



Nutrition Labelling – an Educational Tool for Reducing Risks of High Salt Intake in Population

O. Cernelev

Department of Preventive Medicine, “Nicolae Testemitanu” State University of Medicine and Pharmacy, Chisinau, Republic of Moldova

Author's Mail Id: olga.cernelev@usmf.md

Available online at: www.isroset.org

Received: 01/Mar/2021, Accepted: 10/Mar/2021, Online: 31/Mar/2021

Abstract—Increased salt intake is the cause of countless long-term complications that have a major physical, mental, social and economic impact. This generates the appearance and development of a series of non-communicable diseases such as kidney disease, stomach cancer, osteoporosis, high blood pressure, strokes, heart failure, etc. Many governments around the world have developed legal framework to encourage a standard and informative system for labelling food nutrients, including salt on packaged products. While this trend is global, there remain differences between approaches to nutrition labelling policy framework. However, this intervention is important for risk management of exposure to salt intake in population. The paper presents a global overview of different types of front-of pack nutrition labelling systems. It examines the graphical approaches and the key trends in the standards on nutrition labelling, followed by some concluding comments.

Keywords— Nutrition labelling, Policy framework, FOP, Salt, Sodium

I. INTRODUCTION

The global burden of disease (GBD) study defines a diet being high in sodium when it results in an average 24-hour urinary sodium excretion that is greater than 3 grams per day. The GBD study estimated that in the European Union, in 2017 a diet high in sodium was accountable for more than 182,000 deaths and 2,950,000 disability adjusted life years (DALYs) both mainly associated with cardiovascular diseases, stomach cancer and chronic kidney disease [1].

Approximately 95% of sodium is consumed in the form of salt. According to the “EU salt reduction framework”, the current daily salt consumption in most European countries is estimated or measured to range between 8 to 12 grams per day, with few member states above and few below this intake level. The regions with the highest reported salt intake levels are east and south Europe. Germany (6,3 g), Cyprus (6,5 g), Bulgaria (7,1 g) and Latvia (7,3 g) has the lowest estimates of salt intakes. The Czech Republic has the highest estimate of salt intakes at 13,6 grams per day, followed by Slovenia (12,7 g), Hungary (12,5 g) and Portugal (12,3 g). Salt intakes are generally higher in men than in women. For adult men, the salt intake range is from 6,5 g to 16,6 g per day. For adult women, the salt intake range is from 5,4 g to 12,3 g per day [2].

International evidence suggests that current levels of sodium consumption contribute to increased blood pressure, higher risk of cardiovascular and kidney diseases,

etc. It has been estimated that a reduction in dietary intake of sodium of 50 mmol/day would reduce the number of people needing antihypertensive therapy by 50%, the number of deaths from strokes by 22% and the number of deaths from coronary heart disease by 16% [3, 4].

It is a big challenge to consume less than 5 g of salt per day (<2 g/day sodium) due to the widespread availability of processed foods. Sodium is mainly consumed as salt which in the diet can come from different types of processed foods, either because they contain large amounts of salt (such as ready meals, processed meats like bacon, ham and salami, cheese, salty snack foods and instant noodles, among others) or because they are consumed frequently in large amounts (such as bread and processed cereal products). salt is also added to food during cooking (bouillon and stock cubes) or at the table (soy sauce, chili sauce, fish sauce and table salt). However, it is proven that this threat can be reduced by effective control over the diet of the population through innovative and collaborative strategies [5].

Many governments have developed legal framework to implement a standard and informative system for labelling food nutrients. While this trend is global, there still remain differences between approaches to this field and this can create technical barriers to the free movement of packaged foods across borders.

The aim of the present paper was to investigate the evidence from balance studies on the current food nutrition

labels and their particularities as the use of nutrition facts label becomes an important tool to make informed decisions for consumers.

Section I contains the introduction of the public health problem and global burden of disease caused by a diet being high in sodium and the key trends in the standards on nutrition labelling. Section II contains related work of the international organizations in the field of nutrition labelling such as FAO and WHO. Section III contains the description of methodology of the present study. Section IV contains a global overview of different types of front-of-pack nutrition labelling systems approved internationally and in the Republic of Moldova. Section V concludes research work with future directions.

II. RELATED WORK

Reducing salt intake in population is a crucial factor in preventing the risk of non-communicable diseases. In many countries in the EU region, more than 2/3 of all salt consumed is hidden in processed foods and snacks of food products. Additionally, some fast food companies become a key supplier of foods high in salt as well as fats and sugars. All these factors mean that many people are unaware of how much salt they are consuming and are not able to cut this intake [1].

The World Health Organization (WHO) recommends Member States implement front-of-pack (FOP) nutrition labels to guide consumers towards healthier food choices, as part of comprehensive strategies to prevent diet-related non-communicable diseases [12].

Globally, all the countries from the WHO Region have committed to cut salt intakes by 30% between 2010 and 2025. In 2014, seventy-five countries worldwide had a national salt reduction strategy [4].

A significant tool to help all the governments implement comprehensive salt reduction strategies is based on labelling legislation. The increased desire of consumers for information about health, safety, environmental and socioeconomic aspects of food products lead the governments to take measures that will ensure that the product facts are accurate and truthful [13]. In this way, nutrition labelling falls under the remit of the World Trade Organization agreements [15].

According to Codex Guidelines on Nutrition Labelling, the term “nutrition labelling” is a description intended to inform the consumer of nutritional properties of a food. It consists of two components: (a) nutrition declaration and (b) supplementary nutrition information. Nutrition declaration means a standardized statement or listing of the nutrient content of a food. Supplementary nutrition information is intended to increase the consumer’s understanding of the nutritional value of their food and to assist in interpreting the nutrient declaration [10].

In generally, food labelling includes “any written, printed or graphic matter that is present on the label, accompanies the food, or is displayed near the food, including that for the purpose of promoting its sale or disposal”. The main purpose of food labeling is to provide the consumer with information about a food to help him or her to make healthy food choices [10].

In the European Union, Regulation (EU) 1169/2011 on food information to consumers requires the mandatory nutrition declaration of the salt content in prepacked foods. Under EU legal framework, all the countries have the same laws on nutrition labelling [16].

III. METHODOLOGY

The aim of the paper is to review current food labelling models in packaged food in order to reduce salt intakes in population. In these contexts, a narrative and systematic review was carried out to describe the food labelling.

The first stage consisted in elaborating the research concept with the definition of the problem, the purpose and objectives of the study, the selection and establishment of the research methods.

At the same time, the first stage was based on studying the literature published at the national and international levels, in order to analyze the existing evidence regarding the current situation in the field of non-communicable diseases caused by consumption of high amount of salt, comparing the results of the studies carried out as well as the examination of the practices and methods applied in the similar studies. For each country was explored the model of food labelling and its components on food products including salt.

Searches were conducted in electronic databases (Cochrane, PubMed, Web of Science) and reference lists of relevant articles that were published between 2000 and 2020. Articles were screened for quality in terms of clarity of the descriptions of measures, methods and findings.

The paper used the following research methods: observational, hygienic, analytical and comparative methods, systemic approach. There were used methods based on the materials exposed and described in the reports.

The second stage included the accumulation of the necessary data in the research. This stage was based on the assessment of the international and national legal framework (Laws, Regulations, etc.) and statistical data. The third stage consisted in the statistical processing of the data accumulated in the research. Finally, the obtained results were analyzed and evaluated in order to elaborate general conclusions and recommendations for reducing salt intake in population.

IV. RESULTS AND DISCUSSION

Globally, in response to the rising rates of salt related non-communicable diseases, policies have emerged that focus on improving the nutrition of populations using strategies such as food labelling. Specific regulatory and monitoring food labelling frameworks have been implemented in different countries.

United Kingdom (UK) is known as one of the countries that started the salt reduction strategy at the national level. In 1996, was established a Consensus Action on Salt and Health called CASH. This programme has been successful and helped a lot to reduce salt content in processed foods. Additionally, there began an educating programme for promotion of healthy diet and reducing salt consumption in population. In result, at the national level was established the recommendation for daily amount of salt as 6 g/day in adults [4, 5].

UK developed and implemented a front of pack signpost labelling system. This system is based on the 'traffic light' with a colour-coding of green, amber, and red for low, medium, and high amounts of salt, fats and sugars present in the food products. The nutrition label contains the Guideline Daily Amount system where the amount of salt per portion is expressed as a percentage of the daily recommended maximum. From 2003 to 2011, salt content in many food categories had been reduced by 20-50% and salt intake in the population had fallen from 9,5 to 8,1 g/day, accompanied by a decrease in population blood pressure and cardiovascular mortality, as well as annual cost-savings of ≈£1,5 billion for the health service [3, 5].

In Finland the reduction of salt consumption started in 1970 in North Karelia. The campaign is still continuing nationally, both in informing the public and working with the food industry. Currently, the data show that industry has reformulated some product groups, such as bread, meat products, cheeses and ready meals to reduce their salt content by about 20-25%. This significant measure contributed to reduction of the blood pressure in population as the deaths due to cardiovascular diseases. Important to mention that Finland implemented at the national level the Heart Symbol. The majority of Finnish adults are familiar with the Heart Symbol. The Heart Symbol tells the consumer at a glance that the product marked with this symbol is a better choice in its product group regarding fat (quantity and quality) and salt [5].

Statistical data from the World Action on Salt, Sugar and Health platform show that France started the national campaign for reduction of salt in food products in 2002. Additionally, there were taken different actions such as consumer awareness campaigns and education about healthy diets. The food companies committed to salt reduction. Across the whole country, all saltshakers have been removed from tables in public restaurants. Within the catering sector, salt sachet volumes have been reduced from 1 g to 0,5 g per sachet. From 2017, was introduced

the five-colour Nutriscore food label. It has been found to be the most effective in promoting healthy eating. Nutriscore classifies foods and beverages according to their nutritional profile by using a colour-coded system with a scale ranging from A (healthier choices) to E (less healthy choices) [3].

In 2017, Lidl Slovenia has committed to reducing sugar and salt in its private-label products by 2025. Together with the Society for the Cardiovascular Health of Slovenia, Lidl has prepared various activities to raise awareness of a healthy diet with less sugar and salt, thus actively participating in the prevention of related diseases. One of the examples of good practice in this area is its private-label meat product Sveže Meso, which contains 100% mincemeat without any additives. A heart symbol denotes food products with beneficial nutritional properties: low amounts of fat, salt and sugar [6].

In 2006, the Swedish food industry (Svenska Livsmedelsverket, SLV) have developed a special labelling system for healthy foods known as the Keyhole Mark. Labelling with the symbol is voluntary and free of charge in Sweden, Norway, Denmark and Iceland. Choosing foods with the Keyhole symbol makes it easier and less time consuming to find healthier products in food stores which contain less salt, sugars and fats. The Keyhole system has a set of criteria for 33 product groups. It aims to stimulate manufactures to product reformulation and development of healthier products. The Swedish National Food Agency has registered the Keyhole as a trademark and the labelling system is enforced through a regulation [7].

In USA, the Food and Drug Administration (FDA) is responsible for assuring that foods sold in the country are safe, wholesome and properly labeled. This applies to foods produced domestically, as well as foods from foreign countries. The FDA requires packaged food to state the name of the food, the amount of product, the name and address of the manufacturer, packer or distributor, the ingredients (listed in descending order) and the presence of any of the following eight common allergens: milk, eggs, fish, shellfish, tree nuts, wheat, peanuts and soybeans. Then there's the nutrition facts label, which must include serving size, calories per serving size, calories from fat as well as the percentage of daily recommended values for fat based on a 2000 calorie diet (with listed values for saturated fat and trans-fat), cholesterol, sodium, total carbohydrates (with lines for dietary fiber and sugars), protein, plus vitamin and mineral content, expressed in terms of their percentage of daily recommended values. Barring an update in 2006, in which the FDA required companies to list trans-fat content on nutrition labels, these rules have not changed since they were first put in place in the early 1990s [8].

In 2020, Italy's Ministry of Agriculture approved the Nutrinform Battery food labeling system that it sees as a better alternative to the Nutriscore scheme adopted elsewhere in the European Union. It considers the daily

nutritional intake in order to facilitate consumers in making a conscious choice, promoting a healthy, varied and balanced nutrition. The Nutrinform presents the sodium contents and even calories, fats and sugars in a single food portion and compares the percentage of those contents with what is expected in a healthy daily nutritional intake [9].

In Australia was developed and implemented the Health Star Rating system. This system is a front-of-pack labelling system that rates the overall nutritional profile of packaged food and assigns it a rating from ½ a star to 5 stars. It provides a quick, easy and standard way to compare similar packaged foods. The more stars the food contains, the healthier the choice and a recommended amount of salt. The development of the Health Star Rating system was jointly funded by Australian, state and territory governments. Food manufacturers and retailers are responsible for the correct and accurate use of the Health Star Rating system. This includes correctly calculating the Health Star Rating, accurately displaying nutrient information, ensuring consistency of information between the Health Star Rating and the Nutrition Information Panel, and complying with all relevant legislation and regulations. The Health Star Rating [10, 11].

The Healthy Choice programme focuses on promoting a balanced diet and a healthy lifestyle and is used to help consumers in making an informed choice when grocery shopping. Therefore, all product packaging and advertising materials are to carry the message "Eat All Foods in Moderation" to encourage consumers to have a balanced diet. Products carrying the symbol contain at least 25% less sodium compared to similar products. These include sauces, recipe mixes and paste, canned and processed meats, processed seafood-based foods, dried legumes, nuts and seeds [12, 13].

Food labelling in the Republic of Moldova: In the Republic of Moldova, nutrition is generally poorly understood and this have contributed to a lack of knowledge in choosing and consuming healthy foods. Four persons from ten don't read the nutrition label. According to Magenta Consulting results, 72% of those who never read the label are men and 62% come from the rural areas. In this case, it is important to improve the level of knowledge of population on healthy diet, nutrition information on food labels and expert recommendations in the field [14].

Diets in the Republic of Moldova are high in salt. The recommended amount of salt of 5 g/day for prevention of diseases is difficult to achieve due to a high cost of healthy foods (including fruits and vegetables), limited knowledge of nutrition and a generalized lack of interest [14, 15].

The main normative act that regulates the labeling of food intended for the final consumer is the Law on the information of the consumer about food products nr.279 from 2017, Law on the sanitary-epidemiological insurance

of the population no. 1513-XII from 1993 and for the execution of the Decision of the Government of the Republic of Moldova no. 996 from 2003 "On the approval of the Norms on food labeling and the Norms on the labeling of household chemicals" [15-20].

According to the Parliament Law no 306 for food security, labeling (marking) is any words, trademarks, registered trademarks, signs, elements drawn or written, stamped, embossed or printed on, or attached to a container with foodstuffs and positioned on any packaging, accompanying document, notice, label, band or flange, which is accompanying or is referring to such foodstuff [17].

The purpose of the labelling is to provide consumers with the necessary, adequate, verifiable and easily comparable information, in order to enable them to choose the product corresponding to their requirements in terms of financial needs and possibilities, and to acknowledge the potential risks to which they may be exposed [16, 17].

Additionally, the Moldovan's legislation provides for a number of obligations for economic operators in order to avoid misleading consumers via food labeling. The information on the label should not mislead consumers to purchase products by: invoking false characteristics of the food, especially related to the nature, identity, properties, composition, quantity, durability, origin or provenance of products, and methods of manufacture or production; indicating effects or properties which food does not possess; suggesting that the food has special characteristics when in fact all similar products have such features [17].

Food labels must include the following information: (1) the name under which the food is sold; the list of ingredients; (2) the quantity of certain ingredients or categories of ingredients; (3) the net quantity for prepackaged foodstuffs; (4) the date of minimum durability or, in the case of foods that are microbiologically highly perishable, "use by" date; (5) storage or using conditions, when special instructions are required; (6) the name or business name and address of the manufacturer or packer; (7) the place of origin or provenance of the food if its omission is likely to cause confusion for consumers regarding the real origin or provenance of the food; (8) instructions for use, when their absence can lead to misuse of food; alcoholic strength for beverages, if it is higher than 1.2 % by volume of alcohol; (9) a reference to batch identification; additional mentions for specific product labeling provided. Within national legislation, nutrition labeling means any information appearing on labeling and relating to energy value and the following nutrients: proteins, carbohydrates, sugars, fats, fibers, sodium, vitamins and minerals present in significant amounts, according to the table provided in the rules. As related concept, nutrition claim means any representation and any advertising message which states, suggests or implies that the food has particular nutrition properties due to energy value/calories that it provides, provides at a low or high rate or does not provide and / or due to nutritional substances it contains, comprise in a high

or low proportion or does not contain. Mentioning on food labels of elements regarding the quality or quantity of a nutrient does not represent a nutrition claim if it is established by specific regulations [17].

Consumer information regarding nutrition labeling, where appropriate, shall consist of either Group 1 or Group 2, in the following order: Group 1 - (a) energy value; (b) the amounts of proteins, carbohydrates and fats. Group 2 - (a) energy value; (b) the amounts of proteins, carbohydrates, sugars, fats, saturated fatty acids, fibers and sodium. In the case of a nutrition claim formulated regarding sugars, saturates, fiber or sodium, the nutritional information shall be provided in accordance with Group 2. Nutrition labeling may also include the quantities of one or more of the following substances: starch, polyols, monounsaturated fatty acids, polyunsaturated fatty acids, cholesterol and any of the minerals or vitamins present in significant amounts. The declaration of all these substances becomes compulsory where a nutrition claim is made. In terms of saturates, their amount should be indicated in cases where the amount of polyunsaturated and/or mono-unsaturated and/or the cholesterol rate is given. In this case, the declaration of fatty acid is not considered as a nutrition claim. Also, when declaring the amount and/or the type of fatty acid and/or the cholesterol content, the quantities of saturated, monounsaturated, polyunsaturated fat (expressed in grams) and of cholesterol (expressed in milligrams) should be given immediately after the total amount of lipids expressed in grams. The declaration of the energy value and of the proportion of nutrients or their components shall be numerical, using the following units: for the energy value -kJ and kcal; for proteins, carbohydrates, fats, fibers, sodium - grams (g); for cholesterol - milligrams (mg); for vitamins and minerals - milligrams (mg) or micrograms [17].

The list containing unrecommended food for preschool and school children (specifying products, criteria and limits) is provided in the Order of the Minister of Public Health no. 904 from 2012 approving the list of unrecommended foods for pre-school and school children and underlying principles of a healthy diet for children and adolescents. Unlabeled are included in the list, besides foodstuffs such as: foods with high content of sugar, fat, salt, calories per unit of sale; soft drinks; unpackaged food. This order prohibits the use of food products from the list of those not recommended, in children's educational institutions, as well as their sale within a radius of up to 100 m from the institution, in accordance with the provisions of Law no. 93 from 2012 on amending and supplementing some legislative acts. The order approved by the Ministry of Health gives the possibility to educate among children of preschool and school age the skills to consume healthy foods, avoiding those rich in fats, salt and sugars. There are included: foods with sugar content 15 g and more per 100 g product (caramels, chocolate, meringues, sugar cones, fruit rolls, chocolate and cream cakes, chocolate glazed cheese, corn caramel, other similar products); foods with a fat content of 20 g and more per 100 g of product (chips,

burgers, donuts, sandwiches, pizza, fried products, including pâtés, oil fries, other fried foods, mayonnaise, melted cheese, spreadable cheeses with a fat content exceeding 20%, sausages, lard and peanuts, peanuts and all kinds of nuts and similar products); foods containing hydrogenated fats (margarine and other similar products prepared from hydrogenated fats); foods with a salt content of 1.5 g and more per 100 g of product (salted biscuits, salted pretzels, salted sticks, snacks, salted hazelnuts, salted seeds, salted cheeses, other similar products); foods with an energy value of 300 kcal and more per 100 g of product; foodstuffs with added food additives (non-alcoholic beverages with added food additives, sports drinks, fast food products, chewing gum); energy drinks (coffee or other similar products) and spices: vinegar, mustard, pepper, horseradish, ketchup, hot peppers and other similar products [21].

The need to regulate food labeling is a matter of public interest due to its implications on consumer rights and interests. Responding to the need to meet an important consumer right – “the right to be informed”, food labels represent, both in legal and practical terms, an essential tool for consumers, helping them to protect their health and interests, by granting access to relevant information about the origin, nature, content, composition of products, manufacture process and potential risks. Poor nutrition knowledge across the Republic of Moldova appears to contribute to poor food choices, general ignorance about diet and limited skills in food preparation. To effectively change the attitude and behaviour of Moldovans, there is an urgent need for nutrition education programme.

Nutrition labelling is a significant tool to provide consumers, at the point of purchase, with information about the content of a food product, including salt. In this way it supports the goal of adopting a healthy diet. Consumers can use the information which appears on the food packages to identify products high in salt or with certain nutrition qualities related to wellness. So, the nutrition label allows the consumer to compare the nutrition values of similar foods and to make a correct and healthy food choice. Additionally, the manufacturer with the help of nutritional label can differentiate their food products easily and this can help them to win the trust of consumers.

Addressing the burden of salt related non-communicable diseases, such as cardiovascular, hypertension, kidney disease, etc., has received much attention, leading the governments to recommend priority interventions to improve the quality of dietary intakes. Nutrition labelling have been proposed as one such intervention. There are a number of existing food labelling tools in the world. FAO describes three categories of nutrition labelling: non-directive, semi-directive and directive [10, 22].

Non-directive are labels that contain numerical information within the label for the consumer process (typically on energy, fat, saturated fat, sugar and salt per serving). An

example of non-directive type of nutrition label is used in the United States. There is no benchmark on the nutrient levels with respect to whether they are in the food at a healthful level or not [10].

Semi-directive labels contain detailed numerical information within the label for the consumer to process (typically on energy, fat, saturated fat, salt and sugar per serving). The nutrients are also overlaid with some form of interpretative information/benchmark typically by way of colour or text, indicating whether they are in the food at a healthful level or not. Whilst these types of labels do not formally communicate an overall decision on whether the product is considered to be healthy, when all the nutrients within the label for a given product are colour coded 'red' or alternatively all 'green', they do communicate at a level more in line with the directive schemes. This type of nutrition label is used in Italy, etc. [10].

Directive labels communicate an overall decision that a product is considered healthy in relation to other products in the same food category, thus attempting to simplify the 'healthy choice' options for a consumer. Typically, they do not display the detailed nutrition information that would be required to decide on whether the product is healthful as the presence of the logo itself identifies that this assessment has already been made on behalf of the consumer. Examples of these types of nutrition labels can be seen in Finland, Singapore, Sweden, Slovenia, etc. [10]. It is important to mention the differences between the United States and European Union nutrition labels. In the US, nutritional labels indicate the number of servings per item and the serving size. For example, a food item states the amount of sodium per 1 serving. In EU, all the nutrients are based on 100 g or ml. Additionally, the US lists sodium content measured in milligrams while EU lists salt content measured in grams. To ensure that the final customer easily understands the labelling, it is appropriate to use the term "salt" instead of the corresponding term of the nutrient "sodium". Therein, 'salt means the salt equivalent content calculated using the formula: salt = sodium \times 2.5'. The unit of measurement to be used is g per 100 g of product. The daily reference intake for salt is 6 g for adults, and the salt content can be expressed as a percentage of the reference intake per 100 g or per 100 ml [8].

Globally, there are four broad types of graphical nutrition labels: guideline daily amount (GDA), traffic light labelling, nutrition scoring system and calorie labelling. The main objective of them is to enable consumers to make appropriate food choices in relation to reducing the risk of developing NCDs.

Some nutritional labels are nutrient specific such as Guideline Daily Amounts or Traffic Light labelling. GDA is important because it involves presenting the amount of energy and key nutrients in one portion of the product as a percentage of the guideline daily amount (for example: the amount of salt recommended that an average person

consume in one day) in a graphical form. The Traffic Light labelling includes four core elements: (1) separate information on the key nutrients including salt; (2) use of red, amber or green colour coding to provide at a glance the data in the level of the individual nutrients in the product (for example: high/medium or low level of salt); (3) provision of information on the levels of nutrients in the product; (4) use of nutritional criteria developed by the Food Standards Agency from UK to determine the colour branding [8].

Additionally, there are warning labels that state food high in salt. Summary labels, such as Healthy Choice logo, Health Star Rating, Heart Symbol or Nutriscore translate the components of the food item into a single value that indicates how healthy it is. Warning labels are estimated using a proprietary system based on the presence of added sodium, vitamins, etc. (Hawkes C./WHO, 2004).

It is important to mention the fact that, the aim of nutritional labelling is to provide consumers with information to enable them to choose nutritious foods or to verify a nutrition claim made on the label. Additionally, graphical schemes aim to promote and encourage healthier choice of consumers regarding low consumption of salt.

V. CONCLUSION

A standardized food label would ensure that consumers see a consistent symbol, based on scientific criteria that can influence them to select the healthiest foods. Furthermore, it is important that each consumer has knowledge on importance of adopting a healthy diet with reduced salt intake.

On account of the literature review, we found that there is a huge variation in the standards and guidelines on nutrition labelling around the world. In some countries, the food industry has developed a range of graphical models on nutrition labelling. In this way, labelling is viewed as part of a policy legal framework to address salt-related diseases and an important tool for risk management of exposure to salt intake in population.

Each type of nutrition labelling has its advantages. The metrics make consumer easier to compare the nutritional content of food items. However, in the United States, carefully researched portion sizes are meant to eliminate the need to do math and calculations at all as they present the amount of nutrients per serving.

Also, the directive labels allow the consumer to choose a healthy food product that makes easier his/her decision and can reduce the level of salt intake in population.

REFERENCES

- [1] EU Science Hub. Results Tool. Seattle, **United States** - Institute for Health Metrics and Evaluation (IHME), **2017**.
- [2] EU Commission. Survey on Member States: Implementation of the EU Salt reduction Framework, **pp.5-6, 2012**.

- [3] F. He, Pombo-Rodrigues S., MacGregor G. "Salt reduction in England from 2003 to 2011: its relationship to blood pressure, stroke and ischaemic heart disease mortality", *BioMedical Journal Global Health*, **Vol.4, Issue 4, pp. 1-7, 2014.**
- [4] WHO. Report: Effect of reduced sodium intake on blood pressure, renal function, blood lipids and other potential adverse effects, **pp.1-4, 2012.**
- [5] WHO. The SHAKE Technical Package for Salt Reduction: the salt habit, **pp 9-18, 2016.**
- [6] Hlastan C., Maucec J., Vertnik L., Vegnuti M., Cappucio F. "Salt intake of the slovene population assessed by 24 h urinary sodium excretion", *Public Health Nutrition*, **Vol.13, Issue 11, pp. 1803-1809, 2010.**
- [7] Larsson I., Lissner I., "The 'Green Keyhole' nutritional campaign in Sweden: do women with more knowledge have better dietary practices?", *European Journal Clinical Nutrition*, **Vol. 50, Issue 5, pp.323-328, 1996.**
- [8] US Food and Drug Administration code of federal regulations, title **21 vol. 21, revised 1st April 2017.**
- [9] Muller L., Ruffieux B., "What Makes a Front-of-Pack Nutritional Labelling System Effective: The Impact of Key Design Components on Food Purchases", *Nutrients*, **Vol 12, Issue 9, p. 2870, 2020.**
- [10] FAO/ WHO. Food and Agriculture Organization of the United Nations, World Health Organization, Codex Alimentarius, International Food Standards, Standard for food grade salt (Codex Stan 150-1985, last amendment **2006**).
- [11] Brownbill A., Braunack-Mayer A., Miller C., "Health Star Ratings: What's on the labels of Australian beverages?", *Health Promotion Journal Australia*, Vol. **30**, Issue **1**, pp. **114-118, 2019.**
- [12] Jones A., B. Neal, B. Reeve, Cliona Ni Nhurchu, A. Thow. „Front-of-pack nutrition labelling to promote healthier diets: current practice and opportunities to strengthen regulation worldwide", *Bio Medical Journal Global Health*, **Vol. 4, Issue 6 , pp.1-16, 2019.**
- [13] Albert J. "Introduction to innovations in food labelling. Report: Innovations in food labelling", FAO, Woodhead Publishing Limited, Italy, **pp.1-4, 2010.**
- [14] Cappucio P.F., D'elia Lanfranco, Obreja G., Ciobanu A. "Dietary salt intake survey in the Republic of Moldova, 2016", WHO, **pp. 14-34, 2018.**
- [15] UNECE. "Regulatory and procedural barriers to trade in the Republic of Moldova", **pp 21-67, 2017.**
- [16] EU Regulation (EU) No 1169/2011 of the European parliament and of the Council on the provision of food information to consumers. Official Journal of the European Union, L 304 **p. 18-63, 2011.**
- [17] MD Parliament Law no 306 for food security, approved by MO nr.59-65, art.no. **120, 2018.**
- [18] MD Law on the information of the consumer about food products nr.279, **2017.**
- [19] MD Law on the sanitary-epidemiological insurance of the population no. 1513-XII, **1993.**
- [20] MD Decision of the Government of the Republic of Moldova no. 996 "On the approval of the Norms on food labeling and the Norms on the labeling of household chemicals", **2003.**
- [21] MD Order of the Minister of Public Health no. 904 approving the list of unrecommended foods for pre-school and school children and underlying principles of a healthy diet for children and adolescents, **2012.**
- [22] EU Regulation (EU) No 432/2012 establishing a list of permitted health claims. Official Journal of the European Union Official Journal of the European Union, L 136/1, **2012.**

AUTHORS PROFILE

Mr. O. Cernelev is a Lecturer in the Department of Preventive Medicine, "Nicolae Testemitanu" State University of Medicine and Pharmacy, Republic of Moldova. She holds a PhD in Medical Sciences. She also has a Masters of Management in economy from the Academy of Public Administration, Republic of Moldova. Mrs Cernelev has published more than 40 research papers in reputed national and international journals and conferences. Additionally, she has over five years' experience managing NGO Healthy Principles and implementing health projects.

