

Research Article

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Monitoring health inequalities at the municipal level: Lithuanian experience

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Abstract: This study aimed to assess the attitudes of Lithuanian public health professionals towards health inequality monitoring in municipalities.

The survey was conducted in public health bureaus (PHBs) and administrations of municipalities in March 2015. All employees of PHBs, all municipal doctors and all employees of health departments were invited to participate in the study (N=318; response rate, 47.2%).

The study participants had positive attitudes towards the importance of health inequality monitoring at the municipal level, meanwhile systematic health inequality monitoring was assessed moderately. The majority of the interviewed professionals working at PHBs and municipalities (91.4% and 88.2%, respectively) declared that health indicators were monitored and analysed in their institutions. The respondents acknowledged the importance of routine monitoring of health indicators for assessment of inequalities, but these indicators were not monitored systematically in every municipality and PHB. Public health professionals identified the following measures for better health inequality monitoring: to strengthen intersectoral collaboration, formulate specific objectives of health programmes, promote actions in reducing health inequalities.

Conclusions. Public health professionals working at the municipal level outlined the importance of monitoring and reducing health inequalities. However, health inequality monitoring at the municipal level was considered as insufficient.

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1 Introduction

Health inequalities can be defined as systematic differences in the health status among different population groups and/or *unequal access* to *health care* services. They are caused by social, political, economic, environmental and cultural conditions [1,2]. Inequalities in health are recognized to be a major issue in Lithuania. Inequalities in mortality in Lithuania have increased substantially over the past two decades [3]. Recent record linkage based data have shown considerable inequalities in mortality by occupation, socio-economic and marital status. The level of education also has an important impact on health inequalities [4]. The recent European study has evaluated changes in mortality by educational group between the approximate periods 1990-94 and 2005-09 in Finland, Norway, Sweden, Scotland, England, Wales, France, Switzerland, Spain, Italy, Slovenia and Lithuania. Apart from Lithuania, the trend in all cause mortality has been clearly downward among both low and high educated in all investigated countries [3].

Reducing health inequalities among socio-economic groups within a country is one of the main challenges for public health, even in the highly developed welfare states of Europe [5]. Recognising this, most of European countries have set strategic targets for reducing these inequalities. In 2012, the 53 Member States of the World Health Organization (WHO) European Region agreed on a policy and strategy framework for health and well-being, *Health 2020* [6]. The main strategic objective of *Health 2020* is to reduce health inequalities and considerably improve health, health care management and health equity. Additionally, the *Lithuanian Health Strategy 2014–2025* was adopted by the Parliament (Seimas) in 2014, emphasizing the importance to create a safer social environment and to reduce health inequalities and social exclusion in

the country [7]. Moreover, the priority to reduce health inequalities is highlighted in the national health policy document *Action Plan for Reduction of Health Inequalities in Lithuania 2014–2023* [1]. This action plan focuses on specific measures that could contribute in reducing differences in accessibility to health care services, gaps in health threatening behaviour and health inequalities in general. However, a high level of health inequalities shows limited Lithuanian capacities to achieve strategic goals which are underlined in national and international documents. In order to achieve significant progress in tackling health inequalities, the effective and reliable health inequality monitoring system is essential. It is well known that an effective monitoring system contributes for development of more effective policies, programmes and practices [8]. The best practices from the European region and beyond suggest that problems related to monitoring and reducing health inequalities can be effectively solved in close collaboration with partners from other sectors [9].

According to Lithuanian national legislation, municipalities have the leading role in monitoring and reducing health inequalities. The *Law on Public Health Monitoring* is the national legal act, which outlines these processes and responsible institutions [10]. Public health monitoring at the national and municipal levels is also defined by the above-mentioned law. Municipal public health bureaus (PHBs) are the main institutions responsible for monitoring health inequalities at the local level. Currently, there are 45 PHBs in Lithuania [11]. Since January 2014, public health promotion and monitoring have become a state-delegated function, which ensures better opportunities for implementation of national health policy guidelines at the municipal level. Despite the fact that most of the municipalities have strategic action plans, which include goals related to monitoring and reducing health inequalities, a sustainable and relevant inequality monitoring system is still being undeveloped. This system would significantly contribute not only to identification of underlying main determinants for health inequalities, but also be used for planning and implementation of measures integrated by different sectors. In order to undertake these functional tasks, public health specialists need a certain level of competencies.

Thus, the aim of our study was to analyse the situation in health inequality monitoring and reducing in Lithuania. We focused on monitoring health inequalities at the municipal level in Lithuania with a particular interest in systematically monitored socio-demographic health inequalities, health indicators and sources of health information.

2 Methods

The survey was conducted in PHBs and municipalities in March 2015. Municipal doctors, employees of health departments, administrators of PHBs and professionals from the departments of public health monitoring, public health promotion, children and youth health were invited to take part in this study.

Invitations to participate in the study were sent by e-mail to 318 potential respondents: 60 municipal doctors, 74 employees of health departments and 184 employees of PHBs. The aim of the study was explained, and the website where a questionnaire that had to be completed online was indicated. If the online questionnaire was not completed, the invitation was sent repeatedly. The invitations to the municipal employees were sent twice and to the employees of PHBs, three times. As the answers of the respondents were anonymous, the repeated invitations were sent to all the respondents with the warning not to pay attention to them if the questionnaire had already been completed.

A total of 150 completed questionnaires were received (response rate, 47.2%). There were 75.7% and 24.3% of women and men, respectively. The mean age of the respondents was 38.41 years (standard deviation, 12.23). Most of the study participants (77.3%) were employees of PHBs and 22.7% were employed at municipalities. Among the respondents, 56.7% were working in rural areas and others (43.3%), in urban areas.

According to the national regulations of Lithuania, the ethical approval of the Lithuanian Bioethics Committee is compulsory for biomedical research [12]. Because the study was not biomedical with any vulnerable groups involved, ethical permission was not necessary. During the survey, the goals of the study were explained to the respondents, and they were informed that participation was voluntary and anonymous. Filling in the questionnaire was considered to constitute informed consent.

Statistical data analysis was performed using the SPSS for Windows 20.0 software package. For the analysis of data frequency distribution (%), average scores and standard deviation were used. The 6-point Likert scale (lowest assessment to highest assessment) was used to assess the attitude of respondents towards health inequality monitoring. For data analysis, the scale was divided into three groups: low (0–1 points), moderate (2–3 points) and high assessment (4–5 points). Only the last group was used in further analysis. The average score for each Likert scale was calculated using a 100-point scoring system according to the formula: average scale score for a respondent = mean of the scale items \times 20. The attitude of respondents

towards each scale was considered as favourable (average score >70), moderate (average score 30–70) and negative (average score <30).

Since the analysed variables had no normal distribution, differences between two independent groups of the study participants were analysed with the nonparametric Mann-Whitney test. For pairwise comparison, the z-test was applied. Differences were considered statistically significant if $P < 0.05$.

3 Results

One-third of the respondents expressed their opinion that much attention was given to health inequalities measurement and analysis at the national and local levels (33.1% and 29.2%, respectively). More than half of the study population (58.6% and 56.9%, respectively) reported that health inequalities measurement and analysis at the national and municipal levels received moderate attention. Meanwhile, only a small part of the respondents (8.3% and 13.9%, respectively) were sure that this attention was considerably less. Almost half (49.0%) of the public health professionals indicated that their activities were more closely related to monitoring and measuring health inequalities; 34.7%, slightly related; and 16.3%, completely or almost unrelated. There was no significant difference between the attitudes of municipal and PHBs employees ($P > 0.05$). Most of the respondents considered that it was necessary to monitor different sociodemographic health inequalities, but a considerably smaller part of the respondents systematically monitored these inequalities (Fig. 1). According to the opinion of the study participants, health inequalities by different ethnic groups and marital status were considered as least important and less needed to be monitored. In addition, nearly

one-third of the respondents indicated that health inequalities by income level, education level, employment status and disability status were systematically monitored at the municipal level.

Based on the definition of a positive attitude as an average score of >70 for all items on the Likert scale, the majority of respondents had a positive attitude towards the importance of health inequality monitoring at the municipal level (73.7 ± 1.9). Moreover, the importance of health inequality monitoring was evaluated more favourably by the respondents working in urban areas than those working in rural areas (78.1 ± 2.4 and 70.8 ± 2.1 , respectively; $P < 0.05$). Meanwhile, systematic health inequality monitoring was assessed rated moderately, i.e. a mean score of 54.9 ± 2.0 was given. Additionally, the importance of health inequality monitoring was rated by a significantly higher mean score than systematic health inequality monitoring ($P < 0.05$).

The majority of the respondents working at PHBs and municipalities (91.4% and 88.2%, respectively; $P > 0.05$) reported that health indicators were monitored and analysed at their institutions. According to the respondents, it was necessary to monitor the indicators of morbidity, mortality, lifestyle and accessibility to health care services in order to assess health inequalities. Nonetheless, these indicators were not systematically monitored in every municipality and PHB (Fig. 2). Moreover, most of the respondents working at PHBs and municipalities (71.9% and 64.7%, respectively; $P > 0.05$) noted that other indicators such as social, economic, environmental, etc. were included in analysis of health determinants at their institutions.

The respondents had positive attitudes towards the importance of health indicator monitoring in order to measure health inequalities at the municipal level (a mean score of 83.4 ± 1.5), while a systematic monitoring of

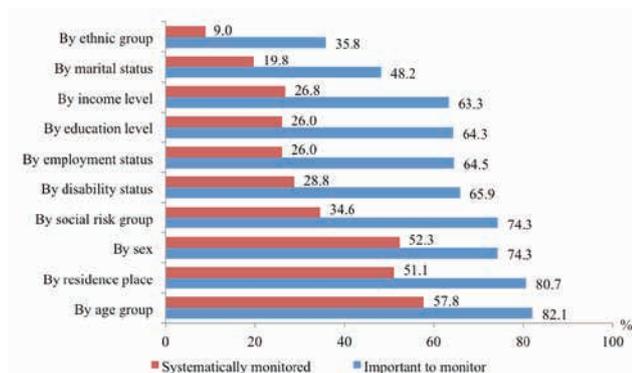


Figure 1: Respondents' attitudes towards monitoring sociodemographic health inequalities at the municipal level

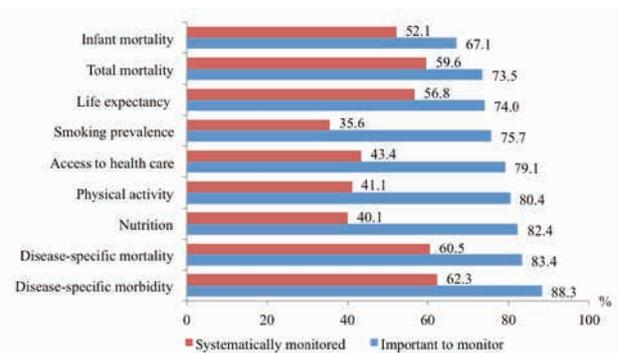


Figure 2: Respondents' attitudes towards the usage of health indicators for health inequality monitoring at their institutions

health indicators for evaluation of health inequalities was assessed moderately (68.2 ± 1.8) ($P < 0.05$).

Most of the study participants reported that it was important to use national and international health information systems for measuring health inequalities. However, a smaller proportion of the respondents had access to statistical databases and even a smaller proportion of the respondents used these databases (Fig. 3). Less than half of the respondents stated that they had access to the data of the Lithuanian Population Census, WHO Statistical Information System, Health Insurance Fund, the European Regional Health Inequalities and WHO European Health for All databases. It is worth noting that international statistical databases were used least frequently to measure inequalities in health.

The importance of statistical databases of Lithuania and other countries for measuring health inequalities was evaluated positively by the study participants (84.0 ± 1.5), while the access to databases and use of databases were assessed moderately (65.8 ± 2.1 and 53.8 ± 2.2 , respectively).

In case of sufficient funding, the employees of PHBs would recommend to measure health inequalities through the specific activities such as strengthening of intersectoral collaboration to identify priorities in monitoring. Meanwhile, the respondents working at municipalities stressed the following measures: to precisely formulate the aim and objectives of health programmes, to achieve that health inequality reducing would become a priority area in Lithuania and to increase the possibilities of placing the health indicators into practice. Based on the results, measures of practical implementation of international experience and strengthening the collaboration with community centres were recommended less frequently (Fig. 4).

The data analysis revealed similar respondents' attitudes towards the responsibility of the Ministry of Health

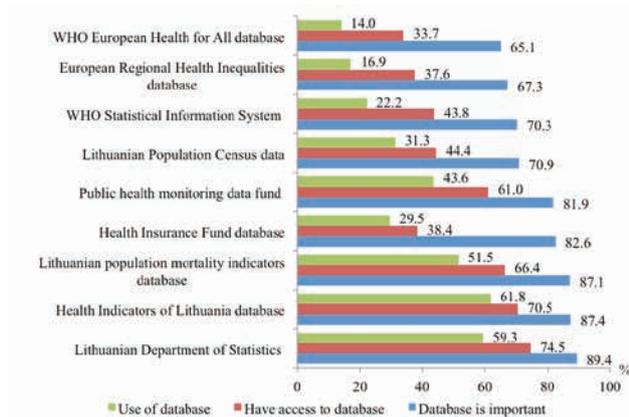


Figure 3: Respondents' attitudes towards the usage of statistical databases for health inequality monitoring at their institutions

(MoH) for health inequality measurement, analysis and reduction (Fig. 5). Moreover, the majority of the study participants referred responsibility for assessment and analysis of health inequalities to the Institute of Hygiene. There was no significant difference between municipal and PHBs employees' opinions on these issues, but the respondents working at municipalities more commonly stated that responsibility for inequality measurement and analysis should be taken by PHBs than the respondents working at PHBs (84.8% and 61.3% , respectively; $P < 0.05$). In addition, the representatives of PHBs were more likely to note about responsibility of the Institute of Hygiene and health-related faculties at universities for tackling inequalities in health than the representatives of municipalities.

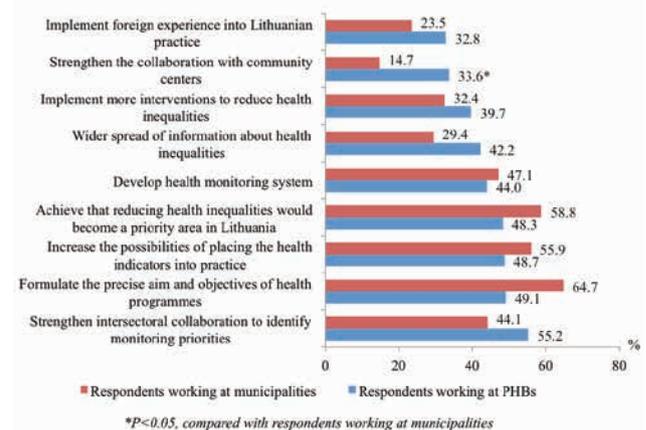


Figure 4: Activities recommended by respondents working at municipalities and PHBs for better health inequality monitoring

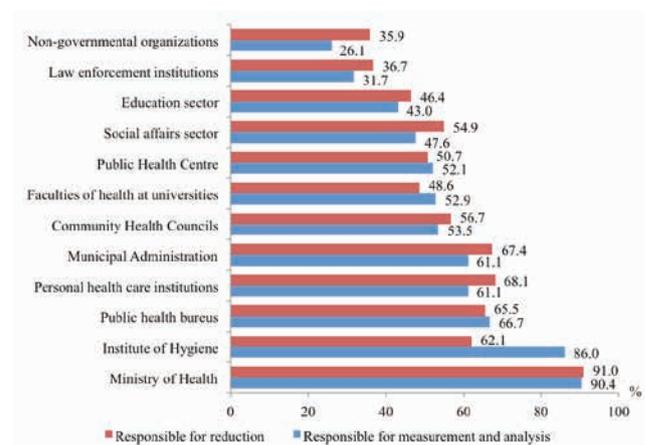


Figure 5: Respondents' attitudes towards responsibility of institutions for measuring, analysing and reducing health inequalities

4 Discussion

4.1 The importance of health inequality monitoring

The necessity to reduce inequalities in health is emphasised in international and national documents [1,6,7,13]. However, it is agreed that reliable information on health inequalities is the one of key factors for tackling health inequalities [13]. Therefore, appropriate health inequality monitoring at both national and municipal levels is one of substantial prerequisites for reduction of inequalities in any country including Lithuania. In 2013, the national *Action Plan for Reduction of Health Inequalities in Lithuania 2014–2023* was approved by the Parliament of the Republic of Lithuania. This document has identified the groups most vulnerable for health inequalities including but not limited to individuals: those who belong to the certain social risk groups (unemployed, with low income etc.); who are addicted to life-threatening behaviour (alcohol consumption etc.); who are more susceptible to a particular disease (tuberculosis, alcohol addiction); who have limited access to adequate health care (the disabled etc.); and children (under 18) [1]. As mentioned before, tackling health inequalities in these groups requires a reliable health information system. Thus, our study was the first study carried out in Lithuania that aimed at the assessment of health inequality monitoring at the municipal level and revealed the attitudes of PHBs and municipal employees towards health inequality monitoring and its importance.

Other European countries have implemented equity-oriented strategies, which advocate for action to tackle inequalities between sex, social classes, ethnic groups, and the special attention is given to income level, children's living conditions, occupation and working conditions [14,15]. With reference to the scientific literature, the level of education is the main factor preventing the development of socioeconomic inequalities [16-18], while other studies have emphasized the influence of income level [19-21]. The Lithuanian public health monitoring system provides an opportunity to analyse health indicators disaggregated by sex, age and place of residence. However, associations between health and socioeconomic status can be evaluated based only on population surveys. Furthermore, analysis of morbidity and mortality by socioeconomic indicators requires additional and more complex measures, for instance consolidation of different databases that demands specific personal data protection.

4.2 The development of health inequality monitoring

In order to achieve relevant and scientifically proper health inequality monitoring, it is important to have comprehensive methodological guidelines. However, neither the health inequality monitoring system nor health indicators have been identified in Lithuanian legal acts. The selected indicators for use in monitoring health inequalities should clearly reflect the unfair differences in the population [8]. Moreover, the selection of these indicators largely depends on the main objective for their use – reduction of health inequalities by improving a socioeconomic situation of depreciated groups or reduction of health inequalities by improving health of the entire population. Up to date, no list of indicators for health inequalities monitoring has been approved in Lithuania. Life expectancy among different sociodemographic population groups is an indicator most commonly recommended by the researchers for measuring health inequalities [9,22,23].

Valid, reliable and multi-source data are required for an adequate description of the situation with health inequalities in the population [15]. Reliable and routinely collected data facilitate inequality monitoring and improves the quality of the entire national health information system. The *Guidelines for Public Health Monitoring in Municipalities* (adopted by the MoH in 2009) recommend using the list of health indicators from Lithuanian national health database where data on mortality, routine health statistics, and demographics are collected and presented [24]. The Lithuanian Department of Statistics (Official Statistics Portal, <http://osp.stat.gov.lt/en/home>) collects and reports the data on health that are disaggregated according to relevant dimension of inequalities (demographic, socioeconomic and environmental) at both national and regional levels. Moreover, the Public Health Monitoring Data Fund (<http://sic.hi.lt/html/fondas.htm>) contains different health-related indicators at the national level. Although the national health information systems mentioned above are easily accessible by a user, of high quality and for free [25], our study suggested that not all professionals who participated in the study had access to databases and even a smaller part of professionals used these databases. It is important to measure health inequalities using international health information systems such as the WHO Statistical Information System (WHOSIS, <http://www.who.int/whosis/en/>), WHO European Health for All database (HFA-DB, <http://www.euro.who.int/en/data-and-evidence/databases/european-health-for-all-database-hfa-db>) and European Regional Health Inequalities database (<http://www.health-inequalities.org>).

Despite the fact that the listed health information systems are available for every person free of charge, a surprisingly large proportion of the respondents noted that they did not have possibilities to use these international databases.

Usually, the MoH, institutions under the MoH and research institutes are considered as responsible for actions and leadership in monitoring and reducing health inequalities [5]. For instance, the Ministries of Health and Social Affairs are the main institutions working in the field of health inequality monitoring in Sweden and Finland [5,9,15]. Additionally, particular responsibility and a leading role in monitoring health status of the population and reducing inequalities are delegated to local institutions. During the past years, both public health care and public health monitoring systems have undergone major structural reforms in Lithuania. The institutions responsible for public health care were reorganized and responsibility for health inequality monitoring was transferred to the MoH and institutions under direct supervision of the MoH. Currently, the Institute of Hygiene carries out public health monitoring at the national level [10]. Despite the highlighted importance of sustainable intersectoral collaboration involving all sectors in policy on health inequalities, our study participants were very reserved regarding the involvement of non-health sector partners, such as non-governmental organizations, law enforcement institutions and education sector, in measuring, analysing and reducing health inequalities. In Lithuania, PHBs are the main institutions responsible for population health status monitoring at the municipal level [10]. However, this study revealed significant differences in respondents' attitudes towards this issue: the employees of municipalities stated more frequently than the employees of PHBs that responsibility for inequality measurement and analysis should be taken by PHBs.

However, there are some positive changes in this situation. Lithuania is implementing the project "Development of the Model for the Strengthening of the Capacities to Identify and Reduce Health Inequalities". This project is financed by the Norwegian Financial Mechanism 2009–2014 Programme "Public Health Initiatives" and is implemented in 2014–2017 by Lithuanian University of Health Sciences, Vilnius University, Klaipeda University and the Institute of Hygiene. One of the most important outcomes of this project is the newly developed system for health inequalities monitoring. This system provides detailed guidelines for collecting of routine health statistics and performing life-style surveys. All collected data will be publically accessible through a new web-based platform 'SveNAS' (<http://svenas.lt>). It is expected, that these guidelines and statistics platform SveNAS will facilitate

to health inequalities data collection for municipal public health bureaus and will ensure reliability of statistical information, and comparability among municipalities.

4.3 Study limitations

This study has some limitations. The low response rate in our study could have some impact on the results despite we tried to minimise nonresponse by sending questionnaires to potential respondents more than one time. However, recent cross-sectional studies carried out in Lithuania and other countries have demonstrated low response rates as well [26]. Secondly, the majority of respondents enrolled in our study were from PHBs. Only 22.7% of the respondents were from administrations of municipalities, and it could have led to underestimation of the opinions of specialists from administrations of municipalities. However, according to Lithuanian legislation, PHBs are the main institutions responsible for monitoring health inequalities in the country; therefore, the attitudes of respondents working at PHBs was considered as more important. Another limitation is a cross-sectional design of the study and data collection as our findings are based only on subjective evaluations from public health professionals. However, we consider this as a minor issue as the scope of this study was to assess the attitudes of public health professionals towards health inequality monitoring.

5 Conclusions

1. In the opinion of public health professionals, insufficient attention was given to measuring and analysing health inequalities at national and municipal levels. Most of the respondents considered that it was necessary to monitor sociodemographic health inequalities, but only a considerably smaller part of respondents systematically monitored these inequalities. Health inequalities by ethnic groups and marital status were least monitored and considered as less important.
2. Most of the respondents employed at PHBs and municipalities stated that health indicators were monitored and analysed in their institution. In the opinion of respondents, it was necessary to monitor the indicators of morbidity, mortality, lifestyle and access to health care in order to evaluate inequalities in health. However, these indicators were not monitored systematically in every municipality and PHB.

The indicators of lifestyle and access to health care were least monitored.

3. Although most of the study participants considered that it was important to use different national and international health information systems for measuring health-related inequalities, a smaller proportion of the respondents had access to statistical databases and a considerably smaller proportion of the respondents used databases.
4. In case of sufficient funding, the employees of PHBs would recommend to strengthen intersectoral collaboration for identification of priorities in monitoring and better measurement of health inequalities. Meanwhile, the precisely formulated aim and objectives of health programmes, achievement of priority in reducing health inequalities in Lithuania and possibility of placing the health indicators into practice were emphasized by the respondents working at municipalities.

List of abbreviations

PHBs: Public Health Bureaus

MoH: Ministry of Health

WHO: World Health Organization

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Competing interests. The authors declare that there is no conflict of interest.

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