Prevention of Overweight and Obesity in Local Government Health Policy Programmes in Poland in 2009-2014

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Abstract

Background: In recent decades, many countries of the WHO European Region experienced an increase in overweight and obesity indicators. In 46 countries of the Region, more than 50% of adults are overweight or obese. In Poland in 2009, over 61% of men and almost 45% of women weighed too much, with over 62% and almost 46%, respectively, at the end of 2014.

Objective: The objective of the studies described is to present developed and implemented health policy programmes concerning prevention of overweight and obesity in Poland between 2009 and 2014 financed by local government units.

Methods: Data from annual reports submitted to the Minister of Health about health policy programmes implemented by local government units was used in the study.

Results: In 2009-2014, local government units of all levels completed 279 programmes. The most programmes were completed by municipalities, followed by counties. The costs incurred by voivodeships to implement programmes were significantly larger than those incurred by municipalities and counties. The most programmes were completed in the Zachodniopomorskie and Mazowieckie voivodeships, whereas the fewest were completed in the Lubuskie and Podlaskie voivodeships.

Conclusion: There was only a limited involvement of local government units in fighting overweight and obesity. In some voivodeships the actual health needs of local communities regarding the prevention of overweight and obesity had not been given due consideration. It is necessary for local government units to adopt and maintain measures aimed at fighting overweight and obesity by increasing the number of health policy programmes and including a larger population within the programmes.

Keywords: Disease prevention; Health promotion; Health policy programme; Local government unit; Overweight; Obesity

Background

Overweight and obesity are one of the most common life style-related health problems. They are key risk factors for many chronic diseases, including cardiovascular diseases, some types of malignant diseases, respiratory diseases and type 2 diabetes, as well as for premature death [1]. In recent decades, many countries of the European Region of WHO experienced an increase in overweight and obesity indicators [2]. In 46 countries (which make up 86% of the WHO European Region), more than 50% of adults are overweight or obese, and in several countries the overweight and obesity rates reach 70% of adult population [2]. Overweight and obesity are estimated to be the cause of roughly 320 thousand deaths among women and men in 20 Western-European countries [3]. In Poland in 2009, over 61% of men weighed too much (45% were overweight and nearly 17% were obese), as well as almost 45% of women (with 29% overweight and nearly 15% included in the obese group) [4]. Compared to 2004, the population of overweight or obese adult men and women increased by 9% and 5% respectively [5]. At the end of 2014, over 62% of adult men weighed too much (44% were overweight and 18% were obese), so did almost 46% of adult women (30% were overweight, and nearly 16% were obese) [6]. For the prevention of overweight and obesity, the “National Programme for the Prevention of Overweight and Obesity and Chronic non-Infectious Diseases by Improving Diet and Physical Activity for 2007-2011” were being implemented in Poland at the national level. The programme was introduced due to the adoption, on 11 May 2004, of the Global Strategy on Diet, Physical Activity and Health [7]. Independently from the implementation of this Programme, local government units undertook actions to prevent overweight and obesity at the local level. In doing so, the local government units developed, introduced, and financed preventive health programmes.

Objective

The objective of the studies described is to present developed and implemented health policy programmes concerning prevention of
overweight and obesity in Poland between 2009 and 2014 financed by local government units.

Methods

Data from annual reports submitted to the Minister of Health about health policy programmes implemented by local government units was used in the study. The analysis covered overweight and obesity prevention programmes completed in 2009-2014. Account was taken of the implementation of programmes by local government units of all levels, i.e., by the largest territorial subdivisions (so-called voivodeships), second-level local government units covering parts of voivodeships (counties, Pol. powiat), and principal local government units (communes, Pol. gmina). The counties category also included county towns. The analysis covered programmes whose name, objective, or description of tasks indicated that they involved activities concerned with reducing the incidence of overweight and obesity. The analysis of the number of completed programmes, depending on the voivodeship and year, was based on a2 test for one sample. The test allowed for verification whether particular voivodeships implemented the same number of programmes and whether the same number of programmes was completed in subsequent years. The analysis of the number of completed programmes, depending on the local government unit, while controlling for the voivodeship and year to which the data referred, was based on a2 test. The said analyses verified the differences between local government units within specific voivodeships in each subsequent year. The differences in terms of the costs of implemented health policy programmes, depending on the local government unit carrying out the programme, were analysed by means of a one-way analysis of variance.

Results

During the analysed period, local government units of all levels completed 279 programmes. The most programmes, 204, concerned the prevention of overweight and obesity in youth and children. In 2009-2014, the programmes covered a total of more than 192 thousand people, including over 132 thousand children. The programmes involved, among other things, training sessions and workshops for adults, youth and children promoting healthy diet and physical activity to stay healthy. There were educational materials published, including posters, pamphlets, and guidebooks for various social groups, as well as promotional campaigns in the media. The variation of programmes between voivodeships was analysed to determine which voivodeships carried out the most and the least programmes. The analyses were performed jointly for all years as well as separately for each year, showing how the number of programmes changed over the analysed period (tendencies). Based on the χ² test for one sample it was found that there were statistically significant differences between voivodeships concerning the number of implemented programmes, χ²(15)= 159.42, p<0.001 (Figure 1) presents the total number of programmes completed in 2009-2014 broken down by particular voivodeships. The voivodeships were sorted from those with the highest to those with the lowest number of programmes (Figure 1).

The most programmes were implemented in Zachodniopomorskie, Mazowieckie and Śląskie voivodeships, the fewest in Podlaskie and Lubuskie voivodeships. Based on the χ² test for one sample no statistically significant differences concerning the number of implemented programmes were found between subsequent years, χ²(5)=6.87, p>0.05. Figure 2 shows the number of programmes completed in 2009-2014 (Figure 2).

Table 1 presents the numbers of programmes implemented in particular voivodeships in subsequent years with corresponding values of χ² test for one sample (Table 1). Statistically significant dynamics of changes in the number of programmes completed in subsequent years was observed in Podkarpackie and Zachodniopomorskie voivodeships. The number of programmes carried out year by year in Podkarpackie voivodeship increased in 2012. Similarly, the number of programmes carried out year by year in Zachodniopomorskie voivodeship increased in 2011. Another area of analysis was the variation between programmes by the local government unit which ran the programme. In 2009-2014 communes, counties and self-governed voivodeships completed, respectively, 170, 96 and 13 programmes. Table 2 presents the number of programmes implemented by individual local government units in subsequent years (Table 2).
No statistically significant changes were found in the numbers of programmes completed by communes, counties and voivodeships in subsequent years.

A substantial majority of communes, counties and voivodeships did not run any health policy programmes for the prevention of overweight and obesity in the studied period. Table 3 presents the number of programmes carried out by each type of local government units (Table 3). The overall cost of programmes in communes, counties and voivodeships throughout the studied period was also analysed. Average overall costs of programmes ran by communes, counties and voivodeships in 2009-2014 were compiled in (Table 4). A statistically significant main effect of the unit running the programme was obtained, F (2.110)=5.55, p<0.01, $\chi^2=0.09$. In spite of having implemented significantly more health policy programmes, communes and counties incurred far lower costs than voivodeships.

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### Table 1: Frequency distribution—programmes implemented in particular voivodeships in subsequent years.

<table>
<thead>
<tr>
<th>Voivodeship</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>df</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dolnośląskie</td>
<td>4</td>
<td>4</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>0.849</td>
</tr>
<tr>
<td>Kujawsko-Pomorskie</td>
<td>3</td>
<td>4</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>3.09</td>
<td>0.543</td>
</tr>
<tr>
<td>Lubelskie</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>0.67</td>
<td>0.955</td>
</tr>
<tr>
<td>Łódzkie</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0.71</td>
<td>0.982</td>
</tr>
<tr>
<td>Małopolskie</td>
<td>5</td>
<td>2</td>
<td>6</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>9.5</td>
<td>0.091</td>
</tr>
<tr>
<td>Mazowieckie</td>
<td>6</td>
<td>7</td>
<td>11</td>
<td>7</td>
<td>5</td>
<td>6</td>
<td>3.14</td>
<td>0.678</td>
</tr>
<tr>
<td>Opolskie</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0.01</td>
<td>0.999</td>
</tr>
<tr>
<td>Podkarpackie</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>8</td>
<td>8</td>
<td>5</td>
<td>15.00*</td>
<td>0.01</td>
</tr>
<tr>
<td>Podlaskie</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0.01</td>
<td>0.999</td>
</tr>
<tr>
<td>Pomorskie</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>2</td>
<td>2.29</td>
<td>0.808</td>
</tr>
<tr>
<td>Śląskie</td>
<td>7</td>
<td>6</td>
<td>11</td>
<td>7</td>
<td>6</td>
<td>3</td>
<td>5</td>
<td>0.416</td>
</tr>
<tr>
<td>Świętokrzyskie</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>0.8</td>
<td>0.977</td>
</tr>
<tr>
<td>Warmińsko-Mazurskie</td>
<td>2</td>
<td>2</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>6</td>
<td>3.56</td>
<td>0.614</td>
</tr>
<tr>
<td>Wielkopolskie</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2.33</td>
<td>0.801</td>
</tr>
<tr>
<td>Zachodniopomorskie</td>
<td>1</td>
<td>2</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>13.51*</td>
<td>0.019</td>
</tr>
<tr>
<td>Lubuskie</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0.01</td>
<td>0.999</td>
</tr>
</tbody>
</table>

### Table 2: Frequency distribution—Programmes completed by individual local government units with $\chi^2$ test values for one sample ( $\chi^2$-test statistic; df-number of degrees of freedom; p-statistical significance; **p<0.012-test statistic; df-number of degrees of freedom; p–statistical significance; **p<0.01).

<table>
<thead>
<tr>
<th>Local government unit</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>$\chi^2$</th>
<th>df</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>commune</td>
<td>16</td>
<td>22</td>
<td>35</td>
<td>32</td>
<td>33</td>
<td>32</td>
<td>10.07</td>
<td>5</td>
<td>0.073</td>
</tr>
<tr>
<td>county</td>
<td>17</td>
<td>13</td>
<td>21</td>
<td>16</td>
<td>16</td>
<td>13</td>
<td>2.75</td>
<td>5</td>
<td>0.738</td>
</tr>
<tr>
<td>Self-governed voivodeship</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>3.15</td>
<td>5</td>
<td>0.676</td>
</tr>
</tbody>
</table>
The available data indicate that, in many cases, communes and counties funded only some activities performed under the programmes. Such programmes were co-funded by foundations and other public benefit institutions involved in the organisation and implementation of the prevention of overweight and obesity.

**Discussion**

Studies carried out in Poland over the recent dozen or so years revealed an upward trend in the incidence of overweight and obesity [4,6,8-10]. Moreover, Poland is one of the countries with high incidence of diet-related diseases, among which cardiovascular and malignant diseases predominate. Cardiovascular diseases were the cause of 46% of all deaths in 2010 [11] and 45.8% in 2013 [12]. The situation regarding diet-related malignancies is also a cause for concern. For instance, in 2013 colon cancers constituted roughly 12% of all neoplasms reported in men and 10% of neoplasms in women. They caused around 12% of all cancer-related deaths. At the same time stomach cancers comprised around 5% of cases in men and 3% of cases in women [13]. The data presented above justify undertaking the implementation of health policy programmes by local government units, concerning the prevention of overweight and obesity. The most overweight and obesity prevention programmes were completed by communes, fewer by counties. Taking into account the number of communes in Poland (2,478), in 2009-2014 there was statistically, on average, 1 overweight and obesity prevention programme per 15 communes. The situation of counties is more favourable in this regard. Counties and county towns (380) completed 96 programmes in the studied period. Consequently, there was statistically, on average, 1 programme per 4 counties. On the basis of the presented figures, the low activity of local government units in the prevention of overweight and obesity must be considered unsatisfactory.

The lack of statistically significant increase in the number of programmes in voivodeships year to year was also a cause of concern. The only exceptions here were Podkarpackie and Zachodniopomorskie voivodeships. Data presented by the Agency for the Evaluation of Medical Technologies and Tarification (AOTMiT) supports the relatively low interest of local government units in the prevention of overweight and obesity. Since 31 August 2009, Ministers and local government units are required to consult the projects of health policy programmes with AOTMiT [14]. In 2010-2013 only 44 programmes for the prevention of overweight and obesity were submitted to AOTMiT [15]. Considering the number of programmes completed by local government unit, it can be supposed that a large proportion of them continued the programmes carried out before 2010, when the opinion of AOTMiT was not required yet. With regard to the number of completed programmes, doubts arise concerning the appropriate completion of the objectives defined by the National Health Programme for Health 2007-2015 This Programme indicated improving the population's diet and quality of healthy foods, as well as decreasing the incidence of obesity as some of its objectives regarding risk factors and health promotion activities [16].
Thus, in Chapter IV, "Actions that health care services and local government need to take" comprises two aims: to activate local government units and non-governmental organisations for the benefit of the health of the society, and to increase and optimally use the health care system and local government infrastructure for the promotion of health and health education. Total expenditure on health care programmes concerning the prevention of overweight and obesity was also evaluated. The largest part of the budget for all health policy programmes in 2009-2014 [17-19] was allocated to overweight and obesity prevention programmes by communes (around 1.9% of the programme budget), followed by voivodeships (around 1.5% of programme budget). In counties and city counties, the percentage of expenditure for overweight and obesity prevention programmes did not exceed 0.4% in the studied period. The small number of programmes combined with the relatively low involvement of financial resources may attest to the marginalisation of the prevention of overweight and obesity programmes ran in each voivodeship, the incidence of overweight and obesity was also evaluated. The analysis of the composition of expenditures of individual local government units may indicate that, in the first place, financial means are allocated to the implementation of obligatory tasks stipulated by the law. The extent to which local government units took into account the incidence of overweight and obesity was also evaluated. The analysis of body mass distribution according to sex in each region, carried out under EHIS study in 2010 showed that the inhabitant of Śląskie, Opolskie, Małopolskie and Wielkopolskie voivodeships weighed relatively the most. In these voivodeships, more than 53% of the adult population weighed more than the norm and frequently reached obesity levels (one in six or seven adult inhabitants of these voivodeships was obese). The situation in Mazowieckie voivodeship, where 52% of people were overweight, was not favourable either. Overweight and obesity were the least common among the inhabitants of Świętokrzyskie, Lubelskie, Pomorskie, and Warmińsko-Mazurskie voivodeships, affecting every other person aged 15 years or more [4]. Considering the number of programmes ran in each voivodeship, the incidence of overweight and obesity was taken into account to the greatest extent in Śląskie and Małopolskie voivodeships, and in Mazowieckie voivodeship as well. The situation was the least favourable in Opolskie, Łódzkie and Lubuskie voivodeships. Irrespective of a large proportion of overweight and obese people, only 6 programmes concerning overweight and obesity were completed in Opolskie voivodeship over 6 years. In the 2009-2014 period, only 7 programmes were completed in Łódzkie voivodeship, which showed the greatest increase in the percentage of persons with overweight and obesity of all voivodeships (by roughly 5%). The situation in Lubuskie voivodeship was not favourable either (4 programmes or a 3% increase in the number of overweight persons weighing more than the norm).

The size of the population covered by the programmes was analysed next. Thus, considering the population of Poland and the number of people covered by the programmes, no more than 0.15% of the population participated in them in any given year. Local government units addressed the most programmes to children, who comprised around 69% of persons covered by the programmes. Obesity in children affects their health in both short and long term [20]. An obese child of 10-13 years, compared to its peer with normal body weight, is 6-7 times more at risk of being obese in adulthood [21]. Moreover, the prevalence of obesity in young people is associated with higher morbidity and mortality after the age of 50 years, regardless of their body mass as adults [22]. In 2010 in Poland, 14.1% of young people aged 11-15 years were overweight and 2.9% were obese. Even though in 2014 the incidence of overweight and obesity in this youth group decreased to the levels of 12.4% and 2.4% respectively, still one teenager in 7 was overweight or obese [23]. In this context, it seems that the structure of programs is justified. Health promotion programmes should be developed and addressed first of all to youth and children, since the epidemic of obesity begins already at the developmental age [24]. However, the activity of local government units with regard to the number of programmes, the number of people covered by the programmes, and engagement of funds is unsatisfactory.

Conclusion

1. The involvement of local government units in fighting overweight and obesity was limited
2. The small number of programmes for the prevention of overweight and obesity, combined with low engagement of funds may indicate that local government units implement tasks related to prevention of diseases and promotion of health only to a limited extent.
3. In some voivodeships the actual health needs of local communities regarding the prevention of overweight and obesity had not been given due consideration.
4. It is necessary for local government units to adopt and maintain measures aimed at fighting overweight and obesity by increasing the number of health policy programmes, including a larger population within the programmes, and undertaking actions which take into account the health care needs of residents.

References

