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National seasoning practices and factors affecting the herb and spice consumption habits in Europe

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ABSTRACT

This study aimed to recognize herb and spice consumption habits as well as to explore certain factors having an influence on it in seven (Austria, Germany, Hungary, Ireland, Latvia, Slovakia, the Netherlands) member states of the European Union. A self-administered questionnaire survey was conducted in each country, comprising of 1731 European adults regularly preparing food at home. Pepper and paprika, as well as parsley and basil were found to be the most frequently consumed spices and herbs, respectively. Validation of the 'spice consumption' model indicated that knowledge regarding health issues of herbs and spices was of high importance, which may have had favourable effects on the consumption habits. In conclusion, this study suggests that emphasising of health issues – directly or as incorporated into gastronomic elements – can be a useful tool for the expansion of herb and spice consumption, as well as globalizing of national cuisines and the consumption of typical national spices and country specific characteristics which can be still identified in Europe.

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1. Introduction

Herbs and spices play an important role as flavouring agents in the diet and are used throughout the world. Cultivation and export of herbs and spices has been continuously rising in the last quarter-century (FAO-STAT-Food and Agriculture Organization of the United Nations Statistics Division, 2016), as well as their kitchen technological utilization which has become a global trend (Williams, 2006). According to Douglas, Heyes, and Smallfield (2005) there are around 40–50 spices of global economic and culinary importance and many lesser known spices used in traditional cooking that have little or no international trade value. Herbs and spices help to vary dishes and to emphasize the national particularities of ethnic cuisines (e.g. turmeric in Indian cuisine; basil, garlic and oregano in Italian and Greek cuisines; and paprika powder in Hungarian cuisine) (Kaefer & Milner, 2008). However, due to the globalizing world these national cuisines and along with their seasoning practices are also spreading. Regardless of any national particularities, black pepper is the most important, most popular

and most widely used spice in the world (Ravindran & Kalluparackal, 2012), while leading herbs include parsley, thyme and oregano (CBI–Centre for the Promotion of Imports from developing countries, 2010).

Even though herbs and spices are consumed in small amounts, assessment of their intake became an important topic arising from the antioxidant properties of these aromatic plants which can provide health benefits for consumers (Craig, 1999; Low Dog, 2006; Ferrucci et al., 2010; Kaefer & Milner, 2008; Lampe, 2003). Furthermore, measurement of spice intake has also an important role in the risk assessment for estimating contaminant intakes (McKee, 1995; Sagoo et al., 2009; Vitullo et al., 2011; Yogendrarajah, Jacxsens, Lachat, Walpita, Kolsteren, De Saeger, & et al, 2014). Thus the knowledge of the consumption pattern regarding herbs and spices has a remarkable relevance.

Food consumption data can be collected by means of macro-statistics (e.g. Food Balance Sheet (FBS) data), microstatistics (household budget survey) – which are usually not detailed enough to contain data on herbs and spices – and with food consumption surveys (Szűcs, Szabó, & Bánáti, 2013). A rough estimation of assumed spice consumption can be provided by the FBS data system of the GEMS/FOOD (Global Environment Monitoring

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System – Food Contamination Monitoring and Assessment Programme). FBS data created 17 cluster diets, spice and condiment consumption (adults) of a group (G15) of several European countries (Czech Republic, Denmark, Hungary, Ireland, Lithuania, Portugal, Romania, Serbia and Montenegro, Slovakia, Slovenia, Sweden) and indicated consumption was 3.3 g/day/person. The same amount was observed in case of the cluster (G11) which included Belgium and the Netherlands. Lower consumption (1.9 g/day/person) was found regarding cluster (G10) including e.g. Latvia as well as the group (G8) containing European countries like Austria and Germany (Héraud, Barraj, & Moy, 2013). However, it is important to note that FBS data does not consider variability of individuals and households. The best way to collect detailed information about consumption habits is completion of a food consumption survey (Szűcs et al., 2013); however, availability of herb and spice dietary consumption data is limited so far (Kaefer & Milner, 2008; Tapsell et al., 2006). The EFSA Comprehensive Food Consumption Database contains detailed data on food consumption from national nutrition surveys across the European Union. According to these data, European countries herb and spice consumption show great differences. For example – regarding the countries examined in the present study – spice and herb consumption (adults) of Hungary (1.54 g/day) and Latvia (1.31 g/day) was found to be higher, while in Austria (0.15 g/day) and the Netherlands (0.02 g/day) lower. The higher figures for Hungarians may be due to a remarkable consumption of paprika powder (0.82 g/day) and for Latvians to a high preference for chives (0.58 g/day) (EFSA–European Food Safety Authority, 2016). In the case of dietary survey methods (e.g. 24 h recall, food record or diary) identification of the exact amount of the consumed herbs and spices is difficult. However, a targeted food frequency questionnaire (FFQ) can give more detailed data regarding seldom, or, about ingredients consumed in very small amounts. Carlsen, Blomhoff, and Andersen (2011) confirmed that instead of time-consuming 28-day records FFQ is an appropriate tool for the estimation of herb and spice consumption.

Due to the antibacterial effects some spices and their mixes (e.g. clove, cinnamon, oregano, rosemary) (Deans & Ritchie, 1987; Fei, Yi-cheng, Xing-qian, & Yu-ting, 2011; Fernández-López, Zihí, Aleson-Carbonell, Pérez-Alvarez, & Kuri, 2005; Matan et al., 2006; Moore-Neibel et al., 2013; Mytle, Anderson, Doyle, & Smith, 2006; Pina-Pérez, Martínez-López & Rodriqi, 2012) may be a favourable option for the replacement of food additives (e.g. preservatives) which often arise consumer rejection (Szűcs et al., 2014) and thus can help the development of foodstuffs fit into the latest ‘free-from’ food trend. A study by Ghawi, Rowland, and Methven (2014) provided evidence that utilization of carefully chosen herbs and spices is a useful approach to reduce salt content in food. In line with WHO recommendations for salt reduction (WHO–World Health Organization, 2012), in several national nutritional recommendations, herb and spice consumption is also mentioned as a means by which to reduce the daily intake of salt. Even for the Mediterranean diet which is relatively low in salt, the Ibero-american Nutrition Foundation (FINUT) healthy lifestyles guide recommends the wide use of herbs and spices during meal preparation to reduce salt intake is (Gil, Ruiz-Lopez, Fernandez-Gonzalez, & Martinez de Victoria, 2014). As another example, the Eatwell Guide launched by Public Health England in association with the Welsh Government, Food Standards Scotland and the Food Standards Agency in Northern Ireland proposes replacing salt with pepper, or with different herbs and spices to add flavour to the dishes (Public Health England, 2016).

In this paper a study of herb and spice consumption habits, as well as the exploration of some of the factors which influence them was carried out.

1.1. Development of a theoretical ‘spice consumption’ model

A model was developed containing a range of factors affecting herb and spice consumption which included the perceived advantages and risks of their consumption, as well as the level of health-consciousness and interest regarding their utilization. As these factors can be influenced relatively easily by social aspects, the primary objective was to find the basis for spice consumption. During model development it was presumed that widespread access to gastronomic information (e.g. magazines, television programmes, internet) may influence positively the utilization of herbs and spices (β_1). Furthermore, as gastronomic information is usually linked to the health aspects of the ingredients, it is reasonable to consider that increased interest in gastronomic information may result an increased awareness of the level of health knowledge (β_4). According to Becker, Maiman, Kirscht, Haefner, and Drachman (1977) health consciousness (HC) refers to the degree of readiness to undertake health actions. Gould (1990) identified four dimensions of HC: ‘health self-consciousness’, ‘health alertness’, ‘health self-monitoring’ and ‘health-involvement’. People with high level of HC tend to live healthier lives, tend to converse more about health, pay more attention to relevant magazine articles and food ingredient labels compared with lower HC people (Gould, 1990). ‘Health self-consciousness’ is focused on individuals’ actual behaviour, so it can be assumed that it may have a direct influence on spice consumption habits (β_3), level of the perceived risk (β_8) and on the level of knowledge regarding health issues (β_6) of herbs and spices. Greater nutritional knowledge is associated with healthier food choice (β_2) (Žeželj, Milošević, Stojanović, & Ognjanov, 2012) and impact on the perceived level of risk (β_7 , β_5) (Chen & Li, 2007; Miles & Frewer, 2001) (Fig. 1).

As the model contains a limited number of factors affecting the spice consumption, the expected explanatory power of it will be moderate; however, the important relationships would be viewed and the possibilities for progress could be revealed.

2. Method

2.1. Data collection

An internet-based self-administered questionnaire was developed and implemented in seven participating European countries (Austria, Germany, Hungary, Ireland, Latvia, Slovakia, the Netherlands). Consumption frequencies of 8 spices (allspice, chilli, cinnamon, nutmeg, paprika, pepper, saffron, vanilla) and 4 herbs (basil, oregano, parsley, thyme) – having noted food safety importance – were analysed. Consumption frequencies of the selected herbs and spices were analysed both with help of a multiple choice question (select the 5 more frequently consumed herbs and spices) and a rating scale (on a timeline, respectively). Following these, respondents decided on a 1 to 7 Likert scale of how typical the listed statements were of them (1: not typical of me at all; 7: really typical of me) alluded to ‘spice consumption’ habits and ‘health self-consciousness’. Furthermore, ‘gastronomic interest’ and the level of agreement were measured (1: strongly disagree; 7: strongly agree) in the case of ‘health issues’ and ‘risk perception’. According to cross-cultural studies, inaccuracies in the translation process are common (Su & Parham, 2002). In order to achieve equivalence between the source version and the target version of the questionnaires a back-translation and a pre-test was performed in the participating countries (Bullinger, Anderson, Cella, & Aaronson, 1993; Manesriwongul & Dixon, 2004; Su & Parham, 2002). On-line data collection was carried out over autumn and winter 2014. The target group of the survey was over 18 years old inhabitants of the given countries (according to their nationality)

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