. Rustavi residents expressed the most concern about medical and cosmetic products (29.0%), whereas Mtskheta showed notable uncertainty (52.3%). Mtskheta respondents were most likely to recognize the importance of using lead-safe paints (33.8%) and spices (58.5%), while Gori consistently showed lower concern and higher disregard, particularly about dietary and environmental risks. On the issue of children playing on contaminated ground, responses were similar across cities, but Gori again had the highest proportion considering it unimportant (42.0%). Lastly, awareness of industrial waste as a health hazard was low overall, with only about 20% across all cities recognizing its importance. Mtskheta had the highest uncertainty (35.4%), reflecting a consistent trend. Overall, Rustavi demonstrated the highest awareness, Mtskheta had mixed results with frequent uncertainty, and Gori showed the lowest concern across most lead-related risks. These findings suggest a need for targeted educational interventions, especially in Gori and Mtskheta.
- The analysis of potential risk factors across Western and Eastern Georgian municipalities reveals distinct patterns that have important public health implications. Living in older homes or areas with peeling or damaged paint remains a significant

environmental risk factor, particularly in Ozurgeti and Mtskheta. This aligns with global evidence that deteriorated lead-based paint is a major source of lead poisoning, especially in children. The high prevalence of this factor indicates that aging housing stock has not been sufficiently addressed, and renovation or abatement programs could substantially reduce lead exposure. The marked uncertainty in Rustavi regarding this risk suggests that residents may lack awareness of environmental hazards in their homes, underlining the necessity of public education campaigns. Children's behavior, specifically the ingestion of non-food items like paint chips and soil, presents a critical exposure pathway. The elevated rates in Ozurgeti and Mtskheta highlight these municipalities as priority areas for intervention. Children's mouthing behavior is a well-documented route for lead uptake, and when coupled with environmental sources such as peeling paint or contaminated soil, it dramatically increases the risk of poisoning. This points to the urgent need for integrated approaches combining environmental remediation with community education about safe behaviors and household hygiene. Occupational and hobby-related lead exposure is widespread across both regions but particularly prominent in Ozurgeti and Gori. This suggests the presence of local industries or crafts involving lead-containing materials, such as metalworking, ceramic painting, or vehicle repair. These activities likely contribute significantly to cumulative lead exposure, not only for workers but also for their families through take-home contamination. Workplace safety regulations, personal protective equipment use, and awareness training are essential to mitigate these risks, especially in areas with high prevalence. The widespread use of imported products—such as medicines, spices, foods, or utensils—that may contain lead adds another complex layer of exposure risk. The higher prevalence in Batumi and Gori could be associated with their roles as commercial or cultural hubs, leading to greater consumption of imported goods. This raises concerns about product safety standards and import controls, as contaminated goods have been documented as sources of lead poisoning in various contexts. Regulatory oversight and consumer awareness campaigns should be strengthened to address

this often-overlooked exposure pathway. In comparing Western and Eastern Georgia, it is evident that while both regions face multiple overlapping risk factors for lead poisoning, the intensity and awareness of these risks vary. Western municipalities like Ozurgeti and Zugdidi show higher reported cases and exposure behaviors, which could be related to local economic activities, housing conditions, or historical environmental contamination. Eastern municipalities, particularly Mtskheta, exhibit higher levels of uncertainty, possibly reflecting gaps in health literacy or access to diagnostic services. This suggests that while interventions must be geographically targeted, they also need to be tailored to address knowledge and resource disparities. Overall, these findings underscore the multifactorial nature of lead poisoning risk in Georgia, involving environmental, behavioral, occupational, and cultural determinants. Effective mitigation requires a comprehensive strategy combining improved surveillance and diagnosis, environmental health interventions, workplace safety, child-focused education, and regulation of imported products. By addressing the specific risk profiles and informational gaps identified in each municipality, public health authorities can better protect vulnerable populations and reduce the burden of lead poisoning in both Western and Eastern Georgia.

Chapter 6. Conclusion

This PhD study provides a comprehensive analysis of the awareness, risk factors, and socio-demographic determinants of lead poisoning across selected municipalities in Western and Eastern Georgia. Municipalities in Eastern Georgia, particularly Rustavi and Mtskheta, demonstrated higher levels of formal education, employment, and income, which corresponded with better awareness of lead-related risks. Conversely, Western municipalities such as Zugdidi and Ozurgeti reported lower socio-economic indicators and significantly reduced knowledge of lead exposure sources, symptoms, and long-term health effects. This pattern aligns with established global evidence linking socio-economic status to environmental health literacy and access to preventive resources.

Information dissemination also varied, with traditional media, notably television, remaining the dominant source. However, the increasing role of social media, especially in urbanized and economically active areas like Rustavi, suggests an evolving landscape of health communication. The near absence of healthcare professionals as sources of information across all municipalities is a critical gap, pointing to an underutilized channel for disseminating evidence-based knowledge and fostering trust in public health messaging.

Environmental and behavioral risk factors were found to be prevalent and unevenly distributed. Older housing with deteriorated paint, a known source of lead exposure, was particularly common in Ozurgeti and Mtskheta. Children's behaviors, such as the ingestion of soil or paint chips, further exacerbated vulnerability in these areas. Additionally, occupational and hobby-related exposures were prominent in Ozurgeti and Gori, indicating potential risks from informal industries and inadequate workplace safety practices. The widespread use of imported goods—potentially containing lead—adds another layer of complexity, especially in municipalities such as Batumi and Gori, where such products are more accessible.

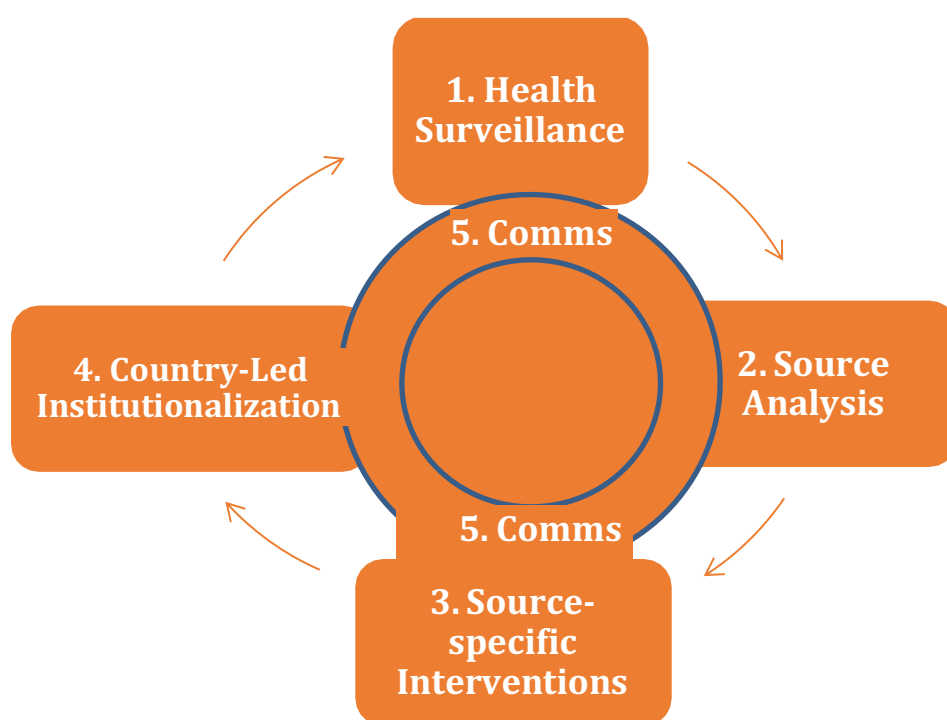
While Rustavi exhibited relatively high levels of awareness and concern across various exposure categories, Mtskheta and Gori reflected notable uncertainty and, in some cases, indifference toward environmental and health risks. These differences emphasize the importance of designing geographically differentiated and demographically responsive interventions. A one-size-fits-all approach is unlikely to be effective given the diversity of exposure pathways, socio-cultural dynamics, and levels of awareness identified across regions.

In conclusion, addressing lead poisoning in Georgia requires a holistic, multi-sectoral strategy. This should include strengthening public health education, integrating environmental risk assessments into local governance. Special attention must be given to municipalities with low awareness and high risk, such as Ozurgeti, Zugdidi, Mtskheta, and Gori, through targeted outreach and environmental interventions.

Chapter 7. Recommendations

To effectively prevent and eliminate lead poisoning among children in Georgia, the adoption of the Pure Earth Five-Element Lead Intervention Approach (see Figure 7) is strongly recommended. This holistic model encompasses five key pillars—health surveillance, identification and analysis of lead sources, implementation of source-specific mitigation strategies, institutional capacity building, and ongoing public communication. By integrating these elements, the model facilitates a coordinated and systematic approach to lead poisoning prevention.

Figure 7. Pure Earth 5-Element Lead Intervention Approach



Based on the findings of my PhD study, the following recommendations are proposed to improve awareness, reduce exposure, and mitigate the health impacts of lead poisoning in Georgia:

1. Advocate to Develop Public Health Campaigns

Design and implement lead poisoning awareness initiatives tailored to the cultural, socio-demographic, and educational profiles of individual municipalities. Priority should be given to high-risk, low-awareness areas such as Ozurgeti, Zugdidi, Gori, and Mtskheta. Messaging must encompass both common and less-recognized lead sources, emphasizing risks to children.

2. Integrate Lead Education into Healthcare Practice

Expand the role of healthcare professionals in prevention by embedding lead risk assessment and counseling into routine pediatric, maternal, and primary care services. Healthcare workers should receive targeted training to identify symptoms of lead exposure and provide evidence-based guidance on mitigation.

3. Adopt Communication Approaches

While traditional media (e.g., television) remains influential, public health messaging should increasingly leverage digital platforms, especially in urban areas like Rustavi. Collaborations with local influencers and community organizations can amplify outreach, particularly among younger and digitally connected populations.

4. Implement School Based Environmental Health Education System

Integrate lead poisoning prevention into school curricula and local community programs. Educational content should include practical guidance on safe household practices, child behavior risks, and the identification of hazardous imported products.

5. Conduct Municipal Housing and Environmental Risk Assessments

Systematically assess high-risk environments—especially deteriorated housing, contaminated soil, and industrial zones. Findings should inform targeted remediation strategies and provide households with lead-safe renovation resources.

6. Strengthen Regulation

Enhance national systems for inspecting and regulating consumer goods that may contain lead (e.g., spices, cosmetics, utensils, toys). Enforce safety standards, introduce clear labeling, and conduct routine inspections at ports and markets.

7. Promote Occupational Safety

Introduce occupational health interventions in sectors involving informal or unregulated lead exposure, implementing workplace safety protocols to prevent secondary (take-home) contamination.

8. Improve Surveillance and Monitoring System

Establish a national surveillance system for lead exposure, incorporating blood lead level testing into standard health screenings, especially for children. Data collection should be regionally disaggregated to enable targeted public health interventions.

9. Enhance Cross-Sectoral Collaboration

Develop a national lead poisoning prevention strategy that ensures coordination between public health, environmental protection, housing, education, and civil society sectors. Intersectoral governance is essential for coherent and sustained implementation.

10. Prioritize Resource Distribution According to Data-Driven Risk Assessments

Allocate funding, health services, and educational outreach proportionately to municipalities with demonstrated higher risk and lower awareness—namely Ozurgeti, Zugdidi, Gori, and Mtskheta. Equity-based distribution of resources is vital to reduce regional disparities in exposure and knowledge.

Chapter 8. Limitations

A key limitation of this study is the relatively small sample size, which may restrict the generalizability and statistical power of the findings. While the sample was proportionally selected to represent the municipalities studied, a larger population-based study would be necessary to confirm and extend these results. Despite this limitation, this PhD study findings address risks factors and highlights about preventive strategies to eliminate lead poisoning among children in Georgia, also provides valuable preliminary insights that can motivate governmental and non-governmental organizations to prioritize lead poisoning awareness and support more extensive research efforts in Georgia.

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Appendix 1 Published paper #1

Kekelidze, Dali, Mari Malazonia, David Tsereteli, and Iagor Kalandadze. 2024. "Awareness and Knowledge of Lead Poisoning: A Street Survey in Three Municipalities of Georgia" *International Journal of Environmental Research and Public Health* 21, no. 12: 1665. <https://doi.org/10.3390/ijerph21121665>



Article

Awareness and Knowledge of Lead Poisoning: A Street Survey in Three Municipalities of Georgia

Dali Kekelidze ^{1,*}, Mari Malazonia ^{2,3}, David Tsereteli ⁴ and Igor Kalandadze ¹

¹ Ilia State University, Tbilisi 0162, Georgia

² National Nutrition Centre, Tbilisi 0194, Georgia

³ David Tvilidiani Medical University, Tbilisi 0159, Georgia

⁴ National Center for Disease Control and Public Health, Tbilisi 0198, Georgia

* Correspondence: dali.kekelidze.1@iliauni.edu.ge

Abstract: Lead poisoning is a serious public health problem, especially for children. Despite screening programs to reduce lead exposure, there is still a lack of knowledge about its harmful impact. The study aimed to analyze how aware people in Georgia are about lead poisoning and its health effects. In this street survey, 384 adults from three municipalities, Batumi, Ozurgeti, and Zugdidi, were interviewed from March to June 2024. We used descriptive statistics and Pearson's chi-square test for data analysis. The majority of respondents noted that children are at high risk of lead poisoning. In all selected municipalities, people know that lead can be found in toys, but they do not know it can be found in jewelry and cosmetics, especially in Ozurgeti. Many respondents are not aware that lead poisoning can cause cardiovascular disease, anemia, and kidney failure. More educational campaigns are needed to highlight lead poisoning sources and their effects on health to protect the population.

Keywords: lead poisoning; public health; environmental exposure; Georgia



Citation: Kekelidze, D.; Malazonia, M.; Tsereteli, D.; Kalandadze, I. Awareness and Knowledge of Lead Poisoning: A Street Survey in Three Municipalities of Georgia. *Int. J. Environ. Res. Public Health* **2024**, *21*, 1665. <https://doi.org/10.3390/ijerph21121665>

Academic Editor: Paul B. Tchounwou

Received: 11 November 2024

Revised: 7 December 2024

Accepted: 12 December 2024

Published: 13 December 2024



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1. Introduction

Lead is a chemical element marked by the Pb symbol (from the Latin plumbum), and its atomic number is 82 [1]. Pb is presented in the fourteenth group of the main group of metals in the periodic system of chemical elements. It is a naturally toxic metal found in the Earth's crust. The primary sources of ecological pollution are the extraction of lead, industrial use, and the recycling of secondary raw materials. In some countries, lead substitute paints, dope fuel, and three-quarters of all production go into the production of lead replacement batteries. Lead is also used in many other products, such as paints, glass fittings, dishes, crystals, ceramics, jewelry, cosmetic products, and toys. Lead can enter drinking water when plumbing materials that contain lead corrode, especially where the water has high acidity or low mineral content, corroding pipes and fixtures [2]. Lead exposure can affect nearly every part of children's bodies: (1) Children swallow lead dust from the environment by putting their fingers in their mouths and chewing on paint [3]; (2) lead is absorbed faster in children than in adults [4]; (3) children's nervous systems are less protected from the effects of lead [5] because a child's nervous system is still developing, making the impact of lead more toxic than on a mature brain. Exposure in early childhood can slow mental development and cause lower intelligence later in childhood [6]. Children absorb lead approximately 50% faster than adults, who absorb only about 6% [4,7] because their bodies require more nutrients like calcium and iron for growth. As lead uses the same absorption as these nutrients, their higher demand inadvertently increases lead absorption; therefore, special attention is paid to lead poisoning in children. Additionally, adults excrete 99% of lead from the body, whereas children excrete only 32% [4].

1.1. Lead Poisoning History

Lead air emissions have historically been predominantly from vehicle and industrial exhaust gases with varying lead levels in gasoline and diesel fuels [8]. Homes near busy roadways or fences with chipped or peeling paint sometimes have high amounts of lead in the soil [9]. It is estimated that children can be exposed to lead in soil by touching, breathing, or playing in lead-contaminated soil.

Lead is one of the metals that humans discovered. It was extracted by old Jews and Egyptians in 4000 BC, yet it was used as cargo in fishing nets, covering dishes, and cosmetic products [10,11]. Hippocrates, the father of medicine (BC 370), was the first person to associate lead with clinical symptoms [12]. From the beginning of the 20th century, lead was used widely in paints because it provided brightness, prevented mildew, and prevented corrosion [13,14].

In 1922, the motor car industry began using lead in petrol to increase manufacturing and protect engines from detonation [15]. In 1800, scientists described the harmful effects of lead on children and adults, linking it to lead substitute paints, petrol, and dust from polluted ground [16]. Firstly, Austrian scientist Jefferis Turner presented scientific research in 1897 which referred to the poisoning of children with lead [17]. This was followed by various studies, as a result of which, in most of Europe and Australia, from 1909 to 1930, the use of lead in paints was prohibited [10]. In the USA, from 1971, laws were made to decrease the use of lead [18].

In the USA, ethylated petrol was prohibited from 1972 to 1986 [19–21]. From 1978 to 1991, lead content in human blood decreased by 78%, which is linked to the reduction of lead substitutes in ethylated paint and petrol.

1.2. Lead Exposure as a Public Health Problem in Georgia

According to the World Health Organization (WHO), lead is one of the 10 chemical substances that cause major public health issues and require the protection of children, women, and workers from member states [22].

The Multi-Indicator Cluster Survey (MICS) was conducted in Georgia in 2018, the world's largest household research project. It was found that 41 percent of children have blood lead levels greater than or equal to 5 micrograms per deciliter ($\mu\text{g}/\text{dL}$), and among them, 16 percent of children have blood lead levels greater than or equal to 10 micrograms per deciliter ($\mu\text{g}/\text{dL}$). Additionally, 25 percent of children have blood lead levels between 5 and 10 $\mu\text{g}/\text{dL}$ [22].

According to data from the National Agency for Food, 2.38% of food samples taken from 2012 to 2017 were contaminated with lead [23]. In July 2019, under the initiative of the National Center for Disease Control and Public Health, the Center for Disease Control and Prevention of the USA, and Pure Earth, research was conducted to study the concentration of lead in various environments (soil, dust, paint, water, spices). Due to the falsification of spices, an increased lead content was revealed in spices, especially in Adjara [24].

1.3. Prevention Programs and Awareness

WHO works on guidelines for the prevention and management of lead content to protect children's and adults' health by politicians and specialists of public health. In 2002, governments appealed to remove paints containing lead entirely at the World Summit on Sustainable Development. By eradicating paints containing lead, countries will promote the achievement of the following sustainable development goal: 3.9—By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water, and soil pollution and contamination [25]. The Global Alliance to Eliminate Lead Paint (Lead Paint Alliance) was formed in 2011 to promote the production of lead substitute paints and stop their realization [26]. According to the National Center for Disease Control and Public Health of Georgia (NCDC), 1999, Georgian law mandated a maximum lead content in gasoline of 13 mg/liter. A scheduled phase-out of lead in gasoline was ordered in 2000, defining a maximum allowable lead concentration of 5 mg/L by 2005, which was later

delayed until 2007 due to difficulties with enforcement and possible negative social factors. On 19 April 2019, the Georgian Government adopted Decree #869 on Early Detection and Management Measures for Toxic Effects of Lead in Children [27]. With this normative act, the relevant public agencies were instructed to take measures to reduce the toxic effects of lead in the country. As of 16 January 2024, 48% of countries have confirmed they have legally binding controls on the production, import, sale, and use of lead paints [28], and Georgia is one of them. Every October in Georgia, International Lead Poisoning Prevention Week is held to raise awareness about preventing lead poisoning. Conducting population-based studies on knowledge and attitudes regarding the harmful effects of lead poisoning is crucial to minimizing lead exposure through effective regulations and public awareness campaigns.

2. Material and Methods

2.1. Description of the Study Area

Georgia is located at the eastern end of the Black Sea on the southern flanks of the main crest of the Greater Caucasus Mountains [29]. The geography area is 69,700 sq·km, and the total population is 4,900,961. The national language is Georgian. The most common ethnic groups are Georgian 86.8%, Azeri 6.3%, Armenian 4.5%, and other 2.3% [30]; 48% of the population are male, and 52% are female [31]. The main economic activities include cultivating agricultural products like grapes, citrus fruits, and hazelnuts; mining manganese, copper, and gold; and producing alcoholic and non-alcoholic beverages. Essentially, Georgia leads exports in copper ore, cars, fertilizers, iron alloys, and wine. It also imports cars, refined petroleum, natural gas, packaged medicine, and copper ore. The real GDP per capita is USD 22,200 (2023est) [30]. In April 2019, the Government released data on lead prevalence in children's blood collected during the MICS. The results showed that regions in western Georgia had a much higher lead prevalence than the country's eastern regions [32]. Therefore, we decided to conduct our study in the following western Georgian Regions: Batumi municipality, the capital of Georgia's Autonomous Republic of Adjara [33]; Ozurgeti municipality, the capital of the west Georgian province of Guria [34]; and Zugdidi, a municipality in the west of Georgian historical province of Samegrelo [35] (Figure 1).

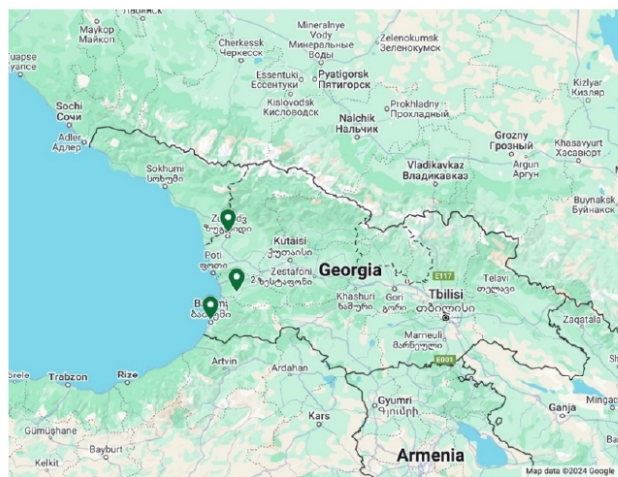


Figure 1. Selected study areas: 1. Batumi, 2. Ozurgeti, 3. Zugdidi.

2.2. Sample Size Calculation

The sample size for the selected citizens' interviewing population was calculated using Cochran's sample size formula: $n = z^2 \times P \times (1 - p) / E^2$, where 95% of confidence level $z = 1.96$; the margin of error is 5% ($E = 0.05$), and the assumed response distribution is 50% ($P = 0.5$); $n = (1.96)^2 \times 0.5 \times 0.5 / (0.05)^2 = 3.8416 \times 0.25 / 0.0025 = 384.16$. We found that for the street survey, the sample size was approximately 384. For sufficient results, we calculated the population of each selected municipality using Geostat data for the year 2023 [36], and the sample size for each municipality was calculated in proportion to its population compared to the municipality's total population. The final sample size per municipality by interviewing the population was Batumi—206, Ozurgeti—66, and Zugdidi—112.

2.3. Data Collection

For the data collection, we used questionnaires, which provided information through face-to-face interviews. The first section required sociodemographic information, the second concerned awareness of lead poisoning issues, and the third concerned knowledge of lead's impact on health. A street survey was conducted from March to June 2024 among only adult (≥ 18 years) Batumi, Ozurgeti, and Zugdidi residents. We selected busy locations in each municipality, such as malls, markets, parks, and shopping streets.

2.4. Statistical Analysis

The interviewers' responses were identified, imported to Excel, and analyzed using IBM SPSS version 23 (IBM, Armonk, NY, USA). Descriptive statistics were used to summarize the study data findings. Pearson's chi-square test was used to determine significant associations between different variables.

3. Results and Discussion

A total of 384 people participated in the study. The mean age was 39.2 years, with a standard deviation of 14.5 years, indicating a moderate level of variability in the ages; most participants were female, 53.4%. Participants were distributed by the following municipalities: Batumi (53.6%), Zugdidi (29.2%), and Ozurgeti (17.2%); 63.8% of the participants had children. Nearly 51.0% of the participants had secondary education, and 63.3% were employed; 62.8% of the participants did not have children under 6 living at home. Approximately 52.4% of participants refused that their family's monthly income is above GEL 1500. The characteristics of interviewing respondents are presented in Table 1.

Figure 2 shows participants' opinions from three municipalities about whether or not children are at a high risk of lead poisoning. Most participants think children are at a high risk of lead poisoning. It means that general participants are aware that children are at a higher risk of lead poisoning. This was in line with a study conducted in Saudi Arabia, which shows that 50.5% of the participants think that children are most at risk for lead poisoning [37].

Figure 3 illustrates what participants from three municipalities think about whether or not lead affects health. Most participants from Batumi (52.9%) think lead is a metal that impacts health. In Zugdidi, 48.2% think lead has an impact, while 26.8% think it affects health significantly. In Ozurgeti, none of the respondents answered that lead affects health significantly, but 42.4% think it has an impact. Also, in a study in South Western Nigeria, most discussants stated that they believe lead is poisonous and dangerous to health [38].

Lead poisoning can have a harmful impact on a child's development and behavior. Children with greater lead levels may also have problems with learning and reading, delayed growth, and hearing loss [39]. Lead may be used in plastic toys to stabilize molecules from heat [40]. Exposure to lead is associated with multiple sources such as petrol, industrial processes, paint, solder in canned foods, water pipes, and pathways: air, household dust, street dirt, soil, water, and food. It is also found in jewelry and decorative items [41]. Applying lead-containing cosmetics several times a day or daily can

potentially add to significant exposure levels [42]. Thus, Table 2 describes interviewing respondents' awareness of lead poisoning issues by municipality. In Batumi, 18%, Zugdidi, 12.5%, and Ozurgeti, 18.2% of respondents think learning disabilities are major symptoms associated with lead poisoning. Growth and development problems are mostly recognized symptoms in Batumi (54.9%) and in Zugdidi (42.9%) and less recognized in Ozurgeti (31.8%). In all municipalities, fewer people mentioned that speech difficulties, low academic performance at school, and difficulty in reading are major symptoms associated with lead poisoning. More respondents in Batumi (78.6%) and Zugdidi (70.5%) said they had received information about lead poisoning, compared to 57.6% in Ozurgeti. These results suggest that in Ozurgeti, more awareness campaigns are needed. Across the municipalities, most respondents in Batumi (85.9%), Zugdidi (79.5%), and Ozurgeti (77.3%) think lead-substitute paints are related to lead poisoning. A majority of respondents in all municipalities are less informed that lead poisoning is linked to lead-contaminated air and that lead poisoning is associated with lead-contaminated soil. Respondents in Batumi (50.5%) believe that lead-substitute foods are linked to lead poisoning, and only Zugdidi (24.1%) and Ozurgeti (18.2%) show a lower percentage. In Batumi (48.5%), Zugdidi (18.8%), and Ozurgeti (21.2%), respondents believe that household utensils containing lead can be linked to lead poisoning.

Table 1. Characteristics of the interviewing respondents.

Characteristics		N = 384
Age		39.2 ± 14.5 ^a
Gender	Female	205 (53.4%)
	Male	179 (46.6%)
Municipality	Batumi	206 (53.6%)
	Zugdidi	112 (29.2%)
	Ozurgeti	66 (17.2%)
Parental status	Has children	245 (63.8%)
	Has no children	139 (36.2%)
Education	Incomplete secondary education	1 (0.3%)
	secondary education	196 (51.0%)
	Bachelor's Degree	171 (44.5%)
	Student	15 (3.9%)
Employment Status	Employed	243 (63.3%)
	Unemployed	40 (10.4%)
	Pensioner	4 (1.0%)
	Student	43 (11.2%)
	Housewife	54 (14.1%)
Child under the age of 6 living in respondent's home	Yes	143 (37.2%)
	No	241 (62.8%)
Monthly family income categories(GEL)		
	1: <250;	1 (0.3%)
	2: 251–500	11 (2.9%)
	3: 501–1000	44 (11.5%)
	4: 1001–1500	70 (18.2%)
	5: >1500	201 (52.4%)
	Don't know	28 (7.3%)
	Hard to answer	29 (7.6%)

^a Mean ± SD.

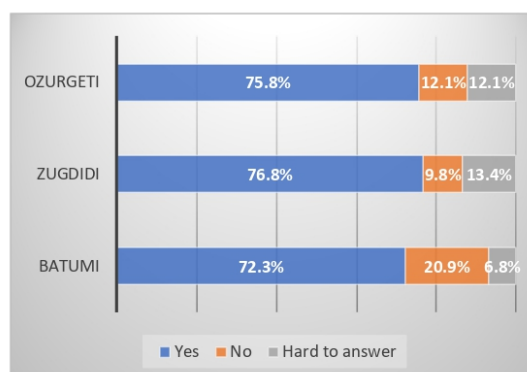


Figure 2. Do you believe that children are at a higher risk of lead poisoning?

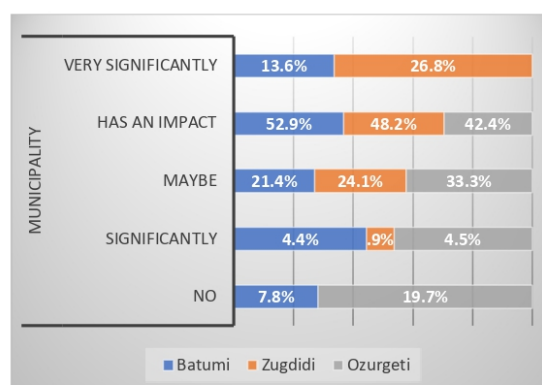


Figure 3. Do you think lead affects health as a metal?

In every municipality interviewed, respondents are aware that lead-substitution toys are related to lead poisoning. However, all municipality respondents are not aware that lead poisoning is associated with lead replacement jewelry and are also not mindful that lead-containing cosmetic products are linked to lead poisoning.

Table 3 shows respondents' knowledge of the health effects of lead poisoning. For cardiovascular disease, interviewing respondents do not have the knowledge that lead poisoning can cause it. The respondents who said NO are as follows: In Batumi, 46.1%; Zugdidi, 42.9%; and in Ozurgeti, 19.7%. Most respondents answered that they do not know if lead poisoning can cause cardiovascular disease. Knowledge of lead poisoning causing anemia was poor. The higher percentage of those who answered "NO" was from Batumi (35.0%). The most common answer by respondents in all municipalities was "Don't Know." The distribution is as follows: Batumi (48.5%), Zugdidi (38.4%), and Ozurgeti (68.2%). In the case of whether lead poisoning can cause kidney failure, most respondents are not aware. The highest percentage of those who said "NO" was observed in Zugdidi (57.1%) and Batumi (47.6%). The majority of interviewing respondents in all municipalities answered "Don't know" (Batumi (49.5%), Zugdidi (41.7%) and Ozurgeti (69.7%)).

Table 2. Interviewing respondent's awareness of lead poisoning issues by municipality.

Characteristics	Batumi	Zugdidi	Ozurgeti	Pearson's Chi-Squared Test
A major symptom associated with lead poisoning				0.000
Learning disability	18.0%	12.5%	18.2%	
Disturbance of the growth and development process	54.9%	42.9%	31.8%	
Concentration problems	9.2%	33.0%	7.6%	
Speech difficulties	4.9%	4.5%	4.5%	
Difficulty in reading	4.4%			
Hard to answer	8.7%	7.1%	37.9%	
Receiving information about lead poisoning				0.026
Yes	78.6%	70.5%	57.6%	
No	20.4%	29.5%	42.4%	
Hard to answer	1.0%			
Are lead-substitute paints related to lead poisoning?				0.109
Yes	85.9%	79.5%	77.3%	
No	6.8%	3.6%	6.1%	
Hard to answer	7.3%	17.0%	16.7%	
Whether or not lead poisoning is linked to lead-contaminated air?				0.000
Yes	40.3%	5.4%	15.2%	
No	47.1%	74.1%	62.1%	
Hard to answer	12.6%	20.5%	22.7%	
Whether or not lead poisoning is associated with lead-contaminated soil?				0.000
Yes	27.7%		1.5%	
No	60.7%	79.5%	75.8%	
Hard to answer	11.7%	20.5%	22.7%	
Whether or not lead poisoning is linked to lead-substitute foods?				0.000
Yes	50.5%	24.1%	18.2%	
No	37.9%	61.6%	56.1%	
Hard to answer	11.7%	14.3%	25.8%	
Are household utensils containing lead linked to lead poisoning?				0.000
Yes	48.5%	18.8%	21.2%	
No	39.8%	57.1%	50.0%	
Hard to answer	11.7%	24.1%	28.8%	
Are lead-substitution toys related to lead poisoning?				0.000
Yes	76.7%	54.5%	59.1%	
No	16.5%	33.9%	16.7%	
Hard to answer	6.8%	11.6%	24.2%	
Whether or not lead poisoning is associated with lead replacement jewelry?				0.000
Yes	29.6%		6.1%	
No	51.5%	74.1%	57.6%	
Hard to answer	18.9%	25.9%	36.4%	
Are lead-containing cosmetic products linked to lead poisoning?				0.000
Yes	44.7%	3.6%	3.0%	
No	40.8%	71.4%	54.5%	
Hard to answer	14.6%	25.0%	42.5%	

Table 3. Interviewing respondent's knowledge of lead impact on health.

Characteristics	Batumi	Zugdidi	Ozurgeti	Pearson's Chi-Squared Test
Do you think lead poisoning can cause cardiovascular diseases?				0.000
Yes	5.3%	17.0%	15.2%	
No	46.1%	42.9%	19.7%	
Don't know	48.5%	40.2%	65.2%	

Table 3. Cont.

Characteristics	Batumi	Zugdidi	Ozurgeti	Pearson's Chi-Squared Test
Do you think lead poisoning can cause anemia?				0.000
Yes	16.5%	37.5%	15.2%	
No	35.0%	24.1%	16.7%	
Don't know	48.5%	38.4%	68.2%	
Do you think lead poisoning can cause kidney failure?				0.004
Yes	2.9%	1.8%		
No	47.6%	57.1%	30.3%	
Don't know	49.5%	41.1%	69.7%	

4. Conclusions

The results show that most respondents believe that children are at high risk of lead poisoning and that lead affects health as a metal. Awareness regarding lead poisoning sources, such as contaminated air, soil, and household utensils, is higher in Batumi compared to Zugdidi and Ozurgeti. Major respondents by municipalities were informed that lead-containing toys could be a source of lead poisoning. However, they were not informed about the risks of lead poisoning from lead-containing jewelry or cosmetic products. The respondents' awareness of health risks related to lead poisoning in all cities is notable, including cardiovascular disease, anemia, and kidney failure. Public health specialists need to launch more educational campaigns to enhance people's understanding and awareness of the harmful effects of lead poisoning.

5. Limitations of the Study

Our study sample was too small, which limits the significance of the study findings. We strongly believe that our findings will push governmental and non-governmental authorities to take action and conduct larger population-based research on lead poisoning awareness and knowledge.

Author Contributions: Methodology, D.K.; Writing—review and editing, M.M., D.T. and I.K. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: We received ethical approval from the LEPL ILIA STATE UNIVERSITY Committee of ethical norms (reference number: R/82-24). All participants gave oral consent before taking part in the study.

Informed Consent Statement: All respondents were told they could stop the survey at any time. We did not collect personal information like names, addresses, IDs, etc. All participants were 18+ years old.

Data Availability Statement: Data are available upon reasonable request from the corresponding author.

Acknowledgments: The authors gratefully acknowledge the respondents for their support and time participating in this study.

Conflicts of Interest: The authors declare no conflict of interest.

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Appendix 2 Published paper #2

Dali Kekelidze, Antoine Pogorzelski, Nina Lolashvili, Iagor Kalandadze (2025). Risk Awareness and Knowledge of Lead Poisoning: A Survey Study Conducted in Batumi, Georgian Autonomous Republic of Adjara. *Universal Journal of Public Health*, 13(1), 223 - 230. DOI: 10.13189/ujph.2025.130122.

Risk Awareness and Knowledge of Lead Poisoning: A Survey Study Conducted in Batumi, Georgian Autonomous Republic of Adjara

Dali Kekelidze^{1,*}, Antoine Pogorzelski², Nina Lolashvili³, Iagor Kalandadze¹

¹School of Natural Sciences and Medicine, Ilia State University, Georgia

²L'Initiative, Expertise France, France

³Department of Hematology, Tbilisi State Medical University, Georgia

Received October 3, 2024; Revised December 23, 2024; Accepted January 13, 2025

Cite This Paper in the Following Citation Styles

(a): [1] Dali Kekelidze, Antoine Pogorzelski, Nina Lolashvili, Iagor Kalandadze, "Risk Awareness and Knowledge of Lead Poisoning: A Survey Study Conducted in Batumi, Georgian Autonomous Republic of Adjara," *Universal Journal of Public Health*, Vol. 13, No. 1, pp. 223 - 230, 2025. DOI: 10.13189/ujph.2025.130122.

(b): Dali Kekelidze, Antoine Pogorzelski, Nina Lolashvili, Iagor Kalandadze (2025). Risk Awareness and Knowledge of Lead Poisoning: A Survey Study Conducted in Batumi, Georgian Autonomous Republic of Adjara. *Universal Journal of Public Health*, 13(1), 223 - 230. DOI: 10.13189/ujph.2025.130122.

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Abstract Lead has been used in batteries, paints, cosmetics, and medicine throughout history. Environmental exposures of lead are in soil, drinking water, air, dust, and even food. Lead poisoning can be dangerous to human health and cause anemia, kidney dysfunction, hypertension, ischemic disease, degradation of intellectual development, logopathy, abdominal pain, etc. This pilot study aimed to analyze lead poisoning knowledge and potential risks in Batumi, Georgian Autonomous Republic of Adjara. A street-based study was carried out among 196 adult respondents using a questionnaire to analyze socio-demographic data, sources of lead poisoning information, knowledge of lead impact on human health, and potential exposure risks. Results showed that social networks were the major information source for younger adults, while for older respondents, they were primarily accessed through television. Knowledge of lead poisoning's impact on human health was low among younger respondents. Most of the participants had jobs or hobbies involving lead exposure, which can be harmful to their health. The research results indicate the necessity of implementing educational campaigns among young people through social networks and among the elderly through television. The study highlights the need to conduct broader research on lead poisoning knowledge and risks across Georgia's different regions and age groups.

Keywords Lead Poisoning, Blood Lead Levels, Knowledge

1. Introduction

Lead is a toxic metal that can't be smelled, seen, or tasted. Historically, Romans used lead compounds for glazing pottery and metallic lead for cooking utensils and piping [1]. Regarding industrialization growing in many countries, it is used in lead-acid batteries, arm industry, paints, toys, ceramics, cosmetics, etc. Lead may be present in food from the environment where foods are grown and raised [2]. It has been found in candies and spices [3]. The lead causes encephalopathy, psychological disorders, degradation of intellectual development, logopathy, anemia, damage of bony tissue, a disorder of kidney function, chronic disease of the kidney, degradation of sperms number, hypertrophy, ischemic disease, abdominal pain, a disorder of fetus mature, small weight of fetus while giving birth, spontaneous abortion, premature birth, late in sexual mature [4]. It should be noted that poisoning with lead causes a demotion of IQ [5]. Lead binds hemoglobin and demonstrates iron levels; it also encumbers iron absorption from food, which is dangerous for pregnant

women because it transfers blood circulation and causes many pathologies [6,7]. Unfortunately, there is no estimated safe level of lead poisoning nowadays. The most common way to detect lead in humans is to measure blood lead levels (BLLs) by taking a blood sample. For any individual, a blood lead concentration greater or equal to 5 $\mu\text{g}/\text{dL}$ is considered a risk [8]. According to the World Health Organization, each year, 1 million people die from lead poisoning, and most of them are children [9]. Thus, it has become a serious global health concern. In the US, 170 million Americans alive today were exposed to high lead levels in early childhood [10]. In Western Europe, 2.5 million children live with elevated blood lead levels [11]. 1 in 2 children in low-and-middle-income countries (LMICs) has lead poisoning [12]. In Bangladesh, it is estimated that 35 million children have blood lead levels above five micrograms per deciliter (mg/dL) [13]. Lead pollution of the environment is studied in many countries, and data regarding the countries are considerably different.

According to national research conducted in France in 2008-2009, the average concentration of lead in children's blood from 6 months to 6 years was 14.9 $\mu\text{g}/\text{dL}$. This rate has decreased for the last 15 years but is still noteworthy. Water is called as a reason of lead poisoning, in lead communication houses, passive smoking, new made repair works and stripped paints [14]. According to the research conducted in Montreal, the average concentration of lead in children's blood from 0 months to 7 years varies according to the year's seasons. Predictive $\text{BLL} > 5 \mu\text{g}/\text{dL}$ in winter was revealed in children (0-6%). In summer, it is significantly more (5-25%). Drinking water is called the main reason for lead poisoning [15].

Research conducted in Shanghai showed that the lead concentration in children's blood from 0 months to 6 years is 22.49 $\mu\text{g}/\text{dL}$. This rate has improved compared with previous years but is higher in developed countries [16]. As a result of the analysis, concluded research in Mexico from 1978 to 2010 found that the concentration of lead in children's blood in the city and village was 8.85 and 22.24 $\mu\text{g}/\text{dL}$. After stopping using ethylated petrol in the city, this rate decreased to 5.35 $\mu\text{g}/\text{dL}$; in the village, it was much higher [17]. In 2018, a BLL survey was conducted in Georgia. The results show prevalence if elevated BLL is higher in west Georgia with the highest data in Adjara [18].

After the publication of these data, the government took appropriate steps. Blood lead content is determined in children aged 0 to 7 years by the state program and in children aged 8 to 15 years, pregnant and lactating women by the public health program and with the support of the Ministry of Health of Adjara [19]. Tackling lead poisoning is an important issue, and for public health specialists, providing awareness campaigns to understand communities better how lead poisoning impacts health and how to prevent exposure is essential. Thus, the objectives of this pilot study were to analyze whether there is a lack of awareness of lead poisoning in Batumi, Autonomous Republic of Adjara, and identify risks that may be

associated with it, which can be used to conduct a more extensive population study.

2. Methods

2.1. Study Setting

The Autonomous Republic of Adjara is located in Georgia, on the Black Sea coast. Batumi is the capital and largest city [20]. The population is 361,400 (2023 est), by ethnicity 96.0% are Georgian; Armenians-0.2%; Greeks-0.2%, and others 0.9%. Most of the population's religion is Orthodox Christianity (54.5%) and Islam (39.8%). GDP per capita is 16,652 Georgian Lari (2022 est) [21]. Subtropical crops, which form the basis of the republic's economy, include tea, citrus fruits, avocados, tung trees, etc. Tobacco is grown in the higher areas. Industrial development is concentrated around Batumi, the terminus of a pipeline from Baku on the Caspian Sea. Industrial activity includes oil refining, shipping and shipbuilding, food processing, light manufacturing, and producing wine, plywood, furniture, and chemical pharmaceuticals. The republic is linked with the rest of Georgia by a road over the Goderdzi Pass in the Arsiyan Mountains and the Transcaucasian Railway, which runs north along the coast from Batumi, then eastward [20]. Batumi Sea Port contains 5 terminals, 11 berths, and a point of gratuitous filling. The total capacity of the port is 18 million tons per year [22]. The highest rainfall in Georgia occurs at Batumi [20]. Since 1990, the average temperature of Batumi has increased by 0.5° C. Based upon the scenario of future climate change in Georgia, for the 2050-year, the temperature will continue increasing in Batumi by 4.20° C [23].

The Regional Development Strategy of Adjara prioritizes strengthening economic security, developing tourism and metropolitan zones. The Strategy also provides for developing renewable energy; improving the education system; supporting the least developed areas, and improving the rural life; strengthening the local government; improving the qualitative state of the environment, raising awareness of the public about environmental protection, and a rational use of natural resources; diversifying tourism infrastructure; protecting the environment, the coast and rehabilitating the cultural monuments; developing eco-tourism and agro-tourism; developing health tourism and the infrastructure for thermal and mineral water resorts; improving the quality of potable and surface waters; improving the quality of ambient air; monitoring of groundwater; monitoring of erosion; ecological monitoring of mines; improving the system of waste and chemical substance management; protecting the biodiversity of forests, and fully inventorying the forests; ensuring the fuelwood for local population; supporting hunting and so on [24].

2.2. Type of Study

It was a pilot, cross-sectional, street-based study conducted in Batumi, the capital of the Autonomous Republic of Adjara, Georgia. Respondents were randomly interviewed face-to-face in Batumi City. For the interviews, we selected Batumi Boulevard, parks, and shopping areas.

2.3. Study Population

Only adults (18 years and older) living in Batumi were involved in participating. Researchers suggest a pilot study with 100 to 200 responses is enough [25]. Therefore, we decided the number of respondents in our study had to be 200. Four questionnaires were stopped early on, making them unusable for the analyses. So, the final sample was 196.

This study is part of the research approved by the LEPL ILIA STATE UNIVERSITY Committee of ethical norms (reference number: R/82-24). We didn't collect any personally identifiable information to maintain confidentiality and anonymity.

2.4. Data Collection

The data were collected in March 2024 using questionnaires among Batumi residents. The questionnaires were modified and only we have included for publishing on this article the following of sections 1,2,3 and 4: Section 1 aimed at gaining sociodemographic data such as age, gender, educational and employment status; Section 2 aimed to determine from where respondents are getting information about lead poisoning; Section 3 aimed to analyze the knowledge of how to prevent lead poisoning not to harm health; Section 4 aimed questions identifying potential risks that may cause lead poisoning. The interviewing process started with a brief description of the study, after which the passerby was asked for oral informed consent to participate. On average, it took 15 minutes to complete questionnaires.

2.5. Statistical Analyzes

Descriptive statistics were presented for the sociodemographic distribution. Cross-tabulation analysis was used to determine associations between variables. The Chi-Square test was used to analyze whether there was a significant relationship between the variables. All analyses were performed using IBM SPSS version 23.

3. Results

3.1. Socio-Demographic Characteristics of the Interviewing Respondents

Most of the interviewed respondents were aged 25-34.

By gender, almost 54.6% of the participants were females; Nearly 46.9% of the respondents held a Bachelor's Degree, and 65.8% were employed. Table 1 presents the socio-demographic characteristics of the interviewing respondents.

Table 1. Socio-Demographic Characteristics of the Interviewing Respondents

Characteristics	N=196	%
Age		
18-24	46	23,5
25-34	65	33,2
35-44	26	13,3
45-54	19	9,7
55-64	25	12,8
65 and above	15	7,7
Gender		
Female	107	54,6
Male	89	45,4
Education		
Incomplete secondary education	1	0,5
Secondary education	87	44,4
Bachelor's Degree	92	46,9
Student	16	8,2
Employment Status		
Employed	129	65,8
Unemployed	18	9,1
Pensioner	3	1,5
Student	31	15,8
Housewife	15	7,7

3.2. Distribution of Lead Poisoning Information by Age

Table 2 shows the respondent's distribution of lead poisoning information by age group. The results show that 95.4% of people aged 25-43 mostly get information on lead poisoning and are more aware of the 18-24 age group -63%. They mostly get information from television (67.1%) and less from radio (1.3%). According to the age group, 86.7% of the 45-46-year-olds receive the most information, and 100% of the 65-year-old or above respondents. 18-14-year-old (62.1%) people get the most information about lead poisoning from social networks. Notably, respondents aged 45 and older do not receive information from social networks.

3.3. Respondents' Knowledge of the Impact of Lead Poisoning on Health by Age

Only 8.2% of the respondents think lead affects human health, while 91.8% think it does not. People who are 45-45 years old (21.2%) and 65 or above (20.0%) gave the

“Yes” answer. In the age group of 18-24 years old, there is no positive response at all. All age groups think regularly cleaning the house in a wet manner is important for human health; 10.2% think it is unimportant, and 3.6% of the respondents do not know the answer. 65 or above respondents (100%) were considered to answer that it is important, and for the 18-24 age group, it is least important. 4.3% of people who are 18-24 years old and 7.7% of people 25-34 years old answered: “don’t know.” The knowledge of medicinal and cosmetic products’ effects on human health is almost equal in all age groups (52% consider it important, 44.9% unimportant, and 3.1% don’t know). Most respondents aged 44-55 consider it important (64%), and those aged 65 or older consider it unimportant (86.7%). 45.9% of the respondents think that paint chips or chips that can be painted with lead substitute paint can be important for human health, 50% think it’s unimportant, and 4.1% don’t know the answer. The respondents equally answered important (48%) and unimportant (48.5%) for a child’s health playing on the ground surface, while 3.6% answered that they don’t know the answer. According to the age group, 55-56-year-old (68%) and 25-34-year-old (63.1%) respondents consider it the most important, most unimportant seems among 18-24-year-old respondents (52.2%). 51.5% consider using lead substitute spices in food preparation as important for health, 44.9% as unimportant, and 3.6% do not know the answer.

Respondents aged 55-64 consider it the most important, while 73.1% of those aged 35-44 consider it unimportant. Industrial waste for human health is important for respondents (36.2%), unimportant for 56.1%, and 7.7% don’t know. By age group, 55-64-year-old people (60.0%) consider it important, and 80.0% of respondents aged 65 or above consider it unimportant. Table 3 presents respondents’ knowledge of the impact of lead poisoning on health by age.

3.4. Potential Risks That Can Cause Lead Poisoning by Age

Table 4 shows the potential risks that can cause lead poisoning by age. When asked, “Do you live in or regularly visit an older home or other areas with peeling or damaged paint?” 39.3% of the respondents said YES, and 60.7% said NO. According to the age group, the 45-54-year-old (63.2%) answered YES the most, while NO, the most answers were recorded among respondents aged 18-24 (66.2%). Most respondents already 51% have a job or hobby involving exposure to lead, 48% don’t have, and only 1% were hard to answer. By age groups, most YES said aged 55-64 (92%), and most NO was answered among age 18-24(73.9%) respondents.

The Pearson Chi-Square indicates a statistically significant association between the age groups and characteristics.

Table 2. Distribution of Lead poisoning information by age

Characteristics	Age						Total	Pearson Chi-Square
	18-24	25-34	35-44	45-54	55-64	65 or above		
Do you receive information about lead poisoning?								0,002
Yes	63,0%	95,4%	76,9%	78,9%	84,0%	73,3%	80.6%	
No	37,0%	4,6%	23,1%	21,1%	16,0%	26,7%	19.4%	
Where do you get information about lead poisoning? *								0,000
Television	31,0%	64,5%	80,0%	86,7%	81,0%	100,0%	67.1%	0,000
Radio	3,4%	1,6%					1.3%	
Social networks	62,1%	27,4%	5,0%				22.8%	
Acquaintances/friends	3,4%	3,2%		6,7%	9,5%		3.8%	
Medical workers		3,2%	15,0%	6,7%	9,5%		5.1%	

*Only the data of those respondents who gave YES answer about receiving information were analyzed

Table 3. Respondents' knowledge of the impact of lead poisoning on health by age

Characteristics	Age							Pearson Chi-Square
	18-24	25-34	35-44	45-54	55-64	65 or above	Total	
Do you think lead affects human health?								0,035
Yes		6,2%	7,7%	21,1%	12,0%	20,0%	8,2%	
No	100,0%	93,8%	92,3%	78,9%	88,0%	80,0%	91,8%	
How important it is for human health to regularly clean the house in a wet manner?								0,028
Important	71,7%	84,6%	92,3%	94,7%	96,0%	100,0%	86,2%	
Unimportant	23,9%	7,7%	7,7%	5,3%	4,0%		10,2%	
Don't know	4,3%	7,7%					3,6%	
How important is the use of medical and cosmetic products for human health?								0,001
Important	39,1%	60,0%	19,2%	42,1%	64,0%	13,3%	44,9%	
Unimportant	56,5%	35,4%	80,8%	57,9%	32,0%	86,7%	52,0%	
Don't know	4,3%	4,6%			4,0%		3,1%	
How important is a paint chip or chip that can be painted with lead substitute paint for health?								0,000
Important	34,8%	64,6%	23,1%	31,6%	68,0%	20,0%	45,9%	
Unimportant	56,5%	33,8%	76,9%	68,4%	32,0%	60,0%	50,0%	
Don't know	8,7%	1,5%				20,0%	4,1%	
How important is playing on the surface of the ground for a child's health?								0,002
Important	39,1%	63,1%	23,1%	42,1%	68,0%	26,7%	48,0%	
Unimportant	52,2%	35,4%	76,9%	57,9%	28,0%	66,7%	48,5%	
Don't know	8,7%	1,5%			4,0%	6,7%	3,6%	
How important is the use of lead substitute spices in food preparation on human health?								0,000
Important	45,7%	60,0%	26,9%	57,9%	76,0%	26,7%	51,5%	
Unimportant	41,3%	38,5%	73,1%	42,1%	24,0%	73,3%	44,9%	
Don't know	13,0%	1,5%					3,6%	
How important is industrial waste for human health?								0,001
Important	26,1%	47,7%	23,1%	31,6%	60,0%	6,7%	36,2%	
Unimportant	56,5%	44,6%	76,9%	68,4%	40,0%	80,0%	56,1%	
Don't know	17,4%	7,7%				13,3%	7,7%	

Table 4. Potential risks that can cause lead poisoning by age

Characteristics	Age							Pearson Chi-Square
	18-24	25-34	35-44	45-54	55-64	65 or above	Total	
Do you live in or regularly visit on older home or other area with peeling or damaged paint?								0.004
Yes	19,6%	33,8%	50,0%	63,2%	52,0%	53,3%	39,3%	
No	80,4%	66,2%	50,0%	36,8%	48,0%	46,7%	60,7%	
Do you have a job or hobby that involves exposure to lead (For example: bridge painting/repair; auto repair and electronics repair; painting ceramics; metal and colored pigments).								0.000
Yes	93,5%	89,2%	76,9%	63,2%	80,0%	86,7%	84,7%	
No	6,5%	10,8%	11,5%	21,1%	4,0%		9,2%	
Hard to answer			11,5%	15,8%	16,0%	13,3%	6,1%	

4. Discussion

Our study provides essential observations about knowledge and risks associated with lead poisoning in Batumi. It was very interesting to find that most of the interviewed respondents received information about lead poisoning. Television is the primary source of information for the respondents, and radio is the least, but the study conducted in Hartford showed that the respondents receive information least often from television [26]. Among our interviewees, people under 18-24 get the most information from social networks, and people over 45 get it from television. Respondents' knowledge about the health effects of lead is very poor, especially in the 18-24 age group. As for the importance of regular wet cleaning of the house for human health, we got a positive answer from most respondents, but the 18-24 age group considers it unimportant. It's crucial for the population to be informed about the importance of cleaning the house in a wet manner because household dust could absorb and accumulate heavy metals such as lead [27]. Most of the interviewees consider that the use of medical and cosmetic products can harm a person's health as unimportant. According to the CDC, recent recalls of cosmetics and medicines containing lead included dried blueberries, dried plums, and skin creams [28]. Therefore, actions are needed to highlight their harmful effects. For the major respondents, a paint chip or chip that can be painted with lead-substitute paint is unimportant for human health. Regarding one of the researcher's reports, the actual proportion of children with moderate to severe lead poisoning who have consumed lead-paint chips was higher. Ingestion of lead paint chips remains an essential source of exposure among children with moderate to severe lead poisoning [29]. Respondents have similar answers: playing on the surface of the ground can be or is not dangerous for a child's health. It's a critical issue because lead in soil is one of the main routes to enter the human body [30]. General respondents consider using lead-substitute spices in food preparation important for human health, which is a positive indicator because, according to scientists, high levels of lead are found in spices in Georgia [31]. Most respondents consider the health effects of industrial waste to be unimportant. Lead is released to a high extent in the water, soil, and air through industrial waste [32]. More awareness campaigns are needed to promote industrial waste's impact on human health. According to the CDC, you may not know you are exposed to lead-containing products or materials if you work near them [33]. Concerning this, the majority of our respondents, if they have a job or hobby that involves exposure to lead, answered YES. Thus, it's essential to educate those who work with or have hobbies on lead poisoning.

5. Conclusions

The results of our pilot study indicate that the knowledge

of the respondents interviewed in Batumi about lead poisoning is significantly different in different study groups. Young people aged 18-25, whose knowledge about the issue of lead poisoning is very scarce, need attention, including the impact of lead poisoning on health and the importance of cleaning the house in a wet manner. However, this is the age group whose knowledge regarding the mentioned issue is particularly important to eliminate the issue of lead poisoning among children because they are future or already parents. Knowledge of the majority of older respondents on the health effects of lead poisoning is particularly low. They do not consider the impact of industrial waste on human health to be important.

The young people interviewed in Batumi get information about lead poisoning from social networks, and the elderly from television, which indicates that the issue should be updated using the mentioned information media. Most of the respondents have a job or a hobby that involves exposure to lead, which is a risk factor. Attention should be focused on conducting preventive measures, in particular on the examination of the content of lead in the blood of the population who have to work or have hobbies that involve contact with lead, to prevent the harmful effects of lead at an early stage. The results of the research we conducted indicate the need to conduct wide-ranging research throughout Georgia, which will allow us to determine the knowledge of the population in different regions and age groups and identify the risks associated with lead poisoning.

Conflict of Interest

None.

Acknowledgements

The authors express gratitude to all respondents who showed their willingness to provide relevant information.

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Appendix 3. Studying the level of awareness of the harmful effects of lead among the population Questionnaire

მოსახლეობაში ტყვიის მავნე ზემოქმედების ცნობიერების დონის შესწავლის კითხვარი

1. ზოგადი ნაწილი

1.1. თარიღი (რიცხვი, თვე, წელი)

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1.2. საიდენტიფიკაციო კოდი

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2. დემოგრაფიული

ინფორმაცია

2.1. რესპოდენტის

 ასაკი

2.2. რესპოდენტის სქესი - 1.მდედრ. 2. მამრ.

2.3. რომელია თქვენი საცხოვრებელი ადგილი - 1. რეგიონი _____ 2.

ქალაქი _____

3.სოფელი _____

2.4. ოჯახური მდგომარეობა - 1. ყავს შვილები 2. არ ყავს შვილები

2.5. განათლება: 1. არასრ. საშუალო 2. საშუალო 3. ბაკალავრი 4. მაგისტრი 5. დოქტორი

2.6. საქმიანობა: 1.დასაქმებული 2. უმუშევარი 3. პენსიონერი 4. სტუდენტი 5.

დისასახლისი

2.7.სულ რამდენი ადამიანი ცხოვრობს თქვენს სახლში/ბინაში? -

2.8.ცხოვრობს თუ არა თქვენს სახლში წლის ქვემოთ ასაკის ბავშვი? - 1. კი 2. არა

2.9. შეგიძლიათ შეაფასოთ თქვენი ოჯახის (ყოველთვიური) შემოსავალი ჩემს მიერ ჩამოთვლილთაგან?-1. <250 ლარი 2. 251-500ლარი 3. 501-1000 ლარი 4.1001-1500ლარი 5.

>1500ლარი. 6. არ ვიცი 99. მიჭირს პასუხი

3. ინფორმაცია ტყვიით მოშხამვის საკითხებზე

3.1 თქვენი აზრით, აქედან რომელია თქვენთვის ტყვიით მოშხამვასთან დაკავშირებული ძირითადი სიმპტომი?

1. სწავლის უნარის დაქვეითება 2. ზრდისა და განვითარების პროცესის დარღვევა 3. ყურადღების კონცენტრაციის პრობლემები 4. მეტყველების პრობლემები 5. დაბალი აკადემიური მოსწრება სკოლაში 6.სირთულეები კითხვისას 7. სხვა - _____ 99.მიჭირს პასუხი

3.2. თუ არ დაასახელა - გსმენიათ თუ არა ტყვიის მოშხამვის შესახებ?

1. დიახ 2. არ მსმენია 99. უარი პასუხზე

3.3 თუ იღებთ ინფორმაციას ტყვიის მოშხამვის შესახებ? 1. დიახ 2. არა 99.მიჭირს პასუხი

3.4 თუ „დიახ“, საიდან იღებთ ინფორმაციას ტყვიით მოშხამვის შესახებ: 1. ტელევიზია 2. რადიო 3. სოციალური ქსელები 4. ნაცნობები/მეგობრები 5. მედიცინის მუშაკები 6. სამოქალაქო ორგანიზაციები 7. სხვა _____ 99.მიჭირს პასუხი

3.5. თქვენი აზრით, უკავშირდება თუ არა ქვემოთ ჩამოთვლილი წყაროები ტყვიით მოშხამვას?

1. ტყვიის შემცველი საღებავები- 1. კი 2. არა 3. არ ვიცი

2. ტყვიით დაბინძურებული ჰაერი - 1. კი 2. არა 3. არ ვიცი

3. ტყვიით დაბინძურებული ნიადადი- 1. კი 2. არა 3. არ ვიცი
4. ტყვიის შემცველი საკვები - 1. კი 2. არა 3. არ ვიცი
5. ტყვიის შემცველი საყოფაცხოვრებლო ჭურჭელი- 1. კი 2. არა 3. არ ვიცი
6. ტყვიის შემცველი სათამაშოები - 1. კი 2. არა 3. არ ვიცი
7. ტყვიის შემცველი სამკაულები-1. კი 2. არა 3. არ ვიცი
8. ტყვიის შემცველი პარფიუმერული ნაწარმი- 1. კი 2. არა 3. არ ვიცი

4. ტყვიის ზემოქმედება ჯანმრთელობაზე

4.1. თქვენი აზრით, მოქმედებს ტყვია, როგორც მეტალი ჯანმრთელობაზე?

– 1. არა 2. უმნიშვნელოდ 3. შესაძლოა 4. აქვს გავლენა 5. ძალიან მნიშვნელოვნად.

4.2. თქვენი აზრით, რამდენად მნიშვნელოვანია ადამიანის ჯანმრთელობისათვის შემდეგი მოვლენები:

1. სახლის რეგულარულად სველი წესით დალაგება - 1. მნიშვნელოვანია 2. უმნიშვნელოა 3. არ ვიცი.
2. სამკურნალო და კოსმეტიკური საშუალებების გამოყენება - 1. მნიშვნელოვანია 2. უმნიშვნელოა 3. არ ვიცი.
3. საღებავის ანათლი ან ნაფხეკი, რომელიც შესაძლებელია შეღებელი იყოს ტყვიის შემცველი საღებავით - 1. მნიშვნელოვანია 2. უმნიშვნელოა 3. არ ვიცი.
4. ბავშვის მიწის ზედაპირზე თამაში - 1. მნიშვნელოვანია 2. უმნიშვნელოა 3. არ ვიცი.
5. სუნელების მოხმარება საკვების დამზადებისას- 1. მნიშვნელოვანია 2. უმნიშვნელოა 3. არ ვიცი.
6. სამრეწველო ნარჩენები - 1. მნიშვნელოვანია 2. უმნიშვნელოა 3. არ ვიცი.
7. სხვა _____

4.3. თქვენი აზრით, რომელი დაავადებების გავრცელების ხელშეწყობა შეუძლია ტყვიით მოშხამვას:

1. გულ-სისხლძარღვთა დაავადებები - 1. კი 2. არა 3. არ ვიცი
2. ანემია - 1. კი 2. არა 3. არ ვიცი
3. თირკმლის ფუნქციის დაქვეითება - 1. კი 2. არა 3. არ ვიცი
4. სხვა _____

99.მიჭირს პასუხი

4.4. გჯერათ, რომ ბავშვები ტყვიით მოშხამვის უფრო მაღალი რისკის ქვეშ არიან? 1. კი 2. არა 3. არ ვიცი

5. ტყვიის მოშხამვით გამოწვეული ზიანის შემცირება

5.1. გქონიათ თუ არა თქვენ ან თქვენს სანაცნობოში მყოფ პირს სისხლში ტყვიის

მაღალი დონე? 1.კი 2.არა 99. მიჭირს პასუხი

5.2. ცხოვრობთ თუ არა ან რეგულარულად სტუმრობთ ძველ სახლს ან სხვა ადგილს სადაც შეიმჩნევა ჩამოფხეკილი ან დაზიანებული საღებავი? 1.კი 2.არა 99.მიჭირს პასუხი

5.3. თქვენს ოჯახში მცხოვრები ბავშვი იღებს თუ არა პირში ხელებს ან არასასურსათო ნივთებს , როგორიცაა საღებავის ნატეხი ან მიწა ? 1.კი 2.არა 99. მიჭირს პასუხი (კითხვა დაისმება იმ შემთხვევაში თუ ოჯახის წევრი სადაც რესპოდენტი ცხოვრობს არის ბავშვი)

5.4. გაქვთ თუ არა სამუშაო ან ჰობი, რომელიც გულისხმობს ტყვიის ზემოქმედებას (მაგ.: ხიდის მხატვრობა/შეკეთება, შენობის დანგრევა, სახლის რემონტი/შეკეთება, ავტომობილების და ელექტრონიკის შეკეთება, ავეჯის დამუშავება, ცეცხლსასროლი იარაღით მუშაობა და კერამიკის, ლითონისა და ფერადი პიგმენტების მოხატვა)? 1. დიახ 2. არა 99.მიჭირს პასუხი

5.5. იყენებს თუ არა თქვენი ოჯახი სხვა ქვეყნების პროდუქტებს, როგორიცაა სამკურნალო საშუალებები, სანელებლები, საკვები ან ჭურჭელი? 1.დიახ 2. არა 99.
მიჭირს პასუხი

5.6. რა უნდა გაკეთდეს ტყვიით მოშხამვის შესარბილებლად

გმადლობთ, რომ დრო დაგვითმეთ!

Appendix 4. Survey Data Collected from Respondents in Western Georgia

5.5. იყენებს თუ არა თქვენი ოჯახი სხვა ქვეყნების პროდუქტებს.	2	2	1	2
5.4. გაქვთ თუ არა სამუშაო ან ჰობი, რომელიც გულისხმობს	2	2	2	1
5.3. თქვენს ოჯახში მცხოვრები ბავშვი იღებს თუ არა პირში		1		
5.2. ცხოვრობთ თუ არა ან რეგულარულად სტუმრობთ	2	1	1	2
5.1. გქონიათ თუ არა თქვენ ან თქვენს სანაცობოში მეოფ პირს	1	1	1	2
4.4. გჯერათ, რომ ბავშვები ტყვიით მოშამგის უფრო მაღალი	1	1	1	1
4.3.4. თქვენი აზრით სხვა რა დაავადების გავრცელება შეუძლია ტყვიით მოშამგას				
4.3.3. თქვენი აზრით შეუძლია ტყვიით მოშამგას გამოიწვიოს	3	3	3	3
4.3.2. თქვენი აზრით შეუძლია ტყვიით მოშამგას	2	3	3	3
4.3.1. თქვენი აზრით შეუძლია ტყვიით მოშამგას	1	3	3	3
4.2.6. რამდენად მნიშვნელოვანია ადამიანის	2	2	2	2
4.2.5. რამდენად მნიშვნელოვანია ადამიანის	2	2	2	2
4.2.4. რამდენად მნიშვნელოვანია ადამიანის	2	2	2	2
4.2.3. რამდენად მნიშვნელოვანია ადამიანის	2	2	2	2
4.2.2. რამდენად მნიშვნელოვანია ადამიანის	1	3	2	2
4.2.1. რამდენად მნიშვნელოვანია ადამიანის	1	1	1	1
4.1. თქვენი აზრით მოქმედებს ტყვია, როგორც მტალი	4	4	4	3
3.5.8. უკავშირდება თუ არა ტყვიით მოშამგას, ტყვიის	2	2	2	3
3.5.7. უკავშირდება თუ არა ტყვიით მოშამგას, ტყვიის	2	2	2	3
3.5.6. უკავშირდება თუ არა ტყვიით მოშამგას, ტყვიის	1	1	1	3
3.5.5. უკავშირდება თუ არა ტყვიით მოშამგას, ტყვიის	2	2	2	3
3.5.4. უკავშირდება თუ არა ტყვიით მოშამგას, ტყვიის	2	2	2	3
3.5.3. უკავშირდება თუ არა ტყვიით მოშამგას, ტყვიით	2	2	2	3
3.5.2. უკავშირდება თუ არა ტყვიით მოშამგას, ტყვიით	2	2	2	3
3.5.1. უკავშირდება თუ არა ტყვიით მოშამგას, ტყვიის	1	1	1	1
3.4. თუ დიას საიდან იღებთ ინფორმაციას ტყვიის მოშამგის	1	1	1	
3.3 თუ იღებთ ინფორმაციას ტყვიის მოშამგის შესახებ? 1. დიას;	1	1	1	2
3.2. თუ არ დაასახელა - გსმენიათ თუ არა ტყვიის მოშამგის				
3.1. ტყვიის მოშამგასთან დაკავშირებული ძირითადი	2	1	9	9
2.9. ოჯახის ცხოველთა შორის (1. <250; 2. 251-500;	9	9	9	4
2.8. ცხოვრობს თუ არა თქვენს სახლში ნაწილს ქვემოთ ასაკის	2	2	2	1
2.7. რამდენი ადამიანი ცხოვრობს თქვენს სახლში ბინაში?	2	2	2	5
2.6. საქმიანობა: 1. დასაქმებული; 2. უმუშევარი; 3. პენსიონერი; 4.	2	2	2	1
2.5. განათლება: 1. არა; 2. საშუალო; 3. საშუალო;	3	2	2	2
2.4. ოჯახური მდგომარეობა 1. ყავს შვილები; 2. არა ყავს შვილები	1	1	1	1
2.3. ქალაქი	ოზურგეთი	ოზურგეთი	ოზურგეთი	
2.2. სქესი	მამრობითი	მამრობითი	მდედრობითი	
2.1. ასაკი	6-16	6-16	17-24	25-34
N	1	2	3	3

4	4 7	მდედ რობი თი	ოზუ რგე თი	1	3	5	4	2	4	2		1	1	1	2	2	2	2	1	2	2	4	1	2	2	2	2	2	2	2	2		1	2	1		1	2
5	5 0	მამრო ბითი	ოზუ რგე თი	2	2	1	6	2	6	9		1	1	1	1	2	1	2	1	2	2	3	1	3	3	3	1	1	3	3	3		1	2	1		1	1
6	6 8	მდედ რობი თი	ოზუ რგე თი	1	2	1	2	2	4	1		1	1	1	2	2	2	1	1	1	3	4	1	2	2	2	2	2	1	1	2		1	2	1		2	1
7	6 7	მდედ რობი თი	ოზუ რგე თი	1	2	1	2	2	4	3		1	1	1	2	2	2	1	1	1	3	4	1	2	2	2	2	2	1	1	2		1	2	1		2	1
8	5 6	მამრო ბითი	ოზუ რგე თი	1	2	1	4	2	7	9		1	1	2	2	2	2	2	1	2	2	3	1	3	3	3	1	1	3	3	3		1	2	1		1	1
9	5 0	მდედ რობი თი	ოზუ რგე თი	1	2	1	6	2	3	4		2		1	1	2	3	3	3	3	3	3	1	2	3	3	2	2	3	3	3		1	1	2	2	2	1
1 0	4 4	მდედ რობი თი	ოზუ რგე თი	1	2	1	5	1	4	9		2		1	3	3	3	3	3	3	3	3	1	2	2	2	2	2	3	3	3		1	1	2	1	1	1
1 1	5 2	მდედ რობი თი	ოზუ რგე თი	1	2	5	6	2	3	4		2		1	2	2	2	3	3	3	3	3	1	2	3	3	2	1	3	3	3		1	1	2		2	1
1 2	5 0	მდედ რობი თი	ოზუ რგე თი	1	2	1	5	2	3	4		2		1	1	2	3	3	3	3	4	2	2	3	3	2	2	3	3	3		1	1	2		2	1	
1 3	5 7	მამრო ბითი	ოზუ რგე თი	1	3	1	2	2	9	9		1	1	1	2	2	2	2	1	3	3	3	1	2	2	2	2	2	3	3	3		1	2	1		1	2
1 4	5 2	მამრო ბითი	ოზუ რგე თი	2	2	1	6	2	6	9		1	1	1	1	2	1	2	1	2	2	3	1	3	3	1	1	3	3	3		1	2	1		1	1	
1 5	3 5	მამრო ბითი	ოზუ რგე თი	1	2	1	4	1	3	2		2		3	3	3	3	3	1	3	3	1	1	2	2	2	2	2	1	1	2		1	2	2	2	1	9 9
1 6	3 7	მდედ რობი თი	ოზუ რგე თი	1	2	1	4	1	3	9		2		3	3	3	3	3	3	3	3	1	1	2	2	2	2	2	3	3	3		2	2	1	1	2	1
1 7	5 5	მამრო ბითი	ოზუ რგე თი	1	2	1	5	2	3	9		2		3	3	3	3	3	3	3	3	1	1	3	3	3	3	3	2	2	2		3	2	1		1	2

1 8	4 9	მამრო ბითი	ოზუ რგე თი	1	2	1	5	2	7	1		1	1	1	1	2	2	2	1	2	2	4	1	3	3	3	2	2	3	3	3		1	2	1		1	1
1 9	6 2	მამრო ბითი	ოზუ რგე თი	1	3	1	2	2	3	9		1	1	1	2	2	1	2	1	2	2	4	3	2	2	2	2	2	3	3	3		2	2	1		1	1
2 0	4 8	მდედ რობი თი	ოზუ რგე თი	1	3	5	3	2	3	2		1	3	1	2	2	2	1	1	2	2	4	1	3	3	3	1	2	1	3	3	ალ ერგ ია	1	2	1		1	1
2 1	5 5	მდედ რობი თი	ოზუ რგე თი	1	2	5	6	2	3	1		2		1	2	2	2	2	3	3	3	3	1	2	3	3	2	2	3	3	3		1	1	2		2	1
2 2	5 2	მდედ რობი თი	ოზუ რგე თი	1	2	1	4	2	3	2		2		1	1	2	2	2	1	2	2	3	1	2	3	3	2	2	3	3	3		1	1	2		2	1
2 3	3 7	მდედ რობი თი	ოზუ რგე თი	1	2	1	4	1	4	2		1	1	2	2	2	1	2	1	2	4	1	3	3	3	2	2	3	3	3	3		3	2	1	1	1	1
2 4	3 5	მამრო ბითი	ოზუ რგე თი	1	2	1	4	1	3	2		1	1	1	2	2	1	2	1	2	2	4	1	3	3	3	2	2	3	3	3		3	2	1	1	1	1
2 5	5 0	მამრო ბითი	ოზუ რგე თი	1	2	1	4	2	3	9		1	1	1	2	2	1	1	1	3	3	3	1	3	2	2	2	2	3	3	3		1	2	1		1	2
2 6	5 9	მამრო ბითი	ოზუ რგე თი	1	3	1	3	2	2	9		1	1	1	2	2	2	1	2	1	3	3	3	1	2	2	2	2	3	3	3		1	2	2		1	2
2 7	4 8	მდედ რობი თი	ოზუ რგე თი	1	3	5	3	2	3	2		1	3	1	2	2	2	1	1	2	2	4	1	3	3	3	1	2	1	3	3		1	2	1		1	1
2 8	7 0	მდედ რობი თი	ოზუ რგე თი	1	2	5	4	2	9	9		1	1	1	2	2	2	1	1	1	2	4	1	2	2	2	2	2	2	2	2		1	2	1		2	1
2 9	5 2	მდედ რობი თი	ოზუ რგე თი	1	2	1	5	2	9	9		2		3	3	3	3	3	3	3	3	1	1	3	3	3	3	3	2	2	2		2	2	2		1	1
3 0	3 5	მამრო ბითი	ოზუ რგე თი	1	2	1	5	1	3	9		2		3	3	3	3	3	1	3	3	2	1	3	3	3	2	2	3	3	3		1	2	1	1	2	1
3 1	3 9	მდედ რობი თი	ოზუ რგე თი	1	2	1	4	1	3	9		2		3	3	3	3	3	3	3	3	1	1	2	2	2	2	2	3	3	3		2	2	1	1	2	1

3 2	2 3	მამრო ბითი	ოზუ რგე თი	2	2	1	4	2	3	2		2		3	3	3	3	3	3	3	1	1	2	2	2	2	2	1	1	2		1	2	2		1	9 9	
3 3	4 9	მდედ რობი თი	ოზუ რგე თი	1	2	5	4	2	3	1		2		1	2	2	2	3	1	3	3	3	1	2	3	3	2	2	3	3	3		1	1	2		2	1
3 4	4 5	მდედ რობი თი	ოზუ რგე თი	1	3	5	4	2	4	2		1	1	1	2	2	2	2	1	2	2	4	2	2	2	2	2	2	1	2		1	2	1		2	1	
3 5	2 2	მამრო ბითი	ოზუ რგე თი							9																												
3 6	2 5	მამრო ბითი	ოზუ რგე თი	2	2	1	5	2	3	1		2		3	3	3	3	3	3	3	3	1	1	3	2	2	2	2	3	3	3		1	2	2		1	9 9
3 7	2 0	მამრო ბითი	ოზუ რგე თი	2	2	2	5	2	7	1		2		1	3	3	3	3	3	3	3	2	1	2	2	3	2	2	3	3	3		1	2	2		1	9 9
3 8	1 9	მამრო ბითი	ოზუ რგე თი	2	2	1	3	2	3	2		2		1	2	2	2	2	1	2	2	1	3	3	3	3	3	3	3	3	3		2	2	1		1	2
3 9	5 4	მდედ რობი თი	ოზუ რგე თი	1	2	1	4	2	9	9		2		3	3	3	3	3	3	3	3	1	1	3	3	3	3	3	3	3	3		2	2	2		1	9 9
4 0	5 2	მამრო ბითი	ოზუ რგე თი	1	2	1	4	2	2	9		2		3	3	3	3	3	3	3	3	1	1	2	2	2	2	2	2	2	2		1	2	2		2	2
4 1	6 5	მდედ რობი თი	ოზუ რგე თი	1	2	5	6	2	9	9		1	1	1	2	2	2	2	2	2	2	4	1	2	2	2	2	2	2	2	2		1	1	1		1	2
4 2	6 3	მდედ რობი თი	ოზუ რგე თი	1	2	5	5	2	3	9		1	1	1	2	2	1	2	1	3	3	4	1	3	2	2	2	2	3	3	3		1	1	1		2	1
4 3	6 8	მდედ რობი თი	ოზუ რგე თი	1	2	5	5	1	2	9		1	1	1	2	2	2	2	2	2	2	4	1	2	2	2	2	2	2	1	2		1	1	1		1	2
4 4	4 6	მდედ რობი თი	ოზუ რგე თი	1	3	5	4	2	3	1		1	3	1	2	2	1	1	1	2	2	3	1	3	3	3	1	2	3	3	3		1	2	1		1	1
4 5	6 0	მამრო ბითი	ოზუ რგე თი	1	3	1	2	2	2	9		1	1	1	2	2	2	2	2	2	2	4	3	2	2	2	2	2	3	3	3		1	2	1		1	2

4 6	4 8	მამრო ბითი	ოზუ რგე თი	1	2	1	4	2	3	1		1	1	1	2	1	1	2	1	3	3	4	1	3	2	2	2	2	3	3	3		1	1	1		1	1	
4 7	2 6	მამრო ბითი	ოზუ რგე თი	2	2	1	3	2	3	9 9		2		1	3	3	3	3	3	3	3	2	1	3	3	3	2	3	3	3	3		1	2	2		1	2	
4 8	3 5	მამრო ბითი	ოზუ რგე თი	1	2	1	5	1	4	2		2		3	3	3	3	3	1	3	3	1	1	2	2	2	2	2	3	3	3		1	2	2	2	1	9 9	
4 9	5 3	მამრო ბითი	ოზუ რგე თი	1	2	1	5	2	5	9 9		1	1	1	1	2	2	2	1	2	2	3	1	3	3	3	1	1	3	3	3		1	2	1		1	1	
5 0	5 6	მამრო ბითი	ოზუ რგე თი	1	2	1	4	2	7	2		1	1	1	1	2	1	2	1	2	2	4	1	3	3	3	1	2	3	3	3		1	2	1		1	1	
5 1	6 0	მამრო ბითი	ოზუ რგე თი	1	3	1	2	2	2	9 9		1	1	1	2	2	2	2	2	2	2	4	2	2	2	2	2	2	2	3	3	3		1	2	1		1	1
5 2	6 4	მამრო ბითი	ოზუ რგე თი	1	3	1	3	2	3	1		1	4	1	2	2	2	2	1	2	2	3	3	2	2	2	2	2	3	3	3		3	2	1		1	1	
5 3	6 3	მამრო ბითი	ოზუ რგე თი	1	3	1	2	2	9 9	1		1	1	1	2	2	2	2	1	2	2	4	1	2	2	2	2	2	1	2	2		1	1	2		1	2	
5 4	2 3	მდედ რობი თი	ოზუ რგე თი	2	3	2	6	2	4	2		1	1	1	2	2	2	2	2	2	3	1	2	2	2	2	2	2	2	2	2		1	2	2		2	1	
5 5	2 8	მდედ რობი თი	ოზუ რგე თი	2	2	2	3	2	7	3		2		1	2	2	2	1	2	2	4	1	2	2	1	1	2	3	3	3		3	1	2		2	1		
5 6	3 0	მდედ რობი თი	ოზუ რგე თი	1	3	1	4	1	5	2		1	1	1	1	2	1	1	1	2	1	4	1	1	1	1	1	1	3	3	3		2	1	2		1	1	
5 7	2 0	მდედ რობი თი	ოზუ რგე თი	2	2	4	3	2	4	1		1	1	1	2	2	2	2	1	2	1	4	1	1	1	1	3	1	3	3	3		1	1	2		1	1	
5 8	2 6	მდედ რობი თი	ოზუ რგე თი	2	2	1	6	1	5	2		1	4	1	2	2	2	1	1	2	2	4	1	2	2	1	1	2	1	1	2		1	1	2		1	1	
5 9	2 0	მდედ რობი თი	ოზუ რგე თი	2	2	4	5	1	5	3		2		2	2	2	2	2	1	2	2	3	1	2	2	1	2	2	2	2		1	1	2	9 9	2	1		

60	23	მდედ რობი თი	ოზუ რგე თი	2	2	2	5	1	4	3		1	1	1	2	2	2	2	2	2	4	1	2	2	1	1	2	3	3	3		1	1	2	1	2	1	
61	27	მდედ რობი თი	ოზუ რგე თი	2	2	2	5	2	4	2		2		1	2	2	1	2	1	2	3	1	2	2	2	2	2	3	3	3		3	2	2		2	1	
62	24	მდედ რობი თი	ოზუ რგე თი	2	3	1	6	1	5	2		1	1	1	1	2	2	1	1	2	2	4	1	2	2	1	1	2	2	1	2		1	1	2	2	1	2
63	30	მდედ რობი თი	ოზუ რგე თი	2	2	2	4	2	4	2		2		1	2	2	2	2	2	2	3	1	2	2	2	2	2	2	1	2		1	2	2		2	1	
64	28	მდედ რობი თი	ოზუ რგე თი	2	3	1	3	2	4	2		1	1	1	2	2	2	1	1	2	2	4	1	1	2	2	1	2	2	2	2		2	1	2		2	1
65	33	მდედ რობი თი	ოზუ რგე თი	1	2	1	5	1	7	3		2		1	2	2	2	2	2	2	3	1	2	2	2	2	2	3	3	3		3	2	2	1	1	1	
66	25	მდედ რობი თი	ოზუ რგე თი	1	3	1	5	2	5	2		1	4	1	2	2	2	2	1	2	2	3	1	2	2	2	1	2	1	1	2		1	1	1		1	1
67	43	მამრო ბითი	ზუგ დიდ ი	2	3	1	4	2	5	3		1	4	1	2	2	2	2	2	2	4	1	2	2	2	2	2	2	1	2		1	1	2		1	1	
68	36	მდედ რობი თი	ზუგ დიდ ი	1	2	2	5	1	7	2		1	1	1	2	2	2	2	1	2	2	4	1	2	2	1	2	2	1	2		1	2	2	2	1		
69	60	მდედ რობი თი	ზუგ დიდ ი	1	2	1	5	1	5	4		1	4	1	2	2	2	2	1	2	2	5	1	2	2	2	2	1	1	2		1	1	2	1	2	1	
70	50	მდედ რობი თი	ზუგ დიდ ი	1	2	5	4	2	7	4		1	1	1	2	2	2	1	1	2	2	5	1	2	2	1	1	2	1	3		3	2	2	2	1		
71	42	მდედ რობი თი	ზუგ დიდ ი	2	3	1	4	2	4	2		1	1	2	2	2	2	2	1	2	2	3	1	2	2	2	2	2	2	2		1	2	2		2	1	
72	55	მდედ რობი თი	ზუგ დიდ ი	1	2	5	4	2	7	3		2		1	2	2	2	2	2	2	3	1	2	2	2	1	2	2	1	2		3	2	2	2	1		
73	46	მამრო ბითი	ზუგ დიდ ი	1	2	1	5	1	5	3		1	1	1	2	2	2	2	1	2	2	5	1	2	2	1	1	2	3	1	3		1	2	2	99	1	1

7 4	6 3	მამრო ბითი	ზუგ დიდ ი	1	3	1	4	2	5	2		1	1	1	2	2	2	1	1	2	2	4	1	2	2	1	1	2	2	1	2		1	2	2		1	1
7 5	4 5	მამრო ბითი	ზუგ დიდ ი	1	3	1	5	1	5	2		1	1	1	2	2	2	2	1	2	2	5	1	2	1	1	1	2	1	1	2		1	2	2	2	1	1
7 6	3 7	მამრო ბითი	ზუგ დიდ ი	1	2	2	4	2	4	2		2		1	2	2	2	2	2	2	2	3	1	2	2	2	2	3	2	2	2		1	2	2		2	1
7 7	5 6	მამრო ბითი	ზუგ დიდ ი	1	3	1	3	2	4	2		1	1	1	2	2	2	1	1	2	2	4	1	2	2	2	2	3	1	1	2		1	1	2		1	1
7 8	3 4	მდედ რობი თი	ზუგ დიდ ი	1	3	1	4	1	4	2		1	1	1	2	2	2	2	1	2	2	4	1	2	2	1	2	2	3	3	3		1	2	2	9 9	2	1
7 9	4 2	მდედ რობი თი	ზუგ დიდ ი	1	2	5	7	1	7	2		1	1	1	2	2	2	1	1	2	2	5	1	2	2	1	1	2	1	1	2		1	1	2	1	1	1
8 0	4 8	მდედ რობი თი	ზუგ დიდ ი	1	3	5	4	2	5	3		1	1	1	2	2	2	2	2	2	2	4	1	2	2	2	2	2	2	2	2		1	1	2		2	2
8 1	4 6	მდედ რობი თი	ზუგ დიდ ი	1	2	5	2	2	4	3		2		1	2	2	2	2	2	2	2	3	1	2	2	1	2	2	2	2	2		1	1	2		2	2
8 2	6 2	მამრო ბითი	ზუგ დიდ ი	1	3	1	5	2	5	3		1	1	1	2	2	2	2	2	2	2	4	1	2	2	1	3	3	2	1	2		1	2	2	1	1	
8 3	4 3	მამრო ბითი	ზუგ დიდ ი	1	3	1	5	1	5	2		1	4	1	2	2	2	1	1	2	2	4	1	2	2	1	1	2	1	1	2		1	2	2	9 9	2	1
8 4	4 9	მამრო ბითი	ზუგ დიდ ი	2	3	1	3	2	4	3		1	1	1	2	2	2	2	2	2	2	4	1	2	2	2	2	2	2	2	2		1	2	2		1	9 9
8 5	4 2	მდედ რობი თი	ზუგ დიდ ი	1	3	1	2	2	4	3		2		1	2	2	2	2	2	2	2	3	1	2	1	3	2	3	2	2	2		1	2	2		2	2
8 6	4 8	მდედ რობი თი	ზუგ დიდ ი	2	2	1	4	2	4	3		1	1	1	2	2	2	2	2	2	2	5	1	2	2	1	2	2	3	3	3		1	1	2		2	1
8 7	6 0	მამრო ბითი	ზუგ დიდ ი	1	3	1	5	1	5	3		2		1	1	2	1	2	1	2	2	5	1	3	2	2	1	2	1	1	2		1	2	2	1	1	1

8 8	5 5	მამრო ბითი	ზუგ დიდ ი	1	2	1	3	2	4	3		2		1	2	2	1	2	1	2	2	5	1	2	2	2	1	2	1	1	2		1	2	2		1	2
8 9	4 0	მდედ რობი თი	ზუგ დიდ ი	2	2	1	4	2	7	3		1	1	1	2	2	2	1	1	2	2	4	1	2	3	1	3	3	2	2	2		1	1	2		2	1
9 0	4 9	მდედ რობი თი	ზუგ დიდ ი	1	2	5	4	1	5	3		1	4	1	2	2	2	1	1	2	2	5	1	2	2	1	2	2	2	1	2		1	1	2	1	2	1
9 1	4 3	მდედ რობი თი	ზუგ დიდ ი	2	2	5	4	2	7	2		1	1	1	2	2	2	2	1	2	2	4	1	2	2	1	3	3	3	3	3		1	1	1		1	2
9 2	3 6	მდედ რობი თი	ზუგ დიდ ი	2	3	2	4	2	6	2		1	1	1	2	2	2	3	3	3	3	4	1	2	2	2	2	2	3	1	3		1	1	2		2	1
9 3	4 8	მამრო ბითი	ზუგ დიდ ი	2	2	1	4	2	4	4		2		1	2	2	2	2	2	2	2	3	1	2	1	2	2	2	3	3	3		3	2	2		1	1
9 4	3 6	მამრო ბითი	ზუგ დიდ ი	2	3	1	5	2	4	4		2		1	2	2	2	2	2	2	2	3	1	2	2	2	2	2	3	3	3		3	2	1		2	2
9 5	5 3	მამრო ბითი	ზუგ დიდ ი	1	3	1	6	2	5	4		1	1	1	1	2	2	2	2	2	2	2	4	1	2	2	1	2	2	1	2		2	2	2		1	1
9 6	3 5	მდედ რობი თი	ზუგ დიდ ი	2	3	1	4	2	4	3		1	1	1	2	2	2	2	1	2	2	5	1	2	2	2	2	2	2	1	2		1	2		2	2	
9 7	4 9	მდედ რობი თი	ზუგ დიდ ი	1	3	1	6	2	5	2		1	1	1	2	2	2	2	2	2	2	4	1	2	2	3	3	3	2	2	2		1	1	2		2	2
9 8	4 7	მდედ რობი თი	ზუგ დიდ ი	2	3	5	4	2	7	2		1	1	1	2	2	2	2	1	2	2	4	1	2	2	2	2	2	3	3	3		1	1	2		2	2
9 9	5 0	მამრო ბითი	ზუგ დიდ ი	1	2	1	4	2	7	2		2		1	2	2	2	2	2	2	2	4	1	2	2	1	1	3	3	3	3		1	2	2		2	1
1 0	4 5	მდედ რობი თი	ზუგ დიდ ი	1	3	5	3	2	6	2		1	1	1	2	2	2	2	2	2	3	4	1	2	2	2	2	3	2	1	2		1	1	2		2	2
1 1	4 4	მდედ რობი თი	ზუგ დიდ ი	2	2	1	3	2	4	3		1	1	1	2	2	2	2	1	2	2	4	1	2	2	1	1	3	2	2	2		1	1	1	2	1	

1 0 2	5 3	მდედ რობი თი	ზუგ დიდ ი	1	3	5	3	2	5	2		1	1	1	2	2	2	1	1	2	2	5	1	2	2	1	1	2	1	1	2		1	1	2		2	1	
1 0 3	5 9	მდედ რობი თი	ზუგ დიდ ი	1	3	5	4	2	5	2		1	1	1	2	2	2	1	2	2	2	4	1	2	2	2	2	2	2	1	2		1	1	2		2	2	
1 0 4	4 6	მდედ რობი თი	ზუგ დიდ ი	2	2	1	4	2	4	3		1	1	1	2	2	2	2	1	2	2	5	1	2	2	1	2	2	2	1	2		1	1	2		1	2	
1 0 5	3 5	მდედ რობი თი	ზუგ დიდ ი	1	3	5	4	1	5	2		1	1	1	2	2	2	2	1	2	2	5	1	2	2	2	2	2	2	2	2	2	2	1	1	2	1	2	2
1 0 6	5 2	მდედ რობი თი	ზუგ დიდ ი	1	2	5	4	2	6	3		1	1	1	2	2	2	2	2	2	2	4	1	2	2	1	3	3	2	1	2		1	1		1	2		
1 0 7	4 0	მდედ რობი თი	ზუგ დიდ ი	1	3	1	5	1	7	3		1	4	1	2	2	2	2	2	2	2	4	1	2	1	1	2	2	1	1	2		1	1	2	1	1	2	
1 0 8	3 2	მდედ რობი თი	ზუგ დიდ ი	2	3	1	3	2	7	2		1	1	1	2	2	2	2	1	2	2	5	1	2	2	1	1	2	2	2	2	2	2	1	1	2		2	2
1 0 9	4 2	მდედ რობი თი	ზუგ დიდ ი	1	2	5	4	1	6	2		1	1	1	2	2	2	2	2	2	2	4	1	2	2	2	2	2	2	2	2	2	2	1	1	2		2	2
1 1 0	4 2	მამრო ბითი	ზუგ დიდ ი	2	3	1	6	1	5	3		1	1	1	2	2	2	1	1	2	2	5	1	2	2	1	1	2	1	2	2	1	2	2	1	2	1	1	
1 1 1	5 4	მამრო ბითი	ზუგ დიდ ი	1	3	1	4	2	5	3		2		1	2	2	2	2	1	2	2	3	1	2	2	2	1	2	1	1	2		1	1	2		1	1	
1 1 2	3 2	მამრო ბითი	ზუგ დიდ ი	1	2	2	5	2	4	3		2		1	2	2	2	1	2	2	2	3	1	2	2	1	2	2	2	2	2	2	2	1	2	1		1	1
1 1 3	4 3	მამრო ბითი	ზუგ დიდ ი	2	3	1	4	1	5	2		1	1	1	2	2	2	2	2	2	2	5	1	2	2	1	1	2	2	2	2	2	2	2	1	2	1	1	1
1 1 4	4 6	მამრო ბითი	ზუგ დიდ ი	2	3	1	4	2	4	3		2		1	2	2	2	1	2	2	2	3	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	1	
1 1 5	4 1	მამრო ბითი	ზუგ დიდ ი	1	3	1	5	1	7	3		1	1	1	2	2	2	2	2	2	2	4	1	2	2	1	2	2	2	2	1	2		1	1	2	2	2	1

1 1 6	4 5	მამრო ბითი	ზუგ დიდ ი	1	3	1	4	2	4	2		2	2	1	2	2	2	2	1	2	2	4	1	2	2	2	2	2	2	2	2		1	2	1		1	1
1 1 7	4 7	მამრო ბითი	ზუგ დიდ ი	1	3	1	3	2	7	2		1	1	1	2	2	2	1	1	2	2	4	1	2	2	1	1	2	2	2	2		1	1	2		1	1
1 1 8	5 5	მამრო ბითი	ზუგ დიდ ი	1	2	1	7	1	5	3		2		1	2	2	1	2	1	2	2	5	1	2	2	2	1	2	1	1	1		1	1	2	1	1	1
1 1 9	5 8	მამრო ბითი	ზუგ დიდ ი	1	2	1	5	1	5	3		1	1	1	2	2	1	2	2	2	2	5	1	2	1	1	2	2	2	2	2		2	2	2	1	1	1
1 2 0	3 5	მამრო ბითი	ზუგ დიდ ი	2	3	1	4	2	5	3		2		1	2	2	2	2	2	2	2	3	1	2	2	2	2	2	2	2	2		1	2	2	2	1	
1 2 1	3 6	მამრო ბითი	ზუგ დიდ ი	1	3	1	3	2	4	2		2		1	2	2	2	1	1	2	2	4	1	2	2	1	2	2	2	2	2		1	2	2		2	1
1 2 2	5 8	მამრო ბითი	ზუგ დიდ ი	1	3	1	6	1	5	3		1	1	1	2	2	2	2	1	2	2	5	1	2	1	1	1	2	1	1	2		1	1	1	1	1	1
1 2 3	5 2	მდედ რობი თი	ზუგ დიდ ი	1	2	5	2	2	6	2		1	1	1	2	2	2	1	1	2	2	5	1	2	2	2	2	2	2	1	2		1	1	1		2	1
1 2 4	4 6	მდედ რობი თი	ზუგ დიდ ი	1	2	5	2	2	4	2		1	1	1	2	2	3	3	1	3	3	4	1	2	2	2	2	2	2	1	2		1	1	2		1	1
1 2 5	5 0	მდედ რობი თი	ზუგ დიდ ი	1	3	5	5	2	5	3		1	4	1	2	2	2	1	1	2	2	5	1	2	1	1	1	2	2	1	2		1	1	2		2	1
1 2 6	6 5	მამრო ბითი	ზუგ დიდ ი	1	3	1	5	1	5	2		2		1	2	2	2	2	2	2	2	4	1	2	2	1	2	2	2	2	2		1	2	2	9 9	1	1
1 2 7	4 0	მამრო ბითი	ზუგ დიდ ი	1	2	1	4	2	5	3		1	1	1	1	2	1	2	1	2	2	5	1	2	2	1	2	2	1	1	2		1	1	2	9 9	1	1
1 2 8	5 2	მამრო ბითი	ზუგ დიდ ი	1	2	2	5	2	4	3		1	1	1	2	2	2	2	2	2	2	3	1	2	2	2	2	2	2	2	2		1	1	2		1	1
1 2 9	5 4	მამრო ბითი	ზუგ დიდ ი	1	2	1	4	2	6	3		1	1	1	2	2	1	2	1	2	2	5	1	2	1	1	1	2	2	1	2		1	1	2		1	1

130	66	მამრო ბითი	ზუგ დიდი	1	3	2	5	1	4	2		1	1	1	1	2	2	2	1	2	2	5	1	2	2	1	1	2	2	1	2		1	1	2	1	1	1		
131	46	მამრო ბითი	ზუგ დიდი	1	3	1	3	2	5	3		2		1	2	2	2	2	2	2	2	4	1	2	1	1	1	2	1	1	2		1	2	2		1	1		
132	62	მამრო ბითი	ზუგ დიდი	1	3	1	5	1	7	2		1	1	1	1	2	1	2	2	2	1	5	1	2	2	1	1	2	2	1	2		1	2	1	99	1	1		
133	53	მამრო ბითი	ზუგ დიდი	1	2	2	5	2	5	3		1	1	1	1	2	2	2	1	2	2	5	1	2	2	2	1	2	2	1	2		1	2	2		1	1		
134	42	მამრო ბითი	ზუგ დიდი	2	3	1	4	2	7	2		2		1	2	2	2	2	2	2	3	1	2	2	1	2	2	1	1	2		1	2	1		1	1			
135	23	მამრო ბითი	ზუგ დიდი	1	2	2	3	2	7	2		1	1	1	2	2	2	2	1	2	2	4	1	2	2	2	1	2	2	2	2	2	2	2		1	1	2		
136	30	მამრო ბითი	ზუგ დიდი	2	2	1	6	1	5	3		1	1	1	2	2	2	1	1	2	2	4	1	2	2	2	2	2	1	1	2		1	1	1	1	2	1		
137	20	მამრო ბითი	ზუგ დიდი	2	2	4	4	2	4	2		2		2	2	2	2	2	2	2	3	1	2	2	2	2	2	2	3	3	3		2	1	1		2	1		
138	18	მამრო ბითი	ზუგ დიდი	2	2	1	5	2	4	3		2		1	2	2	2	2	2	2	3	1	2	2	2	1	2	2	2	2	2	2	2		1	1	2		2	1
139	32	მამრო ბითი	ზუგ დიდი	1	3	1	3	2	4	2		1	1	1	2	2	2	2	2	2	4	1	2	2	1	1	2	1	1	2		1	1	1		2	1			
140	27	მამრო ბითი	ზუგ დიდი	2	2	1	6	1	7	3		1	1	1	2	2	2	1	2	2	2	4	1	2	2	2	1	2	3	3	3		2	2	2	99	2	1		
141	55	მამრო ბითი	ზუგ დიდი	1	2	1	3	2	5	3		2		1	2	2	2	2	2	2	4	1	2	2	1	2	2	2	2	1	2		1	1	1		1	1		
142	43	მამრო ბითი	ზუგ დიდი	1	2	1	4	2	4	2		1	1	1	2	2	1	2	2	2	4	1	2	2	2	2	2	2	2	1	1		1	2	2		1	1		
143	24	მამრო ბითი	ზუგ დიდი	1	3	1	4	2	4	2		1	1	1	2	2	2	2	2	2	3	1	2	2	1	2	2	2	2	2	2		1	2	2		2	1		

1 4 4	3 8	მდედ რობი თი	ზუგ დიდ ი	1	2	5	9	1	6	1		2		3	3	3	3	3	3	3	3	1	3	3	3	3	3	3	3	3		3	2	2	1	2	1	
1 4 5	4 0	მამრო ბითი	ზუგ დიდ ი	1	3	1	4	1	6	2		1	1	3	3	3	3	3	3	3	4	1	3	3	1	3	3	3	3	3		1	2	2		2	1	
1 4 6	2 0	მდედ რობი თი	ზუგ დიდ ი	2	3	4	4	2	4	1		1	1	3	3	3	3	3	1	3	3	4	1	1	3	3	3	3	3	3		1	2	1		2	1	
1 4 7	2 3	მდედ რობი თი	ზუგ დიდ ი	2	3	1	3	2	5	1		1	3	1	2	2	1	1	1	3	1	4	1	1	1	1	1	2	3	3	3		1	2	2		1	1
1 4 8	2 5	მდედ რობი თი	ზუგ დიდ ი	2	3	1	3	2	4	1		1	3	1	3	3	1	3	1	3	3	5	1	3	1	1	1	1	3	3	3		1	2	2		2	1
1 4 9	3 3	მდედ რობი თი	ზუგ დიდ ი	1	3	1	4	1	9	2		1	1	1	2	2	1	2	1	2	1	5	1	1	1	1	1	1	2	2	2		2	2	2	2	1	1
1 5 0	3 7	მდედ რობი თი	ზუგ დიდ ი	1	3	1	4	1	5	2		1	1	2	2	2	1	2	1	2	2	4	1	3	1	1	1	3	3	3	3		2	2	2	2	1	1
1 5 1	3 1	მდედ რობი თი	ზუგ დიდ ი	1	2	5	5	1	6	1		2		3	3	3	3	3	3	3	3	1	3	3	1	3	3	3	3	3		1	2	1	2	1	1	
1 5 2	3 6	მდედ რობი თი	ზუგ დიდ ი	1	2	5	6	1	9	2		1	1	3	3	3	1	3	1	3	3	4	1	3	3	1	1	3	3	3	3		1	2	1	2	2	2
1 5 3	2 5	მდედ რობი თი	ზუგ დიდ ი	1	3	1	5	2	5	2		1	1	1	2	2	1	2	1	2	2	4	1	3	1	1	1	3	3	3	3		1	2	2	2	2	1
1 5 4	4 2	მამრო ბითი	ზუგ დიდ ი	1	3	1	4	2	6	9		1	1	2	2	2	1	2	1	2	2	5	1	3	3	1	1	3	3	3	3		2	2	2	2	1	1
1 5 5	3 3	მამრო ბითი	ზუგ დიდ ი	1	2	1	5	1	9	9		1	1	1	2	2	1	3	1	3	3	4	1	3	2	1	1	1	3	3	3		1	2	1	2	1	1
1 5 6	3 0	მამრო ბითი	ზუგ დიდ ი	2	3	3	2	4	2	1		1	1	1	3	3	1	3	1	3	3	4	1	3	1	1	1	1	3	3	3		2	2	2		1	2
1 5 7	2 2	მამრო ბითი	ზუგ დიდ ი	2	2	4	5	2	9	9		2		3	3	3	3	3	3	3	3	3	3	3	1	3	3	3	3	3		3	2	1		1	1	

158	35	მდედრობითი	ზუგდიდი	1	2	2	7	1	9	2		1	1	1	2	2	1	1	1	2	2	4	1	3	2	1	1	1	3	3	3		2	2	1	2	1	1	
159	32	მამრობითი	ზუგდიდი	2	2	1	5	2	5	9		1	1	1	2	2	1	2	1	3	3	4	1	3	3	3	1	1	1	3	3	3		3	2	2		1	1
160	36	მამრობითი	ზუგდიდი	1	3	1	5	1	5	1		1	1	3	3	3	1	3	1	3	3	4	1	3	3	1	1	3	3	3	3		1	2	1	2	1	1	
161	21	მდედრობითი	ზუგდიდი	2	2	4	3	2	4	2		1	1	3	3	3	1	3	1	3	3	4	1	3	3	1	3	3	3	3	3		1	2	1		2	1	
162	34	მდედრობითი	ზუგდიდი	1	2	5	6	1	6	1		2		3	3	3	3	3	3	3	3	3	1	3	3	1	3	3	3	3	3		3	2	1	2	1	1	
163	20	მდედრობითი	ზუგდიდი	2	2	4	3	2	9	1		1	1	1	3	3	1	3	1	3	3	4	1	3	2	1	1	1	3	3	3		3	2	2		1	1	
164	30	მდედრობითი	ზუგდიდი	1	2	5	5	1	4	1		2		3	3	3	3	3	3	3	3	3	1	3	3	1	3	3	3	3	3		1	2	2	1	1	1	
165	34	მდედრობითი	ზუგდიდი	1	2	5	5	1	6	2		1	1	3	3	3	1	3	1	3	3	4	1	3	3	1	1	3	3	3	3		1	2	1	2	1	1	
166	38	მდედრობითი	ზუგდიდი	1	3	5	5	2	6	1		1	1	1	3	3	1	3	1	3	3	5	1	3	2	1	1	2	3	3	3		1	2	2		1	1	
167	35	მამრობითი	ზუგდიდი	1	3	1	6	1	6	2		1	1	1	2	2	1	1	2	2	2	4	1	3	1	1	1	1	3	3	3		1	2	2	2	1	1	
168	20	მამრობითი	ზუგდიდი	2	2	4	5	2	6	2		1	1	3	3	3	3	3	1	3	3	4	1	3	3	3	3	3	3	3		1	2	1		2	9		
169	36	მდედრობითი	ზუგდიდი	1	2	5	5	1	5	2		2		3	3	3	3	3	3	3	3	3	1	3	3	3	3	3	3	3	3		3	2	2		2	1	
170	20	მამრობითი	ზუგდიდი	2	2	4	5	1	6	9		2		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3		2	2	2		2	1		
171	34	მდედრობითი	ზუგდიდი	1	2	5	6	1	6	1		2		3	3	3	3	3	3	3	3	3	1	3	3	3	3	3	3	3		3	2	2		2	1		

172	26	მდედრობითი	ზუგდიდი	2	3	1	4	2	6	99		2		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3		3	2	2		2	1
173	24	მამრობითი	ზუგდიდი	2	3	1	5	2	6	99		1	1	1	2	2	2	2	1	2	2	4	1	3	1	1	1	1	3	3	3		1	2	2		2	1
174	32	მამრობითი	ზუგდიდი	1	3	1	1	6	99	1		1	1	1	2	2	1	2	1	2	2	4	1	3	1	1	1	1	3	3	3		3	2	2		1	1
175	35	მდედრობითი	ზუგდიდი	1	3	1	1	5	2	1		1	1	1	2	2	1	3	1	3	1	4	1	3	1	1	1	1	3	3	3		2	2	1	2	2	2
176	32	მამრობითი	ზუგდიდი	2	2	2	3	2	3	99		2		3	3	3	3	3	3	3	3	3	1	3	3	1	3	3	3	3	3		3	2	2		1	1
177	19	მდედრობითი	ზუგდიდი	2	3	4	4	2	4	2		1	1	3	3	3	3	3	1	3	3	4	1	3	3	3	3	3	3	3	3	3	1	2	1		2	99
178	39	მდედრობითი	ზუგდიდი	1	2	5	5	1	6	2		2		3	3	3	3	3	3	3	3	1	3	3	3	3	3	3	3	3		3	2	2	1	1	1	
179	33	მამრობითი	ბათუმში	1	2	1	13	1	99	2		1	1	1	2	2	2	2	1	2	2	4	1	1	1	1	1	1	2	2	2		1	2	1	2	1	1
180	43	მამრობითი	ბათუმში	1	2	1	5	2	4	2		1	1	1	2	2	3	2	1	2	2	4	1	2	1	1	1	1	2	2	2		1	2	1		1	1
181	67	მამრობითი	ბათუმში	1	2	1	7	1	99	2		1	1	1	2	2	2	1	2	2	2	4	1	2	1	2	2	2	2	1	2		1	2	1	1	1	1
182	40	მამრობითი	ბათუმში	1	2	2	5	2	99	3		1	1	1	2	2	2	2	2	2	2	3	1	2	2	2	2	2	2	2	2		1	2	1	2	1	1
183	52	მამრობითი	ბათუმში	1	2	1	5	2	99	3		1	1	1	2	2	2	2	1	2	2	3	1	2	1	1	1	2	2	2	2		1	2	1		1	1
184	70	მამრობითი	ბათუმში	1	2	1	6	1	4	3		1	1	1	2	2	2	2	1	2	2	4	1	2	2	2	2	2	2	2	2		1	2	1	2	1	1
185	55	მამრობითი	ბათუმში	1	2	2	5	2	99	2		1	1	1	1	2	2	2	1	2	2	4	1	1	1	1	1	2	2	2	2		1	2	1	2	1	1

186	67	მამრო ბითი	ბათ უმი	1	2	1	4	1	5	2		1	1	1	2	2	2	2	1	2	2	3	1	2	2	2	1	2	2	1	2		1	1	1	1	1	1	
187	49	მამრო ბითი	ბათ უმი	1	2	1	5	2	9	2		1	1	1	2	2	2	2	1	2	2	4	1	1	2	1	1	2	2	2	2	2		1	2	1	2	1	1
188	43	მამრო ბითი	ბათ უმი	1	2	1	6	1	9	3		2		1	2	2	2	2	2	2	2	3	1	2	2	2	2	2	2	2	2		1	1	1	2	1	1	
189	49	მდედ რობი თი	ბათ უმი	1	3	5	4	2	6	2		1	1	1	2	2	1	1	1	2	1	4	1	1	1	1	1	1	3	3	3		1	2	2		2	1	
190	26	მამრო ბითი	ბათ უმი	1	4	1	3	1	6	1		1	3	1	1	1	1	1	1	1	1	4	1	1	1	1	2	2	3	3	2		2	1	1	2	1	1	
191	22	მდედ რობი თი	ბათ უმი	2	3	1	3	2	6	2		1	3	1	1	2	1	1	1	2	1	4	1	1	1	1	1	1	3	3	3		1	2	2		2	1	
192	24	მდედ რობი თი	ბათ უმი	2	3	1	3	2	5	1		1	3	1	1	1	1	1	1	1	1	4	1	1	1	1	1	1	3	3	3		1	2	1		2	1	
193	48	მდედ რობი თი	ბათ უმი	1	3	1	3	2	6	2		1	1	1	1	1	1	1	1	1	1	4	1	1	1	1	1	1	3	3	3		1	2	2		2	2	
194	30	მამრო ბითი	ბათ უმი	2	3	1	5	2	6	1		1	1	1	1	1	1	1	1	3	3	4	1	1	1	1	1	1	1	3	3		1	2	2		2	1	
195	47	მდედ რობი თი	ბათ უმი	1	3	1	6	2	9	9		1	4	1	1	1	1	1	1	1	1	5	1	1	1	1	1	1	3	3	3		1	2	2		2	1	
196	28	მდედ რობი თი	ბათ უმი	1	3	5	3	1	6	2		1	1	1	1	1	1	1	1	1	1	5	1	1	1	1	1	1	3	3	3		1	2	1	2	2	1	
197	30	მამრო ბითი	ბათ უმი	2	3	5	1	6	2	1		1	1	1	1	1	1	1	1	1	1	5	1	1	1	1	1	1	3	3	3		1	2	2	2	2	1	
198	52	მდედ რობი თი	ბათ უმი	1	3	1	5	1	6	2		1	1	1	1	1	1	1	1	1	1	4	1	1	1	1	1	1	3	3	3		1	2	2	2	2	1	
199	50	მდედ რობი თი	ბათ უმი	1	3	1	5	2	6	2		1	1	1	2	2	1	1	1	1	1	4	1	1	2	1	1	1	3	3	3		1	2	2		2	1	

200	47	მამრო ბითი	ბათ უმი	1	2	1	7	1	4	2		1	1	1	2	2	2	2	2	2	2	3	1	2	2	2	2	2	2	1	2		1	2	1	2	1	1	
201	55	მამრო ბითი	ბათ უმი	1	2	2	5	1	3	4		2		2	2	2	2	2	2	2	2	1	1	2	2	2	2	2	2	2	2		3	2	1	1	1	9 9	
202	50	მამრო ბითი	ბათ უმი	1	2	2	4	2	3	2		2		1	2	2	2	2	2	2	2	1	1	2	2	2	1	2	2	2	2		2	2	2		1	2	
203	42	მამრო ბითი	ბათ უმი	1	2	2	5	2	3	4		2		2	2	2	2	2	2	2	2	1	1	2	2	2	2	2	2	2	2		2	2	2		1	2	
204	32	მამრო ბითი	ბათ უმი	1	2	1	4	2	4	4		2		2	2	2	2	2	2	2	2	1	3	3	3	3	3	3	3	2	2	2		3	2	1		1	2
205	47	მამრო ბითი	ბათ უმი	1	3	1	5	2	5	2		1	1	1	2	2	2	1	2	2	2	4	1	2	2	2	1	2	2	1	2		1	1	1		1	9 9	
206	50	მამრო ბითი	ბათ უმი	1	2	1	5	1	5	2		1	1	1	1	2	2	2	1	2	2	4	1	1	2	2	2	2	2	1	2		1	2	1	1	1	1	
207	52	მამრო ბითი	ბათ უმი	1	2	1	6	2	4	3		2		2	2	2	2	2	2	2	2	3	1	2	2	2	2	2	2	1	2		1	2	1		1	1	
208	65	მამრო ბითი	ბათ უმი	1	2	2	5	2	9	3		1	1	1	2	2	2	2	2	2	2	4	1	2	2	2	2	2	3	3	3		1	1	1		1	1	
209	58	მამრო ბითი	ბათ უმი	1	2	1	4	1	9	2		1	1	1	2	2	2	2	1	2	2	4	1	1	1	1	1	2	2	2	2		1	2	1	2	1	1	
210	60	მამრო ბითი	ბათ უმი	1	2	1	5	1	6	2		1	1	1	2	2	2	2	2	2	2	4	1	1	2	2	1	2	2	2	2		1	1	2	1	1		
211	35	მამრო ბითი	ბათ უმი	1	2	1	5	1	5	4		2		1	2	2	2	1	2	2	2	1	1	2	2	2	2	2	2	2		1	1	1	1	1	9 9		
212	56	მამრო ბითი	ბათ უმი	1	2	2	3	2	3	4		2		2	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2		2	2	1		1	9 9		
213	46	მამრო ბითი	ბათ უმი	1	2	1	3	2	3	2		1	1	1	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2		1	1	1		1	2		
214	52	მამრო ბითი	ბათ უმი	1	2	2	5	1	7	2		2		2	1	2	2	2	1	2	2	1	1	2	2	2	2	2	2	2		2	3	1	1	1	2		

215	42	მამრო ბითი	ბათ უმი	1	2	2	3	2	3	4		2		2	2	2	2	2	2	2	3	1	2	2	2	1	2	2	1	2		3	2	1		1	99	
216	55	მამრო ბითი	ბათ უმი	1	3	1	5	1	5	2		1	1	1	2	2	2	2	1	2	2	4	1	2	2	2	1	2	3	3	3		1	1	1	1	1	99
217	38	მამრო ბითი	ბათ უმი	2	2	2	6	1	5	4		2		1	2	2	2	2	2	2	3	2	2	2	2	2	2	2	2	2		2	2	1	1	1	1	
218	52	მამრო ბითი	ბათ უმი	1	2	2	4	2	3	4		1	1	2	2	2	2	2	2	2	4	1	2	2	2	1	2	3	3	3		2	1	1		1	99	
219	40	მამრო ბითი	ბათ უმი	1	3	2	6	1	5	2		1	1	1	2	2	2	2	2	2	4	1	2	2	2	2	2	2	2	2		1	1	1	1	1	2	
220	45	მამრო ბითი	ბათ უმი	1	2	1	6	1	5	4		2		2	2	2	2	2	2	2	1	1	2	2	2	2	2	2	2	2		3	1	1	1	2		
221	43	მამრო ბითი	ბათ უმი	1	2	1	4	1	5	4		2		1	2	2	2	2	2	2	4	1	2	2	2	2	2	2	1	2		1	1	1	1	1	99	
222	64	მდედ რობი თი	ბათ უმი	1	2	1	2	3	9	2		2		1	3	3	1	3	3	3	2	1	2	2	2	2	2	3	3	3		2	2	2		1	2	
223	65	მდედ რობი თი	ბათ უმი	1	2	5	3	2	3	1		2		1	2	2	2	2	1	2	2	1	1	2	3	3	2	2	3	3	3		2	2	2		2	99
224	70	მდედ რობი თი	ბათ უმი	1	2	5	3	2	4	1		1	1	1	2	2	1	1	1	2	2	4	1	2	2	2	2	2	3	3	3		1	2	1		1	1
225	60	მდედ რობი თი	ბათ უმი	1	2	5	2	2	4	2		1	4	1	1	1	1	1	1	1	4	1	2	2	2	2	2	2	3	3	3		1	1	1		1	1
226	66	მდედ რობი თი	ბათ უმი	1	2	1	3	2	4	2		1	1	1	1	1	1	1	1	1	4	1	2	2	2	2	2	3	3	3		2	2	1		1	1	
227	59	მდედ რობი თი	ბათ უმი	1	3	1	2	2	3	2		1	1	1	1	2	1	1	1	1	4	1	2	2	3	2	2	2	1	2		1	2	1		1	1	
228	70	მდედ რობი თი	ბათ უმი	1	3	3	2	2	4	2		1	1	1	2	2	2	2	1	2	2	4	1	2	2	2	2	3	3	3		1	2	1		1	1	

2	2	მდედ	ბათ	1	2	3	4	2	4	1		1	1	1	2	2	1	2	1	2	2	4	1	2	2	2	2	2	3	3	3		1	2	1		2	1
2	3	მდედ	ბათ	1	2	5	4	2	5	2		1	1	1	1	1	1	1	1	1	1	4	1	1	1	1	1	1	3	3		1	2	1		1	1	
2	3	მდედ	ბათ	1	3	1	5	2	5	9		1	5	1	1	2	2	2	1	2	2	4	1	2	2	2	2	2	3	3	3		1	2	1		2	1
2	3	მამრო	ბათ	1	3	1	4	2	5	1		1	1	1	1	2	1	2	1	2	1	4	1	1	1	1	1	3	3	3		1	2	1		1	1	
2	3	მამრო	ბათ	1	3	1	3	2	6	2		1	1	1	1	1	1	1	1	1	1	4	1	1	1	1	1	3	3	3		1	2	2		1	1	
2	3	მდედ	ბათ	1	2	5	2	2	4	1		1	1	1	2	2	1	1	1	2	1	4	1	1	1	1	1	2	2	2	2		1	2	2		2	1
2	3	მამრო	ბათ	1	4	1	4	1	5	2		1	3	1	1	1	1	1	1	1	1	5	1	1	1	1	1	3	3	3		1	2	1	2	1	1	
2	3	მამრო	ბათ	2	3	1	4	2	5	2		1	3	1	1	1	1	1	1	1	4	1	1	1	1	1	3	3	3		1	2	1		2	1		
2	3	მამრო	ბათ	2	3	1	3	2	6	1		1	3	1	1	2	1	1	1	2	1	5	1	1	1	1	2	2	2		1	2	2		2	1		
2	3	მამრო	ბათ	1	3	1	3	2	6	2		1	1	1	1	1	1	1	1	1	4	1	2	1	1	1	1	3	3	3		1	2	1		2	1	
2	3	მამრო	ბათ	2	3	1	4	2	6	1		1	1	1	1	1	1	1	1	1	5	1	1	1	1	1	3	3	3		1	1	2		2	1		
2	4	მდედ	ბათ	1	2	1	3	2	3	2		1	1	3	3	3	3	3	3	3	1	1	2	3	1	2	3	2	2	2		3	2	2		1	1	
2	4	მამრო	ბათ	1	3	1	4	2	6	2		1	1	1	2	1	1	1	1	3	3	4	1	1	1	1	1	3	3	3		1	2	1		1	1	
2	4	მამრო	ბათ	2	3	1	6	1	5	2		1	1	1	3	3	3	3	1	3	3	4	1	2	2	2	2	2	1	2		1	1	2	9	2	1	

243	30	მამრო ბითი	ბათ უმი	1	3	1	6	1	5	2		1	1	1	2	2	2	2	2	2	2	4	1	2	2	2	2	2	3	1	3		2	9 9	1	1	2	1
244	25	მამრო ბითი	ბათ უმი	2	3	1	7	2	5	3		1	1	1	2	2	1	2	1	2	2	3	2	2	2	2	2	2	2	2	2		2	2	1		2	1
245	30	მამრო ბითი	ბათ უმი	1	3	1	4	1	5	3		1	1	1	2	2	2	2	1	2	2	3	2	2	2	2	2	2	2	2	2		2	9 9	1	1	1	1
246	65	მდედ რობი თი	ბათ უმი	1	2	1	3	2	3	9		2		1	2	2	1	2	1	2	2	2	1	2	2	2	2	2	2	2		1	2	2		2	1	
247	27	მამრო ბითი	ბათ უმი	1	3	1	4	1	5	3		1	1	1	2	2	2	2	1	2	2	3	2	2	2	2	2	2	2	2		2	9 9	1	1	2	1	
248	68	მდედ რობი თი	ბათ უმი	1	2	1	2	2	4	9		2		2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	3	3	3		1	2	2		2	1
249	66	მდედ რობი თი	ბათ უმი	1	2	1	2	2	3	2		2		1	3	3	3	3	3	3	3	1	1	2	3	1	1	3	2	3	2		3	2	2		2	9 9
250	37	მამრო ბითი	ბათ უმი	1	3	1	5	1	3	3		1	3	1	3	2	3	3	3	3	3	4	1	2	2	2	2	2	2	2	2		2	9 9	1	9 9	2	1
251	25	მამრო ბითი	ბათ უმი	2	3	1	6	1	5	3		1	1	1	2	2	1	2	1	2	2	4	1	2	2	2	2	2	2	2	2		2	1	1	1	2	1
252	32	მამრო ბითი	ბათ უმი	1	3	1	5	1	5	2		1	1	1	2	2	2	2	2	2	3	2	2	2	2	2	2	2	2	2		2	9 9	1	1	2	2	
253	24	მდედ რობი თი	ბათ უმი	2	2	4	5	2	9	3		2		1	2	2	2	2	2	2	3	1	2	2	2	3	2	2	2	2		2	9 9	2		2	1	
254	29	მამრო ბითი	ბათ უმი	2	3	1	5	1	5	2		1	3	1	3	3	3	3	1	3	3	4	1	2	2	2	2	2	2	2		2	1	2		9 9	1	2
255	18	მამრო ბითი	ბათ უმი	2	2	4	5	2	5	2		2		1	3	3	3	3	3	3	3	3	1	2	1	2	2	2	3	3	3		2	2	2	2	2	
256	20	მამრო ბითი	ბათ უმი	2	2	1	4	2	4	9		1	3	1	2	2	2	2	2	2	2	4	2	2	2	2	2	2	2	2		3	2	1			2	1

2 5 7	6 2	დედრ ობით ი	ბათ უმი	1	3	1	3	2	5	1		1	1	1	1	1	1	1	2	1	4	1	1	1	1	1	1	3	3		1	2	2		1	1		
2 5 8	3 3	მამრო ბითი	ბათ უმი	1	3	5	1	3	3	1		1	3	1	3	3	3	3	3	3	3	4	1	1	2	2	2	2	1	2		2	1	1	1	2	1	
2 5 9	1 8	მამრო ბითი	ბათ უმი	2	2	4	5	1	9	2		1	3	1	2	2	2	2	2	2	3	2	2	2	2	2	2	3	3	3		2	9	9	1	1		
2 6 0	6 5	მდედ რობი თი	ბათ უმი	1	3	1	4	2	5	2		1	1	1	1	2	1	1	1	1	4	1	1	1	1	1	1	3	3	3		1	2	2		1	1	
2 6 1	6 1	მდედ რობი თი	ბათ უმი	2	3	1	2	2	3	9		2		1	2	2	2	2	1	2	2	3	1	2	2	2	2	3	3	3		1	2	2		2	1	
2 6 2	2 2	მამრო ბითი	ბათ უმი	2	2	4	4	2	5	3		1	1	1	2	2	2	2	2	2	2	3	2	2	2	2	2	2	2	2		1	2	2		2	1	
2 6 3	3 5	მამრო ბითი	ბათ უმი	1	3	1	6	1	5	3		1	1	1	2	2	2	2	1	2	2	3	2	2	2	2	2	2	2	2		2	2	1	1	2	1	
2 6 4	3 3	მდედ რობი თი	ბათ უმი	1	3	1	4	1	3	3		1	3	1	3	2	3	1	1	2	2	4	1	1	2	2	1	2	2	1	2		2	9	1	1	2	1
2 6 5	2 8	მდედ რობი თი	ბათ უმი	1	3	5	6	1	4	6		1	3	1	2	2	2	2	1	2	1	4	1	1	1	1	2	3	2	1	2		1	9	9	2	1	
2 6 6	2 6	მდედ რობი თი	ბათ უმი	1	2	5	5	1	5	6		1	3	1	2	2	2	2	1	1	1	4	1	1	1	1	1	3	2	1	2		1	9	2	2	1	
2 6 7	2 0	მდედ რობი თი	ბათ უმი	2	2	4	6	1	4	2		1	4	1	2	2	2	2	2	2	3	1	2	2	2	2	3	2	2	2		1	1	2	9	2	1	
2 6 8	2 2	მდედ რობი თი	ბათ უმი	2	2	4	6	1	6	2		1	1	1	1	2	1	1	1	1	4	1	2	2	2	2	2	3	3	3		1	2	2	2	2	1	
2 6 9	2 5	მდედ რობი თი	ბათ უმი	1	3	1	5	1	6	2		1	1	1	1	1	1	1	1	1	5	1	1	1	1	1	1	3	3	3		1	2	2	2	2	1	
2 7 0	2 0	მდედ რობი თი	ბათ უმი	2	2	4	6	1	6	9		2		3	3	3	3	3	3	3	3	1	3	3	3	3	3	3	3		3	2	2	2	2	1		

271	27	მდედრობითი	ბათუმი	1	2	1	4	2	99	6		1	3	1	2	2	2	1	1	2	1	4	1	2	1	1	1	2	3	1	3		1	2	1		2	1
272	24	მდედრობითი	ბათუმი	2	3	5	5	1	5	2		1	3	1	2	2	2	2	1	2	2	4	1	1	1	1	1	3	2	2	2		1	1	2	2	2	1
273	21	მდედრობითი	ბათუმი	2	2	4	6	1	5	2		1	3	1	2	2	2	1	1	2	2	4	1	2	2	2	2	2	2	2	2		1	1	1	99	2	2
274	19	მდედრობითი	ბათუმი																																			
275	23	მდედრობითი	ბათუმი	1	3	1	7	1	5	3		1	1	1	2	2	2	2	1	2	2	4	1	2	2	2	1	2	3	3	3		3	2	1	2	1	1
276	20	მდედრობითი	ბათუმი	1	2	4	6	2	4	6		1	3	1	3	3	3	3	1	3	3	5	1	1	1	1	1	2	2	1	2		2	1	2		2	1
277	25	მდედრობითი	ბათუმი	1	2	2	4	2	7	2		1	1	1	3	3	3	3	3	3	3	3	4	1	1	1	1	3	3	3	3		1	99	2	99	2	2
278	23	მდედრობითი	ბათუმი	1	3	1	5	1	5	6		1	3	1	2	2	2	1	1	2	2	4	1	1	1	1	3	3	2	2	2		2	99	2	99	2	1
279	30	მდედრობითი	ბათუმი	1	3	5	4	1	5	6		1	1	1	2	2	2	2	1	2	1	3	1	2	2	2	2	2	2	1	2		1	99	2	2	1	1
280	18	მდედრობითი	ბათუმი	2	2	4	5	1	4	2		1	3	1	1	2	2	2	1	2	1	4	1	1	1	1	1	3	2	2	2		1	1	2	99	2	1
281	30	მდედრობითი	ბათუმი	2	2	4	7	1	4	6		1	3	1	2	2	2	2	1	2	2	3	1	1	1	1	2	2	2	1	2		2	99	2	2	2	2
282	28	მდედრობითი	ბათუმი	1	2	4	5	2	99	2		1	1	1	2	2	2	2	2	2	2	4	1	1	2	2	2	3	2	2	2		1	1	2		2	1
283	25	მდედრობითი	ბათუმი	1	3	1	4	1	4	2		1	3	1	2	2	2	2	1	2	1	4	1	1	1	1	2	2	2	2	2		1	99	2	2	2	1
284	22	მდედრობითი	ბათუმი	2	2	4	6	1	6	2		1	3	1	1	2	1	1	3	1	4	1	1	2	1	1	2	3	3	3		1	2	2	2	2	1	

285	24	მდედრობითი	ბათუმი	2	2	1	7	1	6	2		1	1	1	1	1	1	1	1	1	4	1	2	2	1	1	2	3	3	3		1	2	2	2	2	1	
286	22	მდედრობითი	ბათუმი	2	2	4	5	1	6	2		1	3	1	1	1	1	1	1	1	4	1	1	1	1	1	1	3	3	3		1	2	2	2	2	1	
287	25	მდედრობითი	ბათუმი	1	3	1	5	1	6	2		1	1	1	1	2	1	1	1	1	4	1	2	2	1	1	2	3	3	3		1	2	2	2	2	1	
288	21	მდედრობითი	ბათუმი	2	2	2	7	1	6	2		1	1	1	2	1	1	1	1	3	1	5	1	2	2	2	1	2	2	1	2		1	1	2	1	2	1
289	24	მდედრობითი	ბათუმი	1	2	5	6	1	6	2		1	1	1	1	1	1	1	1	1	5	1	1	1	1	1	1	3	3	3		1	2	2	2	2	1	
290	26	მდედრობითი	ბათუმი	1	3	1	5	1	6	2		1	1	1	1	1	1	1	1	1	4	1	1	1	1	1	1	3	3	3		1	2	2	2	2	1	
291	61	მამრობითი	ბათუმი	1	3	1	5	2	6	1		1	1	1	1	1	1	1	1	1	4	1	1	1	1	1	1	3	3	3		1	2	1		1	1	
292	60	მამრობითი	ბათუმი	1	3	1	3	1	6	2		1	1	1	1	1	1	1	1	1	4	1	1	1	1	1	1	3	3	3		1	2	1		1	1	
293	19	მდედრობითი	ბათუმი	2	2	4	5	1	6	1		1	3	1	1	1	1	1	1	1	4	2	2	2	2	1	2	3	3	3		1	2	2	1	1	1	
294	56	მამრობითი	ბათუმი	1	3	1	4	2	6	1		1	1	1	1	2	1	1	1	2	1	4	1	1	1	1	1	2	2	2		1	2	2		1	1	
295	40	მდედრობითი	ბათუმი	1	3	1	5	2	5	2		1	1	1	2	2	1	2	1	2	4	1	1	1	1	1	1	2	2	2		1	2	2		2	1	
296	22	მდედრობითი	ბათუმი	2	2	4	5	1	6	1		1	3	1	1	1	1	1	1	1	5	1	1	1	1	1	1	2	2	2		1	2	2	1	1	1	
297	32	მამრობითი	ბათუმი	2	3	1	4	2	6	2		1	1	1	1	1	1	1	1	1	4	1	1	1	1	1	1	3	3	3		1	1	2		2	1	
298	42	მდედრობითი	ბათუმი	1	3	1	6	1	6	2		1	1	1	2	2	1	2	1	2	4	1	2	2	2	2	2	2	2	2		1	2	2	2	1	2	

299	23	მამრო ბითი	ბათ უმი	2	2	4	4	2	6	2		1	3	1	1	1	1	2	1	2	1	5	1	1	1	1	1	2	2	2		1	2	2		2	1		
300	19	მდედ რობი თი	ბათ უმი	2	3	4	5	2	6	9		2		3	3	3	3	3	3	3	3	3	1	3	3	3	3	3	3	3	3		3	2	1		9 9	1	
301	20	მდედ რობი თი	ბათ უმი	2	2	4	4	2	6	9		2		3	3	3	3	3	3	3	3	3	1	2	3	3	3	3	3	3	3		3	2	1		9 9	1	
302	27	მამრო ბითი	ბათ უმი	2	3	1	4	2	6	2		1	3	1	1	1	1	1	1	1	1	5	1	1	1	1	1	1	2	2	2		1	2	2		2	1	
303	29	მამრო ბითი	ბათ უმი	2	3	1	5	2	6	9		1	1	1	1	2	1	2	1	2	2	4	1	2	2	2	2	1	2	3	3	3		1	2	2		2	1
304	62	მამრო ბითი	ბათ უმი	1	4	1	5	2	6	1		1	5	1	1	1	1	1	1	1	5	1	1	1	1	1	1	1	1	1		1	2	2		1	1		
305	82	მამრო ბითი	ბათ უმი	2	3	1	4	2	6	2		1	1	1	1	2	1	1	1	2	2	4	1	2	2	1	1	2	3	3	3		1	2	1		2	1	
306	30	მამრო ბითი	ბათ უმი	2	3	1	3	2	6	2		1	1	1	1	2	1	1	1	3	3	4	1	2	2	2	2	2	3	3	3		1	2	1		2	1	
307	30	მამრო ბითი	ბათ უმი	2	3	1	2	2	5	3		1	3	3	3	3	3	3	3	3	3	3	1	2	2	2	2	2	3	3	3		1	2	1		1	2	
308	56	მამრო ბითი	ბათ უმი	1	3	1	4	2	5	2		1	1	1	1	2	1	1	1	1	1	4	1	1	1	1	1	1	3	3	3		1	2	2		1	1	
309	33	მამრო ბითი	ბათ უმი	2	3	1	4	2	5	1		1	1	1	2	2	1	2	1	3	3	4	2	2	2	2	2	2	3	3	3		1	2	2		1	1	
310	55	მამრო ბითი	ბათ უმი	1	4	1	3	2	6	2		1	1	1	1	1	1	1	1	1	5	1	1	1	1	1	1	1	2	2	2		1	2	2		1	1	
311	31	მამრო ბითი	ბათ უმი	2	3	3	2	6	2	1		1	1	1	2	2	1	2	1	2	2	4	1	2	2	2	2	2	3	3	3		1	2	2		1	1	
312	29	მდედ რობი თი	ბათ უმი	2	3	1	3	2	6	9		1	3	1	2	2	1	1	1	2	2	4	1	1	1	1	1	1	2	2	2		1	2	2		1	1	

3 1 3	2 2	მდედ რობი თი	ბათ უმი	2	2	4	5	1	6	1		1	1	1	2	1	1	1	1	2	1	5	1	1	1	1	1	3	3	3		1	1	2	2	1	1	
3 1 4	3 2	მამრო ბითი	ბათ უმი	2	3	1	5	2	6	1		1	1	1	1	2	1	1	1	2	2	4	1	2	2	2	1	1	2	2	2		1	2	2		1	1
3 1 5	2 9	მდედ რობი თი	ბათ უმი	2	3	1	4	2	6	2		1	1	1	1	2	1	1	1	2	1	4	1	2	2	2	2	2	3	3	3		1	2	2		1	1
3 1 6	5 9	მამრო ბითი	ბათ უმი	1	4	1	4	2	6	1		1	1	4	5	1	1	1	1	1	1	1	1	5	1	1	1	1	1	1		1	2	2		1	1	
3 1 7	3 0	მდედ რობი თი	ბათ უმი	2	4	1	4	2	6	1		1	4	1	2	1	1	1	1	1	1	5	1	1	1	1	1	1	2	2	2		1	2	1		1	1
3 1 8	3 2	მდედ რობი თი	ბათ უმი	2	3	1	4	2	6	2		1	1	1	1	1	1	1	1	1	1	3	1	1	1	1	1	1	3	3	3		1	2	2		1	1
3 1 9	3 0	მდედ რობი თი	ბათ უმი	2	3	1	4	2	6	1		1	3	1	1	1	1	1	1	1	1	5	1	1	1	1	1	1	3	3	3		1	2	2		1	1
3 2 0	3 1	მამრო ბითი	ბათ უმი	2	3	1	3	2	5	2		1	3	1	2	2	2	2	1	2	2	4	1	2	2	2	2	2	2	2		1	2	1		1	1	
3 2 1	2 6	მდედ რობი თი	ბათ უმი	1	4	1	6	2	5	1		1	5	1	1	1	1	1	1	1	1	5	1	1	1	1	1	1	2	2	2		1	2	2		1	1
3 2 2	2 2	მდედ რობი თი	ბათ უმი	1	2	2	4	6	2	6		9 9	2		3	3	3	3	3	3	3	3	3	3	1	3	3	3	3	3		3	2	1		1	1	
3 2 3	2 7	მდედ რობი თი	ბათ უმი	2	4	1	4	2	6	2		3	1	1	1	1	1	1	1	1	5	1	1	1	1	1	1	1	1	1		1	2	2		1	2	
3 2 4	5 2	მამრო ბითი	ბათ უმი	1	2	1	4	2	6	2		1	1	1	1	2	1	1	1	2	1	5	1	1	1	1	1	1	3	3	3		1	2	1		1	1
3 2 5	1 9	მდედ რობი თი	ბათ უმი	2	2	4	5	2	6	1		2		3	3	3	3	1	1	3	1	3	1	1	2	2	2	2	3	3	3		2	2	2		2	1
3 2 6	2 9	მამრო ბითი	ბათ უმი	1	4	1	4	1	6	2		1	1	1	2	2	2	1	1	3	3	4	1	3	1	1	1	1	1	2	1		1	2	2	2	1	1

3 2 7	3 0	მამრო ბითი	ბათ უმი	1	4	1	3	1	6	1		1	1	1	1	1	1	1	3	3	2	1	3	1	1	1	1	3	3	3		1	2	2	2	1	1	
3 2 8	5 5	მამრო ბითი	ბათ უმი	1	1	1	5	2	6	2		1	5	1	1	2	1	1	3	1	5	1	1	1	1	1	1	3	3	3		1	2	2		1	1	
3 2 9	3 1	მამრო ბითი	ბათ უმი	1	4	1	4	1	5	2		1	1	1	2	2	1	1	1	1	4	1	1	1	1	1	2	2	2	2		1	2	2	2	1	1	
3 3 0	5 7	მამრო ბითი	ბათ უმი	1	3	1	4	2	6	2		1	4	1	1	2	1	1	3	3	4	1	1	1	1	1	1	3	3	3		1	2		1	1	1	
3 3 1	4 4	მდედ რობი თი	ბათ უმი	1	3	1	3	2	3	9		1	5	1	1	2	2	2	1	2	2	2	1	2	2	2	2	2	2	2		1	1	1		2	1	
3 3 2	2 9	მამრო ბითი	ბათ უმი	1	3	1	4	1	6	2		1	1	1	1	2	1	1	1	1	4	1	2	1	1	1	1	2	2	2		1	2	2	2	1	1	
3 3 3	4 2	მდედ რობი თი	ბათ უმი	1	3	1	5	2	4	2		1	1	1	1	2	2	2	2	2	3	1	2	2	2	2	2	2	2		1	2	2		2	1		
3 3 4	2 8	მამრო ბითი	ბათ უმი	1	4	1	3	1	6	1		1	1	3	2	2	2	2	1	2	2	4	2	1	2	2	2	3	3	3		2	2	1	9 9	1	1	
3 3 5	2 5	მდედ რობი თი	ბათ უმი	2	3	1	2	6	2	1		1	1	1	1	1	1	1	5	1	1	1	1	1	1	1	1	3	3	3		1	2	2		1	1	
3 3 6	2 8	მდედ რობი თი	ბათ უმი	2	5	1	5	2	6	2		1	1	5	1	1	1	1	1	1	5	1	1	1	1	1	1	1	1		1	2	2		1	1		
3 3 7	3 0	მამრო ბითი	ბათ უმი	1	4	1	4	1	6	2		1	1	1	1	2	1	1	1	1	5	1	1	1	1	1	1	2	2	2		1	2	2	2	1	1	
3 3 8	4 3	მდედ რობი თი	ბათ უმი	1	3	1	5	2	5	2		1	1	1	2	2	2	2	1	2	2	3	1	2	2	2	2	2	2		1	2	2		2	1		
3 3 9	2 9	მამრო ბითი	ბათ უმი	1	4	1	4	1	6	2		1	1	1	1	2	1	1	1	3	1	4	1	1	1	1	2	2	3	3	3		2	2	2	1	1	1
3 4 0	1 8	მდედ რობი თი	ბათ უმი	2	2	2	6	2	6	1		2		3	3	3	1	3	1	3	1	3	2	2	2	2	2	3	3	3		1	2	2		2	1	

3 4 1	1 9	მდედ რობი თი	ბათ უმი	2	2	4	5	2	6	9		2		3	3	3	3	3	2	3	3	3	2	2	2	2	2	2	3	3	3		1	2	2		2	1
3 4 2	2 3	მდედ რობი თი	ბათ უმი	2	2	2	6	1	6	2		1	1	1	2	1	1	1	1	3	1	5	1	2	2	2	1	1	2	1	2		1	1	2	1	2	1
3 4 3	2 0	მდედ რობი თი	ბათ უმი	2	2	2	6	2	6	9		2		3	3	3	3	3	1	3	1	3	2	2	2	2	2	2	3	3	3		1	2	2		2	1
3 4 4	2 3	მდედ რობი თი	ბათ უმი	2	2	4	4	2	6	1		2		1	3	3	3	3	1	3	1	3	2	2	2	2	2	2	3	3	3		2	2	2		2	1
3 4 5	4 0	მდედ რობი თი	ბათ უმი	1	3	1	4	2	3	9		1	5	1	1	2	2	2	1	2	2	2	1	2	2	2	2	2	2	2	2		1	1	1		2	1
3 4 6	2 0	მდედ რობი თი	ბათ უმი	2	2	1	7	2	5	2		2		1	2	1	1	1	1	1	1	4	1	2	2	2	2	2	2	1	2		2	1	2		2	1
3 4 7	2 5	მდედ რობი თი	ბათ უმი	2	2	1	6	2	6	2		1	1	1	2	2	1	1	1	1	1	4	1	1	1	1	1	1	3	3	3		1	2	2		2	1
3 4 8	2 0	მდედ რობი თი	ბათ უმი	2	2	4	5	2	6	1		1	1	1	2	2	1	1	1	2	1	4	1	1	1	1	1	1	3	3	3		1	2	2		1	1
3 4 9	4 2	მდედ რობი თი	ბათ უმი	1	3	1	5	2	6	2		1	1	1	1	1	1	1	1	2	1	4	1	2	2	2	2	2	3	3	3		1	2	2		2	1
3 5 0	4 0	მდედ რობი თი	ბათ უმი	1	3	1	4	2	5	2		1	5	1	1	1	1	1	1	2	1	4	1	1	1	1	1	1	2	2	2		1	2	2		2	1
3 5 1	2 9	მდედ რობი თი	ბათ უმი	2	3	1	3	1	5	2		1	1	1	1	2	1	1	1	1	1	5	1	1	1	1	1	1	3	3	3		1	2	1		1	1
3 5 2	2 3	მდედ რობი თი	ბათ უმი	2	3	1	5	2	6	1		1	3	1	1	1	1	1	1	1	1	5	1	1	1	1	1	1	3	3	3		1	2	2		1	1
3 5 3	2 9	მამრო ბითი	ბათ უმი	1	3	1	5	1	6	2		1	1	1	1	1	1	1	1	1	1	5	1	1	1	1	1	1	1	1	1		1	2	2	2	1	1
3 5 4	2 7	მამრო ბითი	ბათ უმი	1	3	1	5	1	5	2		1	1	1	1	2	1	1	1	1	1	5	1	1	1	1	1	1	1	2	2		1	2	2	2	1	1

3 5 5	3 0	მამრო ბითი	ბათ უმი	1	3	1	4	1	6	2		1	3	1	1	1	1	1	2	1	4	1	1	1	1	1	1	2	2		1	2	1	2	1	1	
3 5 6	4 4	მდედ რობი თი	ბათ უმი	1	3	1	3	2	6	2		1	1	1	2	2	1	1	1	1	4	1	2	2	2	2	2	3	3	3		1	2	2		2	1
3 5 7	4 2	მდედ რობი თი	ბათ უმი	1	3	1	5	2	6	9		1	1	1	1	1	1	1	1	1	4	1	1	1	1	1	3	3	3		1	2	2		2	1	
3 5 8	4 3	მდედ რობი თი	ბათ უმი	1	3	1	5	2	6	2		1	1	1	1	1	1	1	1	1	4	1	2	2	2	2	2	2	2	2	2	2	2		1	2	1
3 5 9	2 5	მდედ რობი თი	ბათ უმი	2	3	1	2	2	5	2		1	4	1	1	1	1	1	1	1	4	1	1	1	1	1	3	3	3		1	2	1		1	1	
3 6 0	2 9	მდედ რობი თი	ბათ უმი	2	3	4	2	6	1	1		1	5	1	1	1	1	1	1	1	4	1	1	1	1	1	3	3	3		1	2	2		1	1	
3 6 1	4 5	მდედ რობი თი	ბათ უმი	1	3	1	4	2	6	9		1	1	1	1	2	1	1	1	2	2	4	1	2	2	2	2	3	3	3		1	2	2		2	1
3 6 2	4 2	მდედ რობი თი	ბათ უმი	1	3	1	5	2	5	9		1	1	1	1	2	1	2	1	3	2	4	1	2	2	2	2	3	3	3		1	2	2		2	1
3 6 3	2 7	მდედ რობი თი	ბათ უმი	2	3	1	4	2	6	2		1	2	1	1	1	1	1	1	1	5	1	1	1	1	1	2	2	2		1	2	2		1	1	
3 6 4	4 3	მდედ რობი თი	ბათ უმი	1	3	1	6	2	5	2		1	1	1	1	3	1	3	1	3	4	1	2	2	2	2	3	3	3		1	2	2		2	1	
3 6 5	2 8	მდედ რობი თი	ბათ უმი	2	4	1	4	2	6	2		1	3	1	1	1	1	1	1	1	4	1	1	1	1	1	2	2	2		1	2	2		1	1	
3 6 6	2 2	მდედ რობი თი	ბათ უმი	2	2	1	5	2	6	2		2		1	2	1	1	1	1	1	4	1	2	2	2	2	2	2	2		2	1	1		2	1	
3 6 7	2 0	მდედ რობი თი	ბათ უმი	2	2	4	2	2	6	2		2		3	3	3	3	3	1	3	1	3	2	2	2	2	3	3	3		2	2	2		2	1	
3 6 8	2 3	მდედ რობი თი	ბათ უმი	2	2	4	7	2	6	2		2		2	2	2	2	2	1	2	1	2	2	2	2	2	2	2	2		2	2	2		2	1	

3 6 9	2 0	მდედ რობი თი	ბათ უმი	2	2	1	5	2	6	2		2		3	3	3	3	3	1	3	3	3	2	2	2	2	2	2	3	3	3		2	2	2		2	1
3 7 0	4 1	მდედ რობი თი	ბათ უმი	1	3	5	5	2	5	2		1	1	1	2	2	1	2	1	2	2	4	1	1	1	1	1	1	3	3	3		1	2	2		1	1
3 7 1	1 9	მდედ რობი თი	ბათ უმი	2	2	4	5	2	6	1		2		1	3	3	3	3	3	3	3	3	2	2	2	2	2	2	3	3	3		2	2	2		1	2
3 7 2	2 1	მდედ რობი თი	ბათ უმი	2	2	4	7	1	6	1		2		1	2	2	2	2	1	3	3	3	1	2	2	2	2	2	2	1	2		2	1	2	2	1	1
3 7 3	2 5	მდედ რობი თი	ბათ უმი	2	2	4	6	1	6	2		2		1	2	2	2	2	1	2	2	3	1	1	2	2	2	2	3	3	3		2	2	2	2	2	1
3 7 4	2 2	მდედ რობი თი	ბათ უმი	2	2	4	5	2	4	2		2		1	2	2	2	1	2	2	2	3	1	2	2	1	1	2	2	2	2		1	1	2		2	1
3 7 5	2 6	მდედ რობი თი	ბათ უმი	2	2	2	5	2	7	2		1	1	1	2	2	2	2	1	2	2	4	1	2	2	1	1	2	2	1	2		2	1	2		2	1
3 7 6	2 5	მდედ რობი თი	ბათ უმი	2	2	2	4	2	7	2		2		1	2	2	2	2	1	2	2	4	1	2	2	1	1	2	3	1	3		3	9 9	2		2	1
3 7 7	2 0	მდედ რობი თი	ბათ უმი	2	2	2	3	2	5	2		2		1	2	2	2	2	1	2	2	4	1	2	2	2	1	2	3	1	3		2	9 9	2		2	2
3 7 8	2 7	მამრო ბითი	ბათ უმი	2	2	1	4	2	4	2		2		2	2	2	2	2	1	2	2	3	1	2	2	1	2	2	3	3	3		1	2	2		2	1
3 7 9	3 1	მდედ რობი თი	ბათ უმი	1	3	1	5	1	4	2		1	1	1	2	2	1	2	1	2	1	4	1	1	1	1	1	2	3	3	3		1	2	2	2	2	1
3 8 0	2 4	მამრო ბითი	ბათ უმი	1	2	1	5	1	7	3		1	4	1	2	2	2	1	1	2	2	4	1	2	2	2	1	2	2	2	2		1	2	2	1	2	1
3 8 1	2 2	მდედ რობი თი	ბათ უმი	2	2	4	5	1	5	3		1	1	2	2	2	2	2	1	2	2	3	1	2	2	1	1	2	2	2	2		2	2	2	9 9	2	1
3 8 2	2 7	მდედ რობი თი	ბათ უმი	2	2	2	4	2	7	2		1	4	1	2	2	2	1	1	2	2	4	1	2	2	2	1	2	3	3	3		2	2	2		2	1

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Appendix 5. Survey Data Collected from Respondents in Eastern Georgia

5.5. იყენებს თუ არა თქვენი ოჯახი სხვა ქვეყნების პროდუქტებს, როგორცაა	1	1	1	1
5.4. გაქვთ თუ არა სამუშაო ან ჰობი, რომელიც გულისხმობს ტყვიის	1	1	1	1
5.3. თქვენს ოჯახში მცხოვრები ბავშვი იდებს თუ არა პირში ხელებს ან				
5.2. ცხოვრობთ თუ არა ან რეგულარულად სტუმრობთ მგელ სახლს ან სხვა	1	2	2	1
5.1. გქონიათ თუ არა თქვენს სახანძრობში მყოფ პირს სისხლში ტყვიის	2	2	2	2
4.4. გჯერათ, რომ ბავშვები ტყვით მოშამგვის უფრო მაღალი რისკის ქვეშ	3	2	1	3
4.3.4. თქვენი აზრით სხვა რა დაავადების გავრცელება შეუძლია ტყვით				
4.3.3. თქვენი აზრით შეუძლია ტყვით მოშამგვას გამოიწვიოს თირკმლის	3	3	3	3
4.3.2. თქვენი აზრით შეუძლია ტყვით მოშამგვას გამოიწვიოს ანემია ? 1. კი.	3	3	3	3
4.3.1. თქვენი აზრით შეუძლია ტყვით მოშამგვას გამოიწვიოს გულ-	3	3	3	3
4.2.6. რამდენად მნიშვნელოვანია ადამიანის ჯანმრთელობისთვის სამრეწველო	2	2	2	2
4.2.5. რამდენად მნიშვნელოვანია ადამიანის ჯანმრთელობისთვის სუნელების	1	1	1	1
4.2.4. რამდენად მნიშვნელოვანია ადამიანის ჯანმრთელობისთვის ბავშვის	3	2	3	2
4.2.3. რამდენად მნიშვნელოვანია ადამიანის ჯანმრთელობისთვის საღებავის	2	3	2	2
4.2.2. რამდენად მნიშვნელოვანია ადამიანის ჯანმრთელობისთვის სამკურნალო	3	3	3	3
4.2.1. რამდენად მნიშვნელოვანია ადამიანის ჯანმრთელობისთვის სახლის	1	1	1	1
4.1. თქვენი აზრით მოქმედებს ტყვია, როგორც მეტალი ჯანმრთელობაზე? 1. არა;	3	3	3	3
3.5.8. უკავშირდება თუ არა ტყვით მოშამგვას ტყვიის შემცველი	3	2	3	3
3.5.7. უკავშირდება თუ არა ტყვით მოშამგვას ტყვიის შემცველი	3	2	3	3
3.5.6. უკავშირდება თუ არა ტყვით მოშამგვას ტყვიის შემცველი	1	1	1	1
3.5.5. უკავშირდება თუ არა ტყვით მოშამგვას ტყვიის შემცველი	1	1	1	1
3.5.4. უკავშირდება თუ არა ტყვით მოშამგვას ტყვიის შემცველი საკვები-1.	2	1	1	1
3.5.3. უკავშირდება თუ არა ტყვით მოშამგვას ტყვით დაბინძურებული	1	1	2	3
3.5.2. უკავშირდება თუ არა ტყვით მოშამგვას ტყვით დაბინძურებული	1	1	2	2
3.5.1. უკავშირდება თუ არა ტყვით მოშამგვას ტყვიის შემცველი საღებავები;	1	1	1	1
3.4. თუ დიახ საიდან იღებთ ინფორმაციას ტყვიის მოშამგვის	1	5	1	1
3.3 თუ იღებთ ინფორმაციას ტყვიის მოშამგვის შესახებ? 1. დიახ; 2. არა; 99.	1	1	1	1
3.2. თუ არ დასასხელა გსენიათ თუ არა ტყვიის მოშამგვის შესახებ? 1. დიახ; 2.				
3.1. ტყვიის მოშამგვასთან დაკავშირებული მართადად სიმოტიომი: 1. სწავლის	2	2	1	2
2.9. ოჯახის/ცოცხელი თქვენი შვილისაგან: 1. <250; 2. 251-500; 3. 501-1000; 4. 1001-	4	3	7	6
2.8. ცხოვრობს თუ არა თქვენს სახლში ნწლის ქვემოთ ასაკის ბავშვი? 1. კი; 2. არა	2	2	2	2
2.7. რამდენი ადამიანი ცხოვრობს თქვენს სახლში ბინაში?	3	3	3	4
2.6. საქმიანობა: 1. დასაქმებული; 2. უმუშევარი; 3. პენსიონერი; 4. სტუდენტი; 5.	1	1	2	2
2.5. განათლება: 1. არს. საშუალო; 2. საშუალო; 3. მაღალ; 4:	2	2	2	2
2.4. ოჯახური მდგომარეობა 1. ყვეს შვილები; 2. რ. ყვეს შვილები	2	1	1	1
2.3. ქალაქი	მცხ	მცხ	მცხ	მცხ
2.2. სქესი	მამრო	მამრო	მამრო	მამრო
2.1. ასაკი	5	6	5	6
N	1	2	3	4

5	5	მდედ რობი თი	მცხ ეთა	2	3	1	3	2	3	9			1	3	1	3	3	3	1	1	3	3	5	1	3	1	1	1	1	3	3	3		1	1	2		2	1
6	5	მდედ რობი თი	მცხ ეთა	1	2	5	5	1	9	3			1	1	1	3	3	3	1	1	3	3	5	1	3	1	1	2	2	3	3	3		1	2	2	1	2	1
7	3	მამრო ბითი	მცხ ეთა	1	2	1	4	1	4	2			1	3	1	2	2	1	1	1	3	3	4	1	3	2	1	1	2	3	3	3		1	1	1	1	1	
8	3	მამრო ბითი	მცხ ეთა	2	3	1	4	2	4	3			1	4	1	2	2	1	1	1	1	3	5	1	3	1	2	1	2	3	1	3		2	1	1		2	9
9	4	მამრო ბითი	მცხ ეთა	1	3	1	4	1	5	2			1	1	1	1	2	2	2	1	2	2	3	1	3	2	3	1	3	2	2	2		2	2	1	2	2	1
1	5	მამრო ბითი	მცხ ეთა	1	2	2	3	2	3	1			1	4	1	2	2	1	1	1	2	2	4	2	2	2	2	1	3	2	2	2		3	2	1		2	2
1	6	მდედ რობი თი	მცხ ეთა	1	2	5	5	1	9	1			1	1	1	3	3	3	1	1	3	3	5	1	3	1	1	1	1	3	3	3		1	1	2	2	2	1
1	7	მდედ რობი თი	მცხ ეთა	1	2	3	5	1	7	1			1	1	1	1	2	1	1	3	3	4	1	3	2	1	2	3	3	3	3	3		1	2	2	2	1	
1	6	მდედ რობი თი	მცხ ეთა	1	2	5	5	1	5	2			2		2	2	2	2	2	2	2	2	2	3	1	3	3	1	3	2	2	2		2	9	1	1	2	2
1	4	მდედ რობი თი	მცხ ეთა	1	2	1	5	2	7	5			1	1	1	2	2	1	2	2	2	2	3	1	3	2	2	1	1	2	2	2		2	2	2		2	1
1	7	მამრო ბითი	მცხ ეთა	1	2	3	3	2	9	2			1	1	2	2	2	1	2	1	2	3	3	1	3	2	3	1	3	2	2	2		1	2	1		2	9
1	6	მამრო ბითი	მცხ ეთა	1	2	1	5	1	9	1			1	1	1	2	2	1	1	1	2	2	3	1	3	2	2	1	2	3	3	3		1	2	1	1	1	1
1	4	მდედ რობი თი	მცხ ეთა	1	2	5	6	2	7	3			1	1	1	2	2	2	2	1	2	2	4	1	3	2	1	3	3	2	1	2		2	2	9		2	2
1	6	მდედ რობი თი	მცხ ეთა	1	3	1	5	1	9	2			1	5	1	1	2	1	1	1	3	3	5	1	2	1	2	2	3	3	3	3		1	2	9		2	2
1	5	მდედ რობი თი	მცხ ეთა	1	2	5	6	1	5	9			1	1	1	2	2	3	1	1	3	3	4	1	3	1	1	2	3	3	2	3		1	2	2		2	1
2	5	მდედ რობი თი	მცხ ეთა	2	3	1	3	2	3	9			1	3	1	3	3	3	1	1	2	2	4	1	3	1	1	1	1	1	3	3		1	1	2		2	1

2 1	5 2	მდედ რობი თი	მცხ ეთა	1	2	5	5	2	5	2		1	5	1	2	2	1	1	1	3	3	4	1	3	2	1	1	3	2	2	2		1	2	2		1	9 9
2 2	4 9	მდედ რობი თი	მცხ ეთა	1	1	2	5	4	2	7		1	1	1	1	2	2	1	1	1	3	4	1	3	2	1	1	3	3	3	3		1	2	2		2	1
2 3	3 3	მდედ რობი თი	მცხ ეთა	2	2	1	3	2	2	3		1	3	1	2	2	2	1	2	2	2	4	1	1	1	2	3	3	2	1	3		1	9 9	2		2	1
2 4	4 0	მდედ რობი თი	მცხ ეთა	1	2	1	5	2	5	1		1	1	1	2	2	2	1	2	2	2	4	1	3	1	2	3	3	2	1	2		1	2	2		2	1
2 5	3 5	მდედ რობი თი	მცხ ეთა	1	2	5	4	1	4	1		2		2	2	2	2	2	2	2	4	2	3	3	2	3	3	2	2	2	2		2	9 9	2	1	2	1
2 6	3 6	მდედ რობი თი	მცხ ეთა	1	3	1	4	2	4	3		1	1	1	1	2	1	1	1	3	3	4	1	2	2	1	1	3	2	1	2		3	9 9	1		2	1
2 7	4 2	მდედ რობი თი	მცხ ეთა	1	2	5	5	2	5	1		1	4	1	3	3	3	1	1	2	2	4	1	3	2	1	1	3	2	2	2		1	2	1		2	1
2 8	4 7	მდედ რობი თი	მცხ ეთა	1	2	5	6	1	5	4		1	5	1	2	2	1	1	1	1	2	4	1	1	2	1	1	2	2	1	2		1	2	2	1	2	9 9
2 9	2 3	მდედ რობი თი	მცხ ეთა	2	3	4	7	1	7	1		1	1	2	2	2	2	2	1	2	2	3	1	3	2	3	1	3	2	2	2		2	2	2	2	2	9 9
3 0	2 0	მდედ რობი თი	მცხ ეთა	2	2	4	5	1	5	4		1	3	1	2	2	2	1	1	2	2	4	1	3	3	1	3	3	2	2	2		1	2	2	9 9	2	1
3 1	6 2	მამრო ბითი	მცხ ეთა	1	3	1	2	2	3	3		1	1	1	1	3	1	3	1	3	3	5	1	1	1	3	3	3	3	3		1	2	2	2	1	9 9	
3 2	4 3	მამრო ბითი	მცხ ეთა	2	3	1	3	2	4	1		1	1	1	1	1	2	1	2	2	3	1	3	1	3	1	3	2	2	2		2	9 9	2		2	1	
3 3	3 0	მამრო ბითი	მცხ ეთა	1	3	1	5	1	5	2		1	3	1	1	2	1	2	1	3	2	3	1	2	2	1	1	3	2	2	2		1	2	2	1	2	9 9
3 4	7 0	მამრო ბითი	მცხ ეთა	1	2	3	2	2	9 9	9 9		2		3	3	3	3	3	3	3	3	1	1	3	3	3	3	3	2	2	2		2	9 9	1		1	2
3 5	5 9	მდედ რობი თი	მცხ ეთა	1	3	1	3	2	3	1		1	1	1	1	3	3	3	1	2	2	5	1	1	1	3	3	3	2	2	3		1	2	2		1	9 9

[illegible]

5 4	4 0	მდედ რობი თი	მცხ ეთა	1	2	5	5	1	5	2		1	1	1	1	2	2	2	1	2	2	4	1	2	2	1	1	1	2	2	2		1	1	1	1	1
5 5	2 6	მდედ რობი თი	მცხ ეთა	1	3	1	3	2	7	1		1	3	1	2	2	2	2	1	2	1	4	1	2	1	1	1	1	3	3	3		1	1	1		1
5 6	5 2	მდედ რობი თი	მცხ ეთა	1	1	2	2	5	2	2		1	1	1	1	1	2	2	2	2	2	4	1	2	1	1	1	1	1	1	1		1	9 9	1		1
5 7	4 3	მამრო ბითი	მცხ ეთა	1	3	1	3	2	9	1		1	1	1	1	2	2	2	2	2	1	2	3	1	1	2	1	2	2	1	1	1		2	2	2	1
5 8	2 5	მამრო ბითი	მცხ ეთა	1	3	2	5	2	7	2		1	3	1	2	2	2	2	2	2	2	3	2	2	2	2	2	2	3	3	3		1	2	1		1
5 9	3 2	მდედ რობი თი	მცხ ეთა	1	3	1	4	2	5	2		1	1	1	1	2	2	2	1	2	2	4	1	2	2	2	2	2	3	3	3		1	9 9	2		1
6 0	2 7	მდედ რობი თი	მცხ ეთა	1	2	2	4	4	2	5		1	2		1	2	2	2	2	2	2	4	1	2	2	1	2	2	3	3	3		2	2	2		1
6 1	4 8	მდედ რობი თი	მცხ ეთა	1	2	5	6	1	9	1		1	1	1	1	2	2	2	2	2	2	4	1	2	1	1	2	2	1	1	1		1	1	2	2	1
6 2	3 5	მდედ რობი თი	მცხ ეთა	1	2	5	5	1	5	2		1	1	1	2	2	2	2	2	2	2	4	1	2	2	1	2	2	1	1	1		1	2	1	1	1
6 3	2 2	მდედ რობი თი	მცხ ეთა	2	2	4	5	2	9	1		1	3	1	2	2	2	1	1	2	2	3	1	2	2	1	1	2	1	1	2		1	2	2		2
6 4	4 1	მდედ რობი თი	მცხ ეთა	1	3	1	3	1	5	2		1	4	1	2	2	2	2	2	2	2	2	1	2	2	2	2	2	3	3	3		1	1	2	1	1
6 5	3 0	მამრო ბითი	მცხ ეთა	2	3	2	5	2	7	1		2		2	2	2	2	2	2	2	2	3	2	2	2	2	2	2	3	3	3		2	9 9	1		1
6 6	4 8	დედრ ობით ი	გორ ი	1	3	1	2	2	3	3		2		1	2	2	2	1	1	2	2	2	2	2	2	2	2	2	3	3	3		3	2	1		2
6 7	6 2	მდედ რობი თი	გორ ი	1	2	3	4	2	9	9		1	1	1	1	2	1	1	1	2	2	4	1	1	2	2	1	1	1	1	2		1	2	2		2
6 8	4 5	მდედ რობი თი	გორ ი	1	3	1	3	2	4	2		2		1	2	2	1	2	1	2	2	1	2	3	2	2	2	2	2	2	2		3	2	2	2	1

6 9	6 8	მდედ რობი თი	გორ ი	1	3	3	3	2	3	2		1	1	1	2	2	2	2	1	2	2	3	1	2	1	2	1	3	3	3	3		1	2	2		2	1
7 0	7 0	მდედ რობი თი	გორ ი	1	2	3	2	2	3	9		1	4	1	1	2	1	1	1	2	2	4	1	2	1	1	1	2	3	3	3		1	2	2		2	1
7 1	3 2	მდედ რობი თი	გორ ი	1	3	5	4	1	3	1		2		1	2	2	1	2	1	2	2	4	1	3	2	1	1	3	2	2	3		1	2	1	1	1	1
7 2	3 7	მდედ რობი თი	გორ ი	1	3	1	6	1	4	4		2		1	2	2	1	2	1	2	2	3	1	2	2	1	1	2	2	2	2		1	2	1	1	1	1
7 3	3 0	მდედ რობი თი	გორ ი	1	3	1	4	1	4	2		2		1	2	2	1	2	1	2	2	3	1	3	2	2	1	2	3	3	3		1	1	2	2	1	1
7 4	7 2	მდედ რობი თი	გორ ი	1	2	3	5	1	5	9		1	1	1	1	2	2	2	1	2	2	4	1	2	2	1	1	2	3	3	3		1	2	2	2	2	1
7 5	6 5	მდედ რობი თი	გორ ი	1	2	3	2	2	2	9		1	3	1	1	2	1	1	1	3	3	4	2	2	2	1	2	3	1	2	2		1	9	2		2	1
7 6	4 9	მდედ რობი თი	გორ ი	1	2	5	5	1	4	1		2		2	2	2	2	1	1	2	2	2	1	2	2	2	1	2	3	2	3		1	2	2		2	1
7 7	3 2	მდედ რობი თი	გორ ი	1	3	5	5	1	5	2		2		1	2	2	1	1	1	3	3	3	1	3	2	1	1	2	3	3	3		1	2	1	1	1	1
7 8	3 3	მდედ რობი თი	გორ ი	1	3	1	3	1	4	2		2		1	2	2	1	1	1	1	2	4	1	3	1	1	1	2	2	2	2		1	2	1	1	1	1
7 9	5 0	მდედ რობი თი	გორ ი	1	3	1	4	2	3	2		2		2	2	2	2	1	2	2	2	3	1	2	2	2	2	2	3	3	3		2	2	2		2	1
8 0	4 5	მდედ რობი თი	გორ ი	1	2	5	5	2	3	1		2		2	2	2	2	2	2	2	2	1	2	2	2	2	2	2	3	3	3		3	2	2		2	1
8 1	4 5	მდედ რობი თი	გორ ი	1	3	1	4	2	3	2		2		2	2	1	2	2	3	1	2	2	1	2	2	2	2	3	2	2	2		3	2	2		2	2
8 2	6 6	მდედ რობი თი	გორ ი	1	2	1	3	2	7	2		1	4	1	1	1	1	1	1	3	1	5	1	1	1	1	1	1	1	1	1		1	2	1		1	2

83	60	მდედ რობი თი	გორ ი	1	2	1	3	2	4	2		1	1	1	1	1	1	1	1	5	1	1	1	1	1	1	3	3	3	3		1	2	1		1	2	
84	35	მდედ რობი თი	გორ ი	1	3	2	5	1	4	1		2		1	2	2	1	3	1	3	3	3	1	3	2	1	1	2	3	3	3		1	2	2	2	1	1
85	68	მამრო ბითი	გორ ი	1	2	1	4	2	4	4		2		5	2	1	2	1	1	1	1	1	5	1	3	3	2	2	1	1	3		1	2	1		1	1
86	35	მდედ რობი თი	გორ ი	1	2	1	4	1	4	2		2		1	2	1	1	1	1	2	2	3	1	3	2	1	1	3	2	2	2		1	2	1	2	1	1
87	36	მდედ რობი თი	გორ ი	1	3	1	4	1	4	2		2		1	2	2	1	1	1	2	2	4	1	2	2	1	1	2	3	3	2		1	2	1	1	1	1
88	70	მდედ რობი თი	გორ ი	1	3	1	2	2	6	9		1	1	1	1	1	1	1	1	3	1	5	1	1	1	1	1	1	1	1		2	1	1		1	1	
89	67	მამრო ბითი	გორ ი	1	2	1	5	2	4	1		1	5	2	1	2	1	1	1	1	1	5	1	1	3	3	2	1	1	1	2		1	2	1		1	1
90	52	მამრო ბითი	გორ ი	1	2	2	5	1	4	2		1	4	1	2	2	3	3	1	3	3	4	1	3	2	1	2	1	3	3	3		1	2	1	2	1	1
91	50	მამრო ბითი	გორ ი	1	2	1	5	1	6	2		1	4	1	3	2	3	1	1	3	3	3	1	3	1	1	2	2	3	3	3		1	2	1	2	1	1
92	39	მდედ რობი თი	გორ ი	1	3	1	5	1	3	4		2		1	2	2	1	2	2	2	2	4	1	2	2	2	1	2	2	3	3		1	2	1	1	1	2
93	32	მდედ რობი თი	გორ ი	1	3	1	4	1	9	2		2		1	2	1	1	1	1	2	2	3	1	3	2	1	1	2	2	2	2		1	2	1	1	1	1
94	48	მდედ რობი თი	გორ ი	1	2	1	5	1	5	1		1	1	2	2	2	1	1	1	3	3	5	1	1	3	2	2	2	2	1	1		1	2	2	1	1	1
95	20	მდედ რობი თი	გორ ი	2	2	4	6	1	5	9		2		3	3	3	3	3	1	3	3	1	1	3	3	3	3	3	2	1	2		2	2	1	1	2	2
96	45	მდედ რობი თი	გორ ი	1	3	1	4	1	4	1		1	1	2	2	2	1	1	1	2	2	5	1	1	2	2	2	2	1	1	1		1	1	2	9 9	1	1
97	51	მამრო ბითი	გორ ი	1	2	1	4	2	4	2		1	1	1	3	3	3	1	1	3	3	3	1	3	1	3	2	1	2	3	3		1	2	1		1	1

98	38	მდედრობითი	გორი	1	2	5	5	2	3	2		2		1	2	1	1	1	1	3	3	4	2	2	2	1	1	2	2	2		1	2	1		1	1	
99	34	მამრობითი	გორი	1	2	1	2	2	3	2		1	1	2	1	2	1	2	2	2	2	3	2	3	3	2	1	3	1	1	2		3	2	2		1	2
100	37	მამრობითი	გორი	2	2	1	2	2	3	2		1	1	2	1	2	1	2	2	2	2	3	2	3	3	2	1	3	1	1	2		3	2	2		1	2
101	39	მამრობითი	გორი	1	2	1	3	2	3	2		1	1	1	1	2	1	2	2	2	2	3	2	3	3	2	1	3	1	1	3		3	2	1		1	2
102	33	მამრობითი	გორი	2	1	2	3	1	3	2		1	1	1	1	1	2	1	2	2	2	3	2	3	3	3	2	1	3	3	3		3	2	2		1	2
103	44	მდედრობითი	გორი	1	3	1	4	1	5	2		1	1	3	2	2	2	1	1	3	1	5	1	1	1	3	2	2	1	1	1		1	2	2	2	1	1
104	25	მდედრობითი	გორი	2	2	2	4	2	7	9		2		2	2	2	3	3	1	2	3	1	1	3	3	3	3	3	3	3		2	1		2	2		
105	32	მამრობითი	გორი	1	3	1	4	1	3	1		1	1	1	1	1	1	1	1	2	2	4	2	3	3	1	1	1	3	3		1	2	1	1	1	1	
106	54	მამრობითი	გორი	1	2	1	6	1	6	1		1	1	1	3	3	3	3	1	3	3	3	1	3	2	2	1	1	3	3	3		2	2	1	2	1	1
107	50	მამრობითი	გორი	1	2	1	3	2	4	2		1	1	1	3	3	3	1	1	3	3	4	1	3	1	3	3	3	2	2	2		2	2	2		1	1
108	50	მამრობითი	გორი	1	2	1	6	2	6	2		1	5	1	1	2	2	2	1	3	3	4	1	3	1	2	1	1	3	3	3		1	2	2		1	1
109	53	მდედრობითი	გორი	1	3	1	3	2	4	2		1	4	1	1	3	1	3	1	3	3	4	1	2	1	1	2	2	3	3	3		1	2	2		2	1
110	40	მდედრობითი	გორი	1	3	1	4	2	4	2		1	1	1	1	3	1	3	1	3	3	4	1	2	1	1	2	2	3	3	3		1	2	2		2	1
111	49	მდედრობითი	გორი	1	2	2	3	2	4	1		1	9	1	2	3	1	1	1	3	3	4	1	2	2	1	2	2	3	3	3		1	2	2		2	1

1 1 2	3 2	მამრო ბითი	გორ ი	2	2	1	3	2	3	1		1	1	1	1	2	1	2	1	2	2	3	2	3	3	3	2	1	3	3	3		3	2	1		1	2
1 1 3	5 2	მამრო ბითი	გორ ი	1	2	1	5	2	6	2		1	1	1	2	2	3	1	1	3	3	4	1	3	1	1	1	1	3	3	3		1	2	1		1	1
1 1 4	5 9	მამრო ბითი	გორ ი	1	2	3	6	2	5	2		1	1	1	2	2	3	1	1	3	3	4	1	3	1	2	3	2	3	3	3		1	2	1		1	1
1 1 5	5 6	მამრო ბითი	გორ ი	1	2	1	4	2	6	1		1	3	2	3	2	2	3	1	3	3	5	3	3	3	3	2	2	3	3	3		1	2	1		2	1
1 1 6	5 4	მამრო ბითი	გორ ი	1	2	1	5	2	4	1		1	3	3	3	3	2	1	1	3	3	5	3	3	3	3	3	2	3	3	3		1	2	1		2	1
1 1 7	5 7	მდედ რობი თი	გორ ი	1	2	3	5	1	5	2		1	4	1	1	2	2	2	1	3	3	4	1	2	2	1	2	3	3	3	3		1	2	2	2	2	2
1 1 8	3 1	მამრო ბითი	გორ ი	2	2	1	3	2	3	2		1	1	1	1	2	1	2	1	2	2	3	2	3	3	2	1	3	2	2	2		3	2	2		1	2
1 1 9	3 9	მამრო ბითი	გორ ი	1	2	1	4	1	3	2		1	1	1	1	2	1	2	1	2	2	3	2	3	3	2	1	3	3	3	3		1	2	1	2	1	1
1 2 0	3 3	მამრო ბითი	გორ ი	2	3	1	2	2	3	2		1	1	1	1	1	1	1	1	2	2	3	2	3	3	3	1	2	3	3	3		3	2	1		1	1
1 2 1	6 8	მამრო ბითი	გორ ი	1	2	1	4	2	4	4		1	1	5	2	1	2	1	1	1	1	1	5	1	3	3	2	2	1	1	3		1	2	1		1	1
1 2 2	4 0	მდედ რობი თი	გორ ი	1	3	1	4	2	4	1		1	1	1	1	1	1	1	2	2	4	1	3	3	2	1	1	1	1	1	2		3	2	2		1	1
1 2 3	5 0	მდედ რობი თი	გორ ი	1	2	1	4	2	4	2		1	4	1	2	2	1	1	1	3	1	4	1	2	2	1	2	2	3	3	3		1	2	2		2	1
1 2 4	4 2	მდედ რობი თი	გორ ი	1	3	1	3	2	4	1		1	1	1	2	2	1	1	1	3	3	4	1	2	2	1	2	2	3	3	3		1	2	1		2	1
1 2 5	3 6	მამრო ბითი	გორ ი	2	2	1	2	2	3	2		1	1	2	1	2	2	2	2	2	2	3	2	3	3	2	1	3	1	1	2		3	2	2		1	2

1 2 6	2 1	მდედ რობი თი	გორ ი	2	2	4	5	1	4	2		1	1	1	1	1	1	1	2	1	4	1	3	3	1	1	3	2	2	2		1	2	2	2	2	2	
1 2 7	5 0	მდედ რობი თი	გორ ი	1	3	5	1	6	1	2		2		1	2	2	2	2	1	3	1	3	1	2	2	1	2	2	1	3	3		1	2	2	2	2	1
1 2 8	5 5	მდედ რობი თი	გორ ი	1	1	4	2	4	2	2		9 9	1	1	2	2	2	1	1	3	4	1	2	1	2	2	2	2	3	3	3		1	2	2		2	1
1 2 9	6 0	მდედ რობი თი	გორ ი	2	3	3	5	1	5	1		1	4	1	1	3	1	3	1	3	3	4	1	3	1	1	2	1	3	3	3		1	2	2		2	1
1 3 0	2 0	მდედ რობი თი	გორ ი	2	2	4	4	2	3	2		1	1	1	1	2	1	1	1	2	2	4	1	3	3	1	2	3	2	2	2		1	2	2		2	2
1 3 1	5 8	მამრო ბითი	გორ ი	1	3	1	2	2	3	9		1	1	1	1	2	2	2	1	2	2	3	2	3	2	2	2	2	3	3	3		3	2	2		1	1
1 3 2	6 0	მამრო ბითი	გორ ი	1	2	1	3	2	3	1		1	1	2	2	2	1	1	1	2	2	3	2	2	2	2	2	2	2	2	2		3	2	2		1	1
1 3 3	6 4	მამრო ბითი	გორ ი	1	3	1	3	2	3	2		1	1	1	2	2	1	1	1	2	2	4	1	2	2	2	2	2	3	3	3		2	1	2		2	1
1 3 4	5 9	მამრო ბითი	გორ ი	1	3	1	3	2	3	9		1	1	1	1	2	2	1	1	2	2	3	2	2	2	2	2	2	2	2	2		3	2	1		1	1
1 3 5	2 9	მდედ რობი თი	გორ ი	2	2	1	4	2	3	9		2		2	2	2	2	2	1	2	1	3	2	3	3	2	3	3	2	2	2		1	2	2		2	2
1 3 6	3 3	მდედ რობი თი	გორ ი	1	3	1	3	1	3	9		1	1	1	1	2	1	1	1	2	2	4	1	3	3	3	2	2	3	2	2		1	2	2	1	2	1
1 3 7	3 2	მდედ რობი თი	გორ ი	1	3	1	3	1	3	9		2		2	2	2	2	2	1	2	2	3	2	3	3	2	3	3	2	2	2		1	2	2		2	2
1 3 8	6 0	მამრო ბითი	გორ ი	1	3	1	2	2	3	9		1	1	2	2	2	2	1	1	2	2	3	2	2	2	2	2	2	2	2	2		2	2	1		1	1
1 3 9	6 0	მამრო ბითი	გორ ი	1	3	1	1	2	3	9		1	1	2	2	2	2	1	2	2	2	3	2	2	2	2	2	2	2	2	2		3	1	1		1	1

1 4 0	2 5	მდედ რობი თი	გორ ი	1	2	1	5	2	5	4		2		1	1	2	1	1	1	2	3	3	1	2	2	1	2	3	2	2	2		2	2	2		2	1
1 4 1	2 2	მდედ რობი თი	გორ ი	2	2	4	5	2	6	2		2		1	1	2	1	1	1	2	3	3	1	3	2	1	1	3	2	2	2		2	2	2		2	1
1 4 2	4 8	მდედ რობი თი	გორ ი	1	3	1	3	2	3	3		2		2	2	2	2	2	1	2	2	2	2	2	3	2	2	2	3	2	2		3	2	2		2	1
1 4 3	4 4	მდედ რობი თი	გორ ი	1	3	1	3	2	3	2		2		1	2	2	2	1	1	2	2	2	1	2	2	2	2	2	2	2	2		3	2	2		2	1
1 4 4	4 5	მდედ რობი თი	გორ ი	1	3	1	2	2	3	1		2		1	2	2	2	1	1	2	2	2	1	2	2	2	2	2	3	3	3		2	2	2		2	1
1 4 5	2 4	მდედ რობი თი	გორ ი	2	2	4	4	2	3	9		2		2	2	2	2	2	1	2	1	3	2	3	3	2	3	3	2	2	2		1	2	2		2	2
1 4 6	2 7	მდედ რობი თი	გორ ი	1	2	1	5	2	6	4		2		1	1	2	1	1	1	2	3	3	1	2	2	1	2	3	2	2	2		2	2	2		2	1
1 4 7	4 5	მამრო ბითი	გორ ი	1	3	1	3	2	3	3		2		2	2	2	2	2	1	2	2	2	2	2	3	2	2	2	3	2	3		2	2	2		2	1
1 4 8	4 9	მდედ რობი თი	გორ ი	1	3	1	2	2	3	2		2		2	2	2	2	2	1	1	2	2	2	2	3	3	2	2	3	3	3		3	2	2		2	1
1 4 9	6 4	მდედ რობი თი	გორ ი	1	2	3	2	2	2	9		1	1	1	1	2	1	1	1	3	3	4	1	2	2	2	2	3	1	2	2		1	2	2		2	1
1 5 0	2 8	მდედ რობი თი	გორ ი	1	2	1	6	2	6	2		2		1	1	2	1	1	1	2	3	4	1	1	2	2	1	2	3	2	2		2	2	2		2	1
1 5 1	6 8	მდედ რობი თი	გორ ი	1	3	1	2	2	9	9		1	1	1	1	1	1	1	1	2	1	5	1	1	1	1	1	3	1	1	2		1	2	1		1	1
1 5 2	2 5	მდედ რობი თი	გორ ი	1	3	5	3	1	5	9		2		3	3	3	3	3	1	3	3	2	1	3	3	3	3	3	3	3	3		1	2	2	2	2	2
1 5 3	7 1	მდედ რობი თი	გორ ი	1	3	3	2	2	4	9		1	1	1	1	1	1	1	1	2	1	5	1	1	1	1	1	1	3	3	3		1	2	1		1	1

1 5 4	5 6	მდედ რობი თი	გორ ო	1	3	1	2	2	6	9 9		1	1	1	1	1	1	1	1	1	1	5	1	1	1	1	1	1	1	1		1	2	1		1	1		
1 5 5	7 2	მდედ რობი თი	გორ ო	1	2	5	4	2	9 9	9 9		1	1	1	1	1	1	1	1	1	1	5	1	1	1	1	1	1	1	3	3	3		1	2	1		1	1
1 5 6	2 8	მდედ რობი თი	გორ ო	1	3	4	6	1	5	2		2		2	2	2	2	2	2	2	2	1	1	3	3	3	2	3	3	3	3		1	2	1	1	1	2	
1 5 7	5 2	მდედ რობი თი	გორ ო	1	3	1	2	2	3	2		9 9		1	1	2	1	1	1	1	1	4	1	2	1	2	2	2	2	1	1	2		1	2	2		2	1
1 5 8	2 2	მდედ რობი თი	გორ ო	2	2	4	5	2	7	1		2		3	3	3	3	3	3	3	3	1	1	2	2	2	2	3	2	2	2		3	2	1		2	1	
1 5 9	2 9	მამრო ბითი	გორ ო	1	3	1	4	1	4	1		2		2	2	2	2	2	2	2	2	2	1	3	3	3	2	3	3	3	3		1	1	1	2	2	1	
1 6 0	2 7	მდედ რობი თი	გორ ო	2	3	1	5	1	7	9 9		2		3	3	3	3	3	3	3	3	2	1	3	3	3	2	3	2	2	2		1	2	2	1	2	1	
1 6 1	2 1	მდედ რობი თი	გორ ო	2	2	4	3	2	4	2		2		2	2	2	2	2	2	2	2	1	1	3	3	3	2	3	3	3	3		1	2	2		2	2	
1 6 2	1 9	მდედ რობი თი	გორ ო	2	2	4	5	1	5	9 9		2		3	3	3	3	3	3	3	3	1	1	3	3	3	3	3	2	1	2		1	1	1	1	2	2	
1 6 3	4 1	მდედ რობი თი	გორ ო	1	2	5	4	1	4	1		1	1	4	1	2	2	1	1	1	1	3	3	4	1	1	2	2	2	3	2	2		1	2	1	1	1	1
1 6 4	4 7	მდედ რობი თი	გორ ო	1	2	5	5	1	4	1		1	1	1	1	1	1	1	1	1	3	3	4	1	1	2	1	1	2	1	1	1		1	2	1	1	1	1
1 6 5	7 5	მდედ რობი თი	გორ ო	1	3	1	2	2	6	9 9		1	1	1	1	1	1	1	1	1	3	1	5	1	1	1	1	1	1	1	1	1		1	2	1		1	1
1 6 6	2 2	მდედ რობი თი	გორ ო	2	2	4	5	1	6	9 9		2		3	3	3	3	3	3	3	3	2	1	2	3	3	3	3	3	3	3		1	2	2	2	2	1	
1 6 7	2 3	მდედ რობი თი	გორ ო	2	2	2	3	2	3	9 9		2		3	3	3	3	3	3	3	3	1	1	3	3	1	2	2	3	3	3		3	1	2		2	2	

1 6 8	7 0	მდედ რობი თი	გორ ი	1	3	1	2	2	6	9		1	1	1	1	1	1	1	1	2	1	5	1	1	1	1	1	1	1	3		1	2	1		1	1	
1 6 9	6 9	მდედ რობი თი	გორ ი	1	2	1	2	2	6	2		1	1	1	1	1	1	1	1	1	1	5	1	1	1	1	1	1	1	1		1	2	1		1	1	
1 7 0	5 0	მდედ რობი თი	გორ ი	1	3	3	2	3	2	2		2		1	1	2	1	1	1	1	4	1	2	1	2	2	1	1	3	3		1	2	1		1	1	
1 7 1	6 1	მამრო ბითი	გორ ი	1	2	3	3	2	4	2		1	4	1	1	3	1	3	1	3	3	4	1	3	1	1	1	1	3	3	3		1	2	1		1	1
1 7 2	4 8	მდედ რობი თი	გორ ი	1	3	1	6	1	6	2		1	1	1	1	2	1	1	1	3	3	4	1	1	2	1	1	2	1	1		1	2	1	2	1	1	
1 7 3	4 6	მდედ რობი თი	გორ ი	1	3	1	5	1	6	2		1	1	2	2	2	1	1	1	3	1	5	1	1	3	2	2	2	1	1	1		1	2	2	2	1	1
1 7 4	6 2	მამრო ბითი	გორ ი	1	3	1	1	2	3	9		1	1	2	2	2	2	1	2	2	2	3	2	2	2	2	2	2	2	2		3	2	1		1	1	
1 7 5	4 9	მდედ რობი თი	გორ ი	1	3	1	2	2	4	2		1	5	2	2	2	1	1	1	3	1	4	1	1	3	2	2	2	1	1	1		2	2	2		1	1
1 7 6	6 7	მამრო ბითი	გორ ი	1	3	1	2	2	4	9		1	1	1	2	2	1	1	1	2	2	4	2	2	2	2	2	2	2	2		1	2	2		2	1	
1 7 7	4 5	მდედ რობი თი	გორ ი	1	3	1	4	1	1	1		2		2	1	1	1	2	2	4	1	1	2	2	1	2	1	1	1	2		1	2	1	2	1	1	
1 7 8	6 3	მამრო ბითი	გორ ი	1	2	1	2	2	3	9		1	5	2	2	2	1	2	1	2	2	3	2	2	2	2	2	2	2	2		3	2	2		2	1	
1 7 9	5 2	მდედ რობი თი	გორ ი	1	2	5	3	2	6	2		1	1	2	2	2	1	1	1	2	1	5	1	1	2	2	1	2	1	1		2	1	2		1	1	
1 8 0	6 2	მამრო ბითი	გორ ი	1	3	1	3	2	4	2		1	1	1	2	1	1	1	1	3	3	4	1	2	2	2	1	2	2	2		1	2	1		2	1	
1 8 1	4 9	მდედ რობი თი	გორ ი	1	2	3	1	2	2	3		1	1	1	2	2	2	1	1	1	2	1	4	1	1	3	2	2	1	1	1		1	2	2		2	1

182	63	მამრო ბითი	გორ ი	1	2	1	3	2	3	99		1	4	1	2	2	2	1	1	2	2	4	1	2	2	2	1	2	2	2		3	2	2	2	1		
183	52	მდედ რობი თი	გორ ი	1	2	5	5	2	5	1		1	1	2	2	2	1	1	1	1	2	4	1	2	2	2	1	2	1	1	1		2	2	2		1	1
184	53	მდედ რობი თი	გორ ი	1	3	1	2	2	4	1		1	1	2	2	2	1	1	1	3	1	5	1	1	2	2	1	2	2	2		1	2	1		1	1	
185	70	მდედ რობი თი	გორ ი	1	2	5	3	2	3	99		1	4	1	1	1	1	1	1	2	2	5	1	1	1	1	1	1	1	1		1	2	1		1	1	
186	27	მდედ რობი თი	გორ ი	1	3	1	5	2	5	2		1	4	1	2	2	2	2	1	2	2	3	1	2	2	2	1	2	1	1	2		1	1	1		1	1
187	36	მდედ რობი თი	გორ ი	1	2	1	5	1	7	3		2		1	2	2	2	2	2	2	2	3	1	2	2	2	2	2	3	3	3		3	2	2	1	1	1
188	28	მდედ რობი თი	გორ ი	1	3	1	5	2	4	1		1	1	6	1	2	2	2	1	1	2	1	4	1	2	2	2	1	2	2	2		2	1	2		2	2
189	40	მდედ რობი თი	გორ ი	1	2	5	5	1	99	2		2		1	2	2	2	3	1	2	2	4	1	2	2	2	2	2	2	2	2		2	99	2	1	2	1
190	28	მამრო ბითი	გორ ი	2	3	1	4	2	5	2		1	1	1	1	2	2	1	2	2	2	4	1	2	2	1	1	2	2	1	2		1	1	2		1	1
191	47	მდედ რობი თი	გორ ი	1	2	5	5	2	4	1		2		1	2	2	1	2	1	2	2	3	1	2	2	2	2	2	3	3	3		2	2	2		2	2
192	33	მდედ რობი თი	გორ ი	2	2	2	3	2	7	3		1	1	1	2	2	2	2	2	2	2	4	1	2	2	1	1	2	3	3	3		1	1	2		2	1
193	30	მდედ რობი თი	გორ ი	2	2	1	5	1	5	3		2		2	2	2	2	2	1	2	2	3	1	2	2	1	2	2	1	1	2		1	1	2	2	2	1
194	25	მამრო ბითი	გორ ი	2	2	1	4	2	5	2		1	4	1	2	2	2	1	1	2	2	4	1	2	2	1	1	2	1	1	2		1	1	2		2	1
195	22	მდედ რობი თი	გორ ი	2	3	2	4	2	99	2		1	3	1	1	1	2	2	1	2	2	4	1	2	2	2	2	2	3	3	3		1	99	1		1	1

1 9 6	3 9	მდედ რობი თი	გორ ი	1	2	5	5	1	5	2		2		3	3	3	3	3	2	2	2	3	1	3	3	3	3	3	3	3	3		3	2	3		2	1
1 9 7	1 9	მამრო ბითი	გორ ი	2	2	4	4	2	5	9		2		1	3	3	3	3	1	3	3	3	3	3	3	3	3	3	3	3	3		1	2	1		1	1
1 9 8	3 0	მდედ რობი თი	გორ ი	2	2	1	3	1	7	2		2		1	1	2	2	1	2	2	2	4	1	2	1	1	3	3	1	2	2		1	2	1	1	2	1
1 9 9	3 7	მამრო ბითი	გორ ი	2	3	1	4	2	9	2		1	1	1	1	1	2	2	2	2	4	1	2	1	1	2	2	3	3	3		1	9	2		1	1	
2 0 0	4 4	მდედ რობი თი	გორ ი	2	3	1	3	2	5	1		1	1	1	2	2	2	2	1	2	2	4	1	2	1	1	1	1	3	3	3		1	2	2		2	1
2 0 1	3 4	მამრო ბითი	გორ ი	1	3	1	5	1	6	2		1	1	1	2	2	2	2	1	2	2	4	1	2	2	1	1	2	3	3	3		2	2	2	1	1	1
2 0 2	3 9	მდედ რობი თი	გორ ი	1	3	1	6	1	5	2		1	1	1	2	2	2	2	2	2	4	1	2	1	1	1	1	1	1	2		2	2	1	2	1	1	
2 0 3	3 6	მდედ რობი თი	გორ ი	2	2	1	3	2	7	9		2		1	1	2	2	2	2	2	3	1	3	3	1	3	3	3	3	3		2	2	2		1	1	
2 0 4	1 8	მამრო ბითი	გორ ი	2	2	4	5	2	7	1		1	1	1	2	2	2	2	2	1	2	4	1	2	2	2	2	3	3	3		1	2	1		2	2	
2 0 5	4 9	მამრო ბითი	გორ ი	1	2	1	5	2	5	2		2		1	1	1	2	2	1	2	2	4	1	2	2	2	2	2	1	2		3	1	2		1	1	
2 0 6	3 6	მამრო ბითი	გორ ი	2	2	1	5	2	7	2		1	1	1	2	2	2	2	1	2	2	4	1	2	2	1	1	2	1	1	1		1	2	1		1	1
2 0 7	2 4	მდედ რობი თი	გორ ი	2	2	2	5	2	5	1		1	1	1	2	2	2	2	2	2	4	1	2	2	1	1	2	3	3	3		2	1	2		2	1	
2 0 8	3 0	მამრო ბითი	გორ ი	2	3	1	3	2	5	2		1	3	1	2	2	2	2	2	2	4	1	2	1	1	1	1	3	3	3		2	9	2		2	2	
2 0 9	3 5	მამრო ბითი	გორ ი	2	2	1	5	2	4	2		2		1	1	2	2	2	2	2	3	1	2	2	1	1	2	3	3	3		1	1	2		2	1	

210	41	მდედრობითი	გორი	1	3	1	4	1	4	1		1	3	1	2	2	1	2	1	2	1	4	1	1	1	1	1	3	3	3		1	99	2	2	1	1	
211	34	მდედრობითი	გორი	1	2	5	4	1	7	2		1	3	1	2	2	2	1	1	2	2	4	1	2	2	2	1	2	2	1	2		1	99	2	1	1	1
212	44	მდედრობითი	გორი	1	2	4	5	1	5	3		1	1	1	1	2	2	2	1	2	2	4	1	2	2	1	1	2	2	2	2	1	1	2	2	2	1	
213	57	მდედრობითი	გორი						99			1	4	1	2	2	2	1	1	2	2	4	1	2	2	2	1	2	3	3	3		2	1	2		2	2
214	21	მდედრობითი	გორი	2	2	4	3	2	4	2		1	1	1	2	2	2	2	2	2	2	4	1	1	3	1	3	3	3	3		1	2	2		2	2	
215	38	მდედრობითი	გორი	1	3	1	5	1	5	2		1	4	1	1	2	2	2	1	2	2	4	1	2	2	1	1	2	3	3	3		3	2	2	1	1	1
216	48	მამრობითი	რუსთავი									2		1	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3		2	99	1		1	1	
217	29	მდედრობითი	რუსთავი	2	2	2	3	2	4	99		1	1	1	1	2	1	1	2	2	1	3	1	1	1	1	1	3	3	3	3		1	2	1		2	1
218	19	მდედრობითი	რუსთავი	2	2	2	3	2	4	2		1	3	1	1	1	1	1	1	1	1	4	1	1	1	1	1	3	3	3		1	2	2		2	2	
219	27	მამრობითი	რუსთავი	1	2	1	6	1	5	1		1	3	1	2	2	2	2	1	2	2	3	1	2	2	1	1	2	3	3	3		2	1	1	1	1	1
220	25	მამრობითი	რუსთავი	2	2	2	3	2	4	2		1	3	1	1	2	1	1	1	2	1	4	1	2	1	1	1	3	3	3	3		1	1	1		2	2
221	43	მდედრობითი	რუსთავი	1	4	1	5	1	5	1		1	1	1	1	2	1	1	1	2	2	4	1	2	1	2	2	2	2	1	2		1	2	2		2	2
222	65	მდედრობითი	რუსთავი	1	2	3	2	2	3	99		1	1	1	1	1	1	1	1	1	1	4	1	3	3	3	1	3	3	3	3		1	2	1		2	1
223	59	მდედრობითი	რუსთავი	1	2	1	3	2	99	1		1	3	1	1	2	1	1	1	1	2	4	1	2	1	2	2	2	2	1	2		1	2	2		1	2

2 2 4	2 3	მამრო ბითი	რუს თავ ი	1	3	1	3	2	9 9	2		1	3	1	2	2	2	2	1	2	2	3	2	2	2	2	2	2	3	3	3		1	1	2		1	1
2 2 5	2 0	მამრო ბითი	რუს თავ ი	2	2	4	5	1	5	2		1	1	1	2	2	2	2	2	2	2	3	1	2	2	2	1	2	3	3	3		3	9 9	1	9 9	1	1
2 2 6	4 5	მამრო ბითი	რუს თავ ი	2	2	2	1	2	2	9 9		1	4	2	2	2	2	2	2	2	2	3	3	3	2	2	2	2	2	2	2		2	2	1		1	1
2 2 7	3 8	მდედ რობი თი	რუს თავ ი	1	2	1	4	1	5	2		1	1	1	1	1	1	1	1	1	1	4	1	2	2	1	1	3	3	3	3		1	2	2		2	2
2 2 8	3 6	მდედ რობი თი	რუს თავ ი	1	3	1	4	1	9 9	1		1	1	1	1	1	1	1	1	1	1	4	1	2	3	1	1	3	3	3	3		1	2	9 9		2	2
2 2 9	1 8	მამრო ბითი	რუს თავ ი	2	2	4	6	1	5	2		1	3	1	2	2	2	2	1	2	2	3	2	2	2	2	2	2	3	3	3		2	2	1	1	1	1
2 3 0	4 3	მდედ რობი თი	რუს თავ ი	2	2	1	3	2	9 9			1	1	1	1	1	1	1	1	1	1	4	1	1	1	1	1	3	3	3	3		1	2	9 9	2	2	2
2 3 1	2 2	მდედ რობი თი	რუს თავ ი	2	3	1	4	2	5	2		1	3	1	1	1	1	1	1	1	1	4	1	1	1	1	1	1	3	3	3		1	2	2		2	2
2 3 2	5 0	მდედ რობი თი	რუს თავ ი	1	2	5	4	2	7	3		1	1	1	1	2	2	2	2	1	2	5	1	1	2	1	2	2	3	3	3		3	2	2	1	1	1
2 3 3	4 6	მდედ რობი თი	რუს თავ ი	1	3	1	2	2	9 9	1		1	1	1	1	2	1	2	1	2	2	5	1	2	2	2	2	2	3	3	3		2	1	1		2	2
2 3 4	5 5	მდედ რობი თი	რუს თავ ი	1	3	1	4	2	4	3		1	1	1	1	2	1	1	1	2	2	5	1	2	2	1	1	2	2	1	2		1	2	2		2	2
2 3 5	4 7	მდედ რობი თი	რუს თავ ი	1	2	5	5	2	6	2		1	1	1	2	2	1	1	1	2	2	4	1	2	1	2	2	2	2	1	2		2	2	2		2	2
2 3 6	2 7	მდედ რობი თი	რუს თავ ი	2	3	1	4	2	9 9	2		1	3	1	1	2	1	1	1	1	1	4	1	1	2	2	1	1	3	3	3		1	2	2		2	2
2 3 7	3 6	მდედ რობი თი	რუს თავ ი	1	3	1	3	2	5	2		1	1	1	1	1	1	1	1	1	1	5	1	1	1	1	1	1	3	3	3		1	2	2	2	2	2

238	32	მდედრობითი	რუსთავი	1	2	2	4	2	5	2		1	1	1	1	1	1	1	1	1	1	4	1	1	1	1	1	3	3	3		1	2	1	2	2	2	
239	43	მდედრობითი	რუსთავი	1	3	1	3	2	7	2		1	1	1	1	2	2	2	1	2	2	4	1	2	2	2	1	2	3	3	3		2	99	1		1	1
240	45	მამრობითი	რუსთავი	1	4	1	3	2	5	1		2		1	2	2	2	2	2	2	3	1	2	2	1	2	2	3	3	3		2	99	2		1	1	
241	42	მამრობითი	რუსთავი	1	2	1	5	1	5	1		1	1	1	1	2	2	2	1	2	2	4	1	2	2	1	1	2	2	2		1	1	1	99	1	1	
242	28	მდედრობითი	რუსთავი	2	3	1	4	2	99	2		1	3	1	1	1	1	1	1	1	1	4	1	2	2	1	1	1	3	3	3		1	2	99		2	2
243	29	მდედრობითი	რუსთავი	1	3	1	4	1	5	2		1	3	1	1	1	1	1	1	1	1	4	1	1	1	1	1	1	3	3	3		1	2	2	99	2	2
244	26	მდედრობითი	რუსთავი	1	3	1	3	1	5	2		1	3	1	1	1	1	1	1	1	1	4	1	1	1	1	1	1	3	3	3		1	2	2	2	2	99
245	60	მდედრობითი	რუსთავი	1	3	1	5	2	5	1		1	1	1	1	1	1	2	1	2	2	5	1	2	2	1	2	2	2	1	2		1	1	1		2	1
246	45	მამრობითი	რუსთავი	1	3	1	5	1	5	2		1	1	1	2	2	2	2	1	2	2	4	3	3	3	1	1	3	3	3	3		2	2	2	99	1	1
247	48	მამრობითი	რუსთავი	1	2	1	4	2	4	99		1	3	1	1	1	1	1	1	1	1	4	3	3	3	3	3	3	3	3	3		1	1	2	1	1	1
248	42	მდედრობითი	რუსთავი	1	3	1	4	2	5	5		1	1	1	2	2	1	2	1	2	2	5	1	1	1	1	1	3	1	1	2		1	1	1		1	1
249	25	მამრობითი	რუსთავი	2	3	2	4	2	4	2		2		1	2	2	2	2	2	2	3	2	2	2	2	2	2	3	3	3		2	1	1		1	1	
250	32	მამრობითი	რუსთავი	2	4	1	4	2	7	2		1	1	1	2	2	2	2	2	2	4	1	2	2	1	2	2	3	3	3		1	1	1		1	1	
251	40	მამრობითი	რუსთავი	2	4	1	5	1	5	2		1	1	1	2	2	2	2	2	2	4	1	2	2	2	2	2	2	1	2		2	99	1	1	1	1	

[illegible]

266	34	მამრო ბითი	რუს თავ ი	2	2	1	4	2	4	99		1	1	1	1	2	1	2	1	2	2	4	1	3	2	1	1	3	3	3	3		1	2	1		1	1
267	40	მამრო ბითი	რუს თავ ი	1	2	1	5	2	5	99		1	1	1	1	1	1	2	1	2	2	4	1	2	2	2	2	2	2	2	2		1	2	99	2	1	1
268	25	მამრო ბითი	რუს თავ ი	2	2	2	3	2	4	99		1	1	1	2	2	1	2	1	2	2	4	1	2	2	3	1	2	3	3	3		1	2	1		1	1
269	62	მდედ რობი თი	რუს თავ ი	1	3	1	4	1	4	2		1	1	1	1	1	1	1	1	1	1	5	1	2	2	2	1	2	2	1	2		1	1	2	1	1	1
270	36	მამრო ბითი	რუს თავ ი	2	2	1	4	2	5	1		1	1	1	1	2	2	2	1	2	2	4	1	2	2	1	1	2	3	3	3		1	1	1		1	1
271	61	მდედ რობი თი	რუს თავ ი	1	2	3	6	1	5	1		1	1	1	1	1	1	1	1	1	1	5	1	1	2	1	1	2	1	1	2		1	2	1	99	2	1
272	50	მდედ რობი თი	რუს თავ ი	1	2	1	3	2	7	1		1	4	1	1	1	1	1	1	1	1	4	1	1	1	1	1	1	3	1	3		1	2	2	2	2	2
273	42	მამრო ბითი	რუს თავ ი	2	2	2	3	2	4	99		1	4	1	1	1	1	2	2	2	2	3	1	2	2	2	1	1	3	2	2		1	2	2		1	1
274	33	მდედ რობი თი	რუს თავ ი	2	2	2	2	2	4	99		1	4	1	2	2	1	1	2	2	1	4	1	2	1	1	1	3	3	3	3		2	99	1		2	2
275	44	მამრო ბითი	რუს თავ ი	1	2	1	5	2	5	2		1	1	1	1	1	1	2	2	3	1	4	1	1	2	2	2	2	2	2	2		3	2	2	2	1	1
276	24	მდედ რობი თი	რუს თავ ი	1	3	2	3	1	5	1		1	3	1	1	1	1	1	1	1	1	4	1	1	3	1	1	1	3	3	3		1	2	99	1	2	2
277	43	მდედ რობი თი	რუს თავ ი	1	3	1	5	1	5	1		1	1	1	2	2	2	1	1	2	2	4	1	2	2	1	1	2	2	1	2		1	1	2	1	2	2
278	58	მდედ რობი თი	რუს თავ ი	1	3	5	5	1	4	2		1	3	1	2	2	1	1	1	2	2	5	1	2	1	2	2	2	2	2	2		1	2	2	1	1	1
279	44	მდედ რობი თი	რუს თავ ი	1	3	1	3	2	99	2		1	4	1	1	1	1	1	1	1	1	4	1	1	1	1	1	1	3	3	3		1	2	99	2	2	2

280	46	მდედრობითი	რუსთავი	1	3	1	6	1	99		1	1	1	2	2	1	1	1	2	2	5	1	2	2	1	1	2	3	3	3		1	1	1	1	1		
281	38	მდედრობითი	რუსთავი	2	3	1	3	2	5	1	1	3	2	2	2	1	1	1	2	1	5	1	1	1	1	1	1	1	2	1	2		1	2	2		2	1
282	45	მდედრობითი	რუსთავი	1	3	1	6	2	5	2	1	1	1	1	2	1	1	1	2	2	4	1	1	1	1	1	1	1	3	3	3		1	2	2		2	1
283	34	მამრობითი	რუსთავი	1	3	1	6	1	5	1	2		3	3	3	3	3	3	3	3	1	3	3	1	3	3	1	1	2		3	2	2		2	1		
284	44	მდედრობითი	რუსთავი	1	2	1	3	2	5	1	1	1	1	2	2	1	1	1	2	2	4	1	1	2	2	2	2	2	2	1	2		1	2	2		1	1
285	19	მდედრობითი	რუსთავი	2	2	2	5	2	7	2	2		1	2	2	2	2	1	2	2	3	1	1	2	2	2	2	2	3	3	3		3	2	99		2	2
286	44	მდედრობითი	რუსთავი	1	3	1	4	2	5	2	1	1	2	1	2	1	2	1	2	2	4	1	2	2	2	1	1	3	3	3		1	2	2		2	1	
287	20	მდედრობითი	რუსთავი	2	2	2	4	2	99	2	2		2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3		3	2	99		2	2	
288	41	მდედრობითი	რუსთავი	1	2	5	6	1	99	2	1	1	1	1	2	1	1	1	1	1	4	1	2	2	1	1	2	3	3	3		1	2	2		2	1	
289	43	მდედრობითი	რუსთავი	1	2	2	4	2	5	2	1	1	2	1	2	1	1	1	2	2	4	1	1	1	1	1	2	3	3	2		1	2	2		2	2	
290	27	მამრობითი	რუსთავი	2	3	1	4	2	99	99		2		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3		3	2	3		2	1	
291	40	მამრობითი	რუსთავი	1	3	1	3	2	4	2	1	1	1	2	2	3	2	1	2	2	4	1	3	3	3	3	3	3	3	3		2	2	2		1	2	
292	63	მდედრობითი	რუსთავი	1	2	3	2	2	3	99		1	1	1	1	1	1	1	1	1	4	1	3	3	3	1	3	3	3	3		1	2	1		2	1	
293	40	მდედრობითი	რუსთავი	2	3	1	4	2	7	3		1	1	1	2	2	2	2	1	2	2	5	1	1	2	1	1	2	1	1	2		1	1	1		1	1

294	42	მდედრობითი	რუსთავი	1	3	1	4	1	5	2		2		1	2	2	2	2	2	2	2	3	1	2	2	1	2	2	2	2	2	2	2	2	2	1	1	1	99	2	2	
295	38	მამრობითი	რუსთავი	1	2	1	5	1	5	2		2		3	3	3	3	3	3	3	3	3	1	3	3	3	3	3	3	3	3	3	3	3	3	3	1	2	2	1	1	1
296	36	მამრობითი	რუსთავი	2	2	1	3	2	4	99		2		3	3	3	3	3	3	3	3	3	1	3	3	3	3	3	3	2	2	2		3	1	1		1	99			
297	47	მამრობითი	რუსთავი	2	3	1	4	2	5	1		1	1	1	2	2	2	2	1	2	2	3	1	2	3	3	3	3	3	3	3	3	3	3	3	2	2	2		1	2	
298	18	მდედრობითი	რუსთავი	2	2	1	5	2	4	2		2		2	2	2	2	2	2	2	2	3	2	2	2	2	2	2	2	3	3	3		2	2	99		2	2			
299	45	მამრობითი	რუსთავი	1	2	1	3	2	4	2		1	1	1	1	2	2	2	2	2	2	4	1	2	2	2	2	2	2	2	1	2		1	1	2		1	1			
300	30	მამრობითი	რუსთავი	2	3	1	5	2	5	1		1	3	1	2	2	2	2	2	2	2	4	1	2	2	1	2	2	3	3	3		1	1	1		1	1				
301	49	მდედრობითი	რუსთავი	1	2	2	6	1	7	1		1	3	1	2	2	2	2	1	2	2	1	1	2	2	1	1	2	2	1	2		1	2	2	1	2	1				
302	54	მდედრობითი	რუსთავი	1	2	5	5	2	6	2		1	1	1	1	2	2	1	1	1	2	1	4	1	2	2	1	2	3	3	3		1	2	99		1	1				
303	45	მამრობითი	რუსთავი	2	3	1	2	2	4	1		1	1	1	2	2	2	2	1	2	2	3	1	3	3	3	3	3	3	3	3	3	3	3	3	2	2	2		1	2	
304	19	მამრობითი	რუსთავი	2	4	4	2	4	2	1		1	1	1	2	2	2	2	1	2	3	4	1	3	3	3	3	3	2	1	2		1	2	1		2	99				
305	41	მდედრობითი	რუსთავი	1	3	2	5	1	6	1		1	1	2	1	2	2	2	1	2	2	4	1	1	1	1	1	1	3	3	3		1	2	2	2	2	1				
306	42	მდედრობითი	რუსთავი	1	3	1	5	2	99	99		1	1	1	1	2	1	1	1	2	1	4	1	2	1	1	2	1	3	3	3		1	2	99		2	2				
307	25	მამრობითი	რუსთავი	2	3	1	6	2	5	2		1	1	1	2	2	2	2	1	2	2	4	1	2	1	1	1	3	3	3	1		2	2		2	1					

308	35	მამრო ბითი	რუს თავ ი	1	3	1	5	1	5	99		1	1	1	2	2	1	2	1	2	2	4	1	3	3	3	1	3	3	3	3		3	1	2		1	1
309	46	მამრო ბითი	რუს თავ ი	1	3	1	5	1	9	1		1	1	1	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3		2	2	2	2	1	2
310	48	მამრო ბითი	რუს თავ ი	1	3	1	3	2	9	9		1	3	3	1	2	2	2	1	2	2	3	2	2	2	2	2	2	3	3	3		1	2	1	1	1	1
311	36	მამრო ბითი	რუს თავ ი	1	3	1	6	1	5	2		1	1	1	2	2	1	3	1	3	3	4	1	2	1	1	1	1	3	3	3		2	2	1	2	2	1
312	31	მამრო ბითი	რუს თავ ი	2	2	2	4	2	3	9		2		2	2	2	2	2	2	2	3	1	3	3	1	3	3	3	3	3		3	9	3		1	1	
313	39	მდედ რობი თი	რუს თავ ი	1	2	5	6	1	9	2		1	1	1	1	1	1	1	1	1	1	4	1	2	2	2	2	3	3	3	3		1	2	9	2	2	2
314	46	მდედ რობი თი	რუს თავ ი	1	3	1	2	2	9	1		1	4	1	1	1	1	1	1	1	1	4	1	1	1	1	1	1	2	2	2		2	2	2		2	2
315	23	მდედ რობი თი	რუს თავ ი	2	3	1	4	2	9	2		1	3	1	1	1	1	1	1	1	1	4	1	1	3	1	1	3	3	3	3		1	2	2		2	2
316	42	მდედ რობი თი	რუს თავ ი	1	3	1	6	1	9	2		1	1	1	1	2	1	1	1	1	1	4	1	2	2	2	2	2	3	3	3		1	2	9	2	2	2
317	38	მდედ რობი თი	რუს თავ ი	2	3	1	5	1	9	2		1	1	1	1	1	1	1	1	1	1	4	1	2	2	2	1	3	3	3	3		1	2	9	9	2	2
318	21	მდედ რობი თი	რუს თავ ი	2	2	2	4	2	9	2		2		1	1	2	1	2	2	2	3	1	2	2	2	2	2	3	3	3		3	2	9		2	2	
319	43	მდედ რობი თი	რუს თავ ი	1	3	1	4	2	5	1		1	1	1	2	2	1	2	2	2	3	2	2	2	1	2	2	2	2	2		1	2	9		1	1	
320	42	მდედ რობი თი	რუს თავ ი	1	3	2	6	1	5	1		1	1	2	1	2	2	2	1	2	2	4	1	1	1	1	1	3	3	2		1	2	2	2	2	1	
321	42	მამრო ბითი	რუს თავ ი	1	2	1	3	2	7	2		1	3	1	1	2	1	2	1	2	2	1	2	3	2	2	1	1	2	2	2		2	2	2		1	2

3 2 2	4 6	მდედ რობი თი	რუს თავ ი	1	2	1	5	2	5	2		1	1	1	2	2	1	1	1	2	2	4	1	2	2	1	1	2	2	1	2		1	2	2		1	1	
3 2 3	4 2	მდედ რობი თი	რუს თავ ი	1	2	1	4	1	7	3		1	1	1	1	2	2	2	1	2	2	4	1	2	2	2	1	1	1	1	1	1	2		1	1	1	1	
3 2 4	3 8	მდედ რობი თი	რუს თავ ი	1	4	1	5	1	5	3		1	1	1	2	2	2	2	1	2	2	5	1	2	2	1	2	2	3	1	3		1	1	1	1	1		
3 2 5	4 6	მდედ რობი თი	რუს თავ ი	2	4	1	4	2	5	2		1	1	1	1	2	1	2	1	2	2	4	1	2	2	2	2	1	1	1	1	3		1	1	1		1	1
3 2 6	3 5	მდედ რობი თი	რუს თავ ი	2	2	2	4	2	5	2		1	1	1	1	2	1	2	2	2	2	4	1	1	1	1	1	1	1	1	1		1	1	1		2	1	
3 2 7	4 2	მდედ რობი თი	რუს თავ ი	1	2	1	3	2	6	1		1	1	1	1	2	1	1	1	2	1	4	1	2	2	1	1	2	3	3	3		1	2	9 9		2	1	
3 2 8	5 2	მდედ რობი თი	რუს თავ ი	1	2	5	5	1	2	7		2	1	1	1	1	2	2	2	1	1	2	4	1	1	2	1	2	3	3	3		2	2	2	9 9	1	2	
3 2 9	4 5	მდედ რობი თი	რუს თავ ი	1	2	1	5	2	9 9	1		1	1	1	1	1	1	1	1	1	1	4	2	2	2	2	2	2	3	3	3		1	2	2	2	2	2	
3 3 0	5 0	მდედ რობი თი	რუს თავ ი	1	4	1	4	1	5	2		1	3	1	2	2	2	1	1	2	2	4	1	1	1	1	2	2	3	3	3		1	1	9 9	9 9	2	1	
3 3 1	2 7	მდედ რობი თი	რუს თავ ი	1	2	2	3	1	5	1		1	3	1	1	1	1	1	1	1	1	4	1	1	2	1	1	1	3	3	3		1	2	9 9	2	2	2	
3 3 2	2 3	მდედ რობი თი	რუს თავ ი	2	2	2	6	2	1	2		1	3	1	1	1	1	1	1	1	1	4	1	1	1	2	1	1	3	3	3		1	2	9 9		2	2	
3 3 3	2 6	მდედ რობი თი	რუს თავ ი	2	3	1	4	2	5	2		1	1	1	1	1	1	1	1	1	1	4	1	1	2	2	1	1	3	3	3		1	2	2		2	2	
3 3 4	4 8	მდედ რობი თი	რუს თავ ი	1	2	5	5	2	9 9	2		1	1	1	1	1	1	1	1	1	1	4	1	3	3	1	1	3	3	3	3		1	2	2		1	1	
3 3 5	7 3	მამრო ბითი	რუს თავ ი	1	3	3	4	2	3	2		2		1	2	2	2	2	2	2	2	4	2	2	2	2	2	2	2	1	2		2	2	1		1	1	

3 3 6	3 4	მამრო ზითი	რუს თავ ი	2	3	1	3	2	7	2		1	1	1	2	2	2	2	1	2	2	3	1	2	2	2	2	2	2	2	1		2	2	2		1	1	
3 3 7	4 9	მდედ როზი თი	რუს თავ ი	1	2	5	5	1	3	3		1	1	1	1	2	2	2	1	1	2	5	1	1	2	1	2	2	2	2	1	2		3	2	2	1	1	1
3 3 8	3 3	მამრო ზითი	რუს თავ ი	2	3	1	4	2	4	2		1	3	1	2	2	2	2	2	2	2	3	2	2	2	2	2	2	3	3	3		2	9 9	2		2	2	
3 3 9	4 1	მამრო ზითი	რუს თავ ი	1	4	1	5	1	5	2		1	3	1	2	2	2	2	1	2	1	4	1	2	2	1	2	2	2	2	1	2		2	2	2	9 9	1	1
3 4 0	3 6	მამრო ზითი	რუს თავ ი	1	3	1	3	2	4	1		1	1	1	2	2	2	2	2	2	2	3	1	3	3	3	1	3	3	3	3		1	2	2		2	2	
3 4 1	4 5	მდედ როზი თი	რუს თავ ი	1	3	2	4	2	5	2		1	1	1	2	2	2	2	2	2	2	4	1	2	3	3	1	3	3	3	3		2	2	9 9		2	2	
3 4 2	3 6	მდედ როზი თი	რუს თავ ი	1	3	1	6	1	5	3		1	1	1	2	2	2	1	2	2	2	5	1	2	2	1	2	2	1	1	1		1	1	1	9 9	1	1	
3 4 3	4 8	მდედ როზი თი	რუს თავ ი	1	3	1	3	2	7	2		1	1	1	1	2	2	2	1	1	2	5	1	1	2	1	2	2	2	1	2		3	1	2		1	1	
3 4 4	3 6	მამრო ზითი	რუს თავ ი	2	3	1	4	2	5	2		1	3	1	2	2	2	2	2	2	2	3	1	2	2	2	2	2	2	2	1	2		2	2	1		1	2
3 4 5	4 3	მამრო ზითი	რუს თავ ი	1	3	1	5	1	5	1		1	1	1	2	2	2	2	1	2	2	4	1	3	3	3	3	3	3	3	3		1	1	2	1	1	2	
3 4 6	4 0	მამრო ზითი	რუს თავ ი	1	3	1	3	2	4	2		2	1	1	1	2	2	2	2	2	2	2	4	1	2	2	2	2	3	3	3		2	2		2	2		
3 4 7	3 2	მამრო ზითი	რუს თავ ი	2	2	1	4	2	4	2		1	1	1	2	2	2	2	2	2	2	3	2	2	2	3	3	3	3	3	3		2	2	2		1	2	
3 4 8	2 0	მამრო ზითი	რუს თავ ი	2	2	4	4	2	5	1		1	3	1	2	2	2	2	2	2	2	5	1	1	3	3	1	3	3	3	3		1	1	9 9		2	2	
3 4 9	2 2	მამრო ზითი	რუს თავ ი	1	2	4	5	1	5	1		1	3	1	2	2	2	2	1	2	2	5	1	2	2	1	1	2	3	3	3		2	2	2	2	2	2	

350	40	მდედ რობი თი	რუს თავ ი	1	3	1	4	2	7	1			1	1	1	1	2	1	1	1	3	1	4	1	1	1	1	1	3	3	3		1	2	1	1	2	2	
351	28	მამრო ბითი	რუს თავ ი	2	4	1	5	2	5	1			1	1	1	2	2	2	2	2	2	2	5	1	1	2	2	1	2	3	3	3		1	1	2		1	1
352	20	მამრო ბითი	რუს თავ ი	1	2	1	5	1	9	2			1	3	1	2	2	2	2	2	2	2	5	1	2	3	3	3	3	3	3		1	2	2		2	1	
353	18	მამრო ბითი	რუს თავ ი	1	2	4	6	2	5	1			1	1	1	2	2	2	2	2	2	2	4	1	2	2	1	2	2	3	3	3		1	1	2		2	2
354	23	მამრო ბითი	რუს თავ ი	2	2	4	3	1	5	2			1	3	1	2	2	2	2	1	2	2	4	1	2	2	2	1	1	3	3	3		1	1	2	9	2	2
355	46	მდედ რობი თი	რუს თავ ი	1	2	2	4	2	9	1			1	1	1	1	2	1	1	1	2	2	4	1	2	2	1	1	2	3	3	3		1	2	9		2	1
356	39	მდედ რობი თი	რუს თავ ი	1	2	5	4	1	7	2			1	1	1	1	2	2	2	2	2	2	3	1	2	2	1	1	1	2	1	2		1	9	1	1	2	1
357	48	მდედ რობი თი	რუს თავ ი	1	2	1	5	2	5	2			1	1	1	1	1	1	1	1	1	1	4	1	1	3	1	1	3	3	3	3		1	2	2		2	1
358	37	მამრო ბითი	რუს თავ ი	2	3	1	5	2	7	1			1	3	1	2	2	2	2	2	2	2	3	1	2	2	1	1	2	3	3	3		1	1	9		1	2
359	52	მდედ რობი თი	რუს თავ ი	1	3	1	6	1	9	9			1	1	1	1	1	1	1	1	1	1	4	1	1	2	2	1	3	3	3	3		1	2	1	9	2	2
360	30	მდედ რობი თი	რუს თავ ი	1	3	5	4	1	9	2			1	1	1	2	2	1	2	1	2	2	4	1	1	3	2	2	3	2	1	2		1	1	9	1	2	1
361	28	მდედ რობი თი	რუს თავ ი	1	3	1	5	1	9	2			1	1	1	2	2	1	2	1	2	2	4	1	1	2	2	1	2	3	3	3		1	1	9	1	2	1
362	47	მამრო ბითი	რუს თავ ი	1	2	5	5	1	9	9			1	1	1	1	1	1	1	1	1	1	4	1	2	2	2	2	2	3	3	3		1	2	1	1	2	1
363	31	მდედ რობი თი	რუს თავ ი	2	2	2	4	2	6	2			1	3	1	1	2	1	1	1	2	1	4	1	2	2	1	1	2	3	3	3		1	2	1		1	1

3 6 4	2 5	მდედ რობი თი	რუს თავ ი	2	4	1	4	2	6	2		1	3	1	1	2	2	2	1	2	2	5	1	2	2	1	2	2	3	3	3		1	2	1		1	1
3 6 5	4 8	მდედ რობი თი	რუს თავ ი	1	3	1	5	1	5	9		1	1	1	1	1	1	1	1	1	1	4	1	2	2	2	1	2	2	3	2		1	2	2	2	2	1
3 6 6	6 3	მდედ რობი თი	რუს თავ ი	1	2	3	3	2	9	9		1	1	1	1	1	1	1	1	2	2	3	1	2	2	2	1	1	2	2	2		1	2	2		1	1
3 6 7	5 7	მდედ რობი თი	რუს თავ ი	1	3	1	4	1	9	2		1	1	1	2	2	2	2	1	2	2	4	1	2	2	1	1	1	3	3	3		1	2	2	2	2	1
3 6 8	2 5	მდედ რობი თი	რუს თავ ი	2	2	2	3	2	6	1		1	3	1	1	2	1	1	1	2	3	4	1	1	2	1	1	2	3	3	3		1	1	9		2	2
3 6 9	2 7	მდედ რობი თი	რუს თავ ი	2	2	1	6	2	9	2		1	3	1	2	2	1	2	1	2	1	4	1	2	2	1	1	2	3	3	3		1	1	9		2	2
3 7 0	3 6	მდედ რობი თი	რუს თავ ი	1	3	1	6	1	9	2		1	1	1	2	2	1	1	2	2	2	4	1	1	2	1	1	2	3	3	3		1	1	1	2	2	1
3 7 1	3 7	მამრო ბითი	რუს თავ ი	2	3	1	4	2	4	9		2		3	3	3	3	3	3	3	3	3	1	3	3	3	3	3	3	3	3		1	2	1		1	9
3 7 2	6 1	მდედ რობი თი	რუს თავ ი	1	3	3	5	2	9	9		1	1	1	2	2	1	1	1	1	1	4	1	2	2	2	1	1	3	3	3		1	2	2		2	2
3 7 3	3 2	მდედ რობი თი	რუს თავ ი	1	3	1	5	1	6	2		1	1	1	2	2	1	2	1	2	2	4	1	1	3	2	1	3	3	3	3		1	1	9		1	2
3 7 4	6 0	მდედ რობი თი	რუს თავ ი	1	3	1	2	2	9	1		1	1	1	1	2	1	1	1	2	2	5	1	2	1	2	2	2	2	1	2		1	2	2		2	2
3 7 5	5 7	მდედ რობი თი	რუს თავ ი	1	3	1	3	2	5	2		1	1	1	2	2	2	2	2	2	2	5	1	2	1	2	1	2	2	1	2		3	2	1		2	2
3 7 6	5 5	მდედ რობი თი	რუს თავ ი	1	2	1	5	1	4	2		1	1	1	2	2	1	1	1	2	2	4	1	2	1	2	1	2	2	1	2		2	2	2	1	2	2
3 7 7	5 1	მდედ რობი თი	რუს თავ ი	1	3	5	2	2	9	1		1	1	1	1	2	1	2	1	2	2	5	1	2	1	2	2	2	1	1	2		1	2	2		1	2

378	60	მდედრობითი	რუსთავი	1	1	1	5	1	99	2			1	1	1	2	2	1	1	1	2	1	4	1	2	1	2	1	2	2	1	2			1	2	2	1	2	1
379	57	მდედრობითი	რუსთავი	1	3	1	2	2	4	1			1	1	1	1	2	2	2	1	2	2	5	1	2	1	2	1	2	3	3	3			2	2	2		2	2
380	68	მამრობითი	რუსთავი	1	2	3	3	2	4	99			1	1	1	2	2	1	1	1	1	1	3	1	2	2	2	2	2	2	2	2			1	2	1		2	2
381	70	მდედრობითი	რუსთავი	1	2	3	4	2	5	99			1	1	1	2	2	1	1	1	2	2	4	1	3	3	3	1	1	3	3	3			1	2	1		2	1
382	44	მდედრობითი	რუსთავი	1	2	1	4	2	5	2			1	3	1	1	2	2	2	1	2	2	4	1	1	2	1	1	3	2	1	2			3	2	2		1	1
383	48	მდედრობითი	რუსთავი	1	4	1	5	2	3	1			2		1	1	2	2	2	2	2	2	5	1	1	3	1	3	3	2	2	2			3	1	2		1	1
384	62	მდედრობითი	რუსთავი	1	2	3	3	2	3	99			1	1	1	1	2	1	2	1	1	1	4	1	3	3	3	1	3	3	3	3			1	2	2		2	1