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▶ **To cite this version:**

Antonina Tcymbal, Peter Gelius, Karim Abu-Omar, Charlie Foster, Stephen Whiting, et al.. Development of national physical activity recommendations in 18 EU member states: a comparison of methodologies and the use of evidence. BMJ Open, 2021, 11 (4), pp.e041710. 10.1136/bmjopen-2020-041710 . hal-03633954

HAL Id: hal-03633954
https://insep.hal.science//hal-03633954

Submitted on 7 Apr 2022

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BMJ Open

Development of national physical activity recommendations in 18 EU member states: a comparison of methodologies and the use of evidence

Antonina Tcymbal ,[1] Peter Gelius ,[1] Karim Abu-Omar,[1] Charlie Foster,[2] Stephen Whiting,[3,4] Romeu Mendes ,[3,4] Sylvia Titze,[5] Thomas Ernst Dorner ,[6] Christian Halbwachs,[7] Martine Duclos,[8] Jean-Francois Toussaint,[9] Wanda Wendel-Vos,[10] Beelin Baxter,[11] Susanne Ferschl,[1] Joao Joaquim Breda[3]

To cite: Tcymbal A, Gelius P, Abu-Omar K, *et al*. Development of national physical activity recommendations in 18 EU member states: a comparison of methodologies and the use of evidence. *BMJ Open* 2021;**11**:e041710. doi:10.1136/bmjopen-2020-041710

► Prepublication history for this paper is available online. To view these files, please visit the journal online ().

Received 15 June 2020
Revised 09 December 2020
Accepted 28 March 2021

Check for updates

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For numbered affiliations see end of article.

Correspondence to
Dr Antonina Tcymbal;
antonina.tcymbal@fau.de

ABSTRACT

Objectives The aim of the study is to compare how member states of the European Union (EU) develop their national physical activity (PA) recommendations and to provide an overview of the methodologies they apply in doing so. Information was collected directly from the physical activity focal points of EU member states in 2018. Five countries were chosen for detailed case study analysis of development processes.

Design Cross-sectional survey.

Participants The representatives of the 28 EU member state governments to the EU physical activity Focal Point Network.

Outcome measures From national documents we extracted data on (1) the participants of the development process, (2) the different methods used during development, and (3) on which sources national PA recommendations were based. An additional survey for case study countries provided details on (1) anonymised information on the participants of development process, (2) methods employed and rationale for choosing them, (3) development process and timeline, and (4) main source documents used for recommendation development.

Results Eighteen national documents on PA recommendations contained information about development process. The results showed that countries used different approaches to develop national recommendations. The main strategies were (1) adoption of WHO 2010 recommendations or (2) a combination of analysis and adoption of other national and international recommendations and literature review. All of the five case study countries relied on review processes rather than directly adopting WHO recommendations.

Conclusions While there are arguments for the use of particular strategies for PA recommendation development, there is currently no evidence for the general superiority of a specific approach. Instead, our findings highlight the broad spectrum of potential development methods, resources utilisation and final recommendations design currently available to national governments. These results may be a source of inspiration for other countries currently planning the development or update of national PA recommendations.

Strengths and limitations of this study

- This is the first scientific overview of methodological approaches used to development national physical activity (PA) recommendations.
- The analysis and comparison of methodology and sources of evidence used in development of national PA recommendations in the European Union (EU) allows to identify main strategies that countries applied and can be highly relevant to researchers, practitioners and policy-makers and to other countries currently planning the development or update of national PA recommendations.
- Data were collected by using questionnaire based on the WHO Health-Enhancing Physical Activity Policy Audit Tool which provided comparable data for all 28 EU countries.
- Additional detailed information about development process in five selected case study countries were collected through national experts and physical activity focal points.
- Main limitations of the study include usage data from a broader EU/WHO Europe survey therefore some information was not available, not systematically selection of the case study counties and a restriction to documents published before April 2018.

INTRODUCTION

Official recommendations (sometimes also referred to as 'guidelines') on the amount of physical activity (PA) that is necessary to achieve health benefits are one of the important elements of strategies to reduce inactivity and sedentary lifestyles.[1–3] PA guidelines are statements about levels of PA, based on epidemiological thresholds, where regular PA is associated with a significantly reduced risk of a range of conditions, diseases and mortality. They usually reflect a life course approach by age or life stage. PA guidelines are the rubric for setting population levels of

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PA for increased physical and mental health and provide benchmarks for national surveillance. Understanding the landscape for developing national PA guidelines will help identify differences in approaches used by countries and their impact on PA promotion.

WHO published the original version of its Global Recommendations on PA for Health in 2010[2] and regularly encourages member states to develop their own national recommendations.[4–6] Such recommendations, while not necessarily effective in directly increasing PA levels in a population,[7] may be particularly useful for fostering cooperation between government agencies and guiding health promotion professionals in their efforts to promote PA.[8 9] As such, PA guidelines may support individuals in developing necessary habits to stay active.[10]

Globally, many countries already have national PA recommendations in place and update them regularly, including most European Union (EU) member states,[1 11 12] the USA,[9 13] Canada[14 15] and Australia.[16 17] Various recent studies have compared the contents (recommended frequency, duration and intensity of PA) of the national PA recommendations in the European region.[11 12 18] Since 2010, countries have used different methodologies and processes for developing their PA recommendations. Available evidence (eg, from the USA, Canada and Australia) suggests that development processes have followed the development stages recommended by Tremblay[19] by including systematic literature reviews, reviews of existing national and global PA guidelines,[20 21] expert working group (EWG) meetings, consultations with stakeholders,[21] and gathering feedback from the public online (eg, via the Office of Disease Prevention and Health Promotion website of the US Department of Health).[9] While these more elaborate/participatory processes might help nations to put PA promotion on the national (policy) agenda, they might require resources (funding, time, availability of qualified specialists) that are not available in all nations, and also might represent a duplication of existing work. It remains an open question which of these elements national governments wishing to develop PA recommendations should consider, especially in countries where resources and capacities are limited.

This paper aims to provide a comprehensive overview of the main methodological approaches used to draft national PA recommendations from the member states of the EU up until the year of 2018. To our knowledge, this study is among the first to compare such methodologies across nations. In order to investigate how countries compare in the development of recommendations, the EU and its PA national Focal Point Network provide a unique case study in this regard.

METHODS

The EU national PA 'Focal Points' allow for the systematic, harmonised collection and validation of cross-national data on PA and PA policy. Information on various aspects of PA policy, including national recommendations, is gathered by these Focal Points under coordination by the European Commission (EC) with the support of the WHO Regional Office for Europe. The surveys are conducted every 3 years based on the Monitoring Framework for the European Council Recommendation on promoting Health-Enhancing Physical Activity (HEPA) across Sectors.[3] Currently, Europe is the only WHO region to have such a network in place, making it a strong case study to address our research question.

Table 1 provides an overview of the steps and timeline employed for our data collection and analysis. In 2018, the EC and WHO Europe conducted a survey to assess the implementation of the European Council Recommendation on HEPA across Sectors.[3] The survey tool included questions about 23 indicators as defined by the 'EU Council Recommendation on HEPA across Sectors'[3] that allow to explore the implementation of HEPA-related policies and actions at the national level throughout the EU. Data were collected via the EU PA Focal Point Network, which was founded in 2014 to monitor the

Table 1 Steps and timeline of data collection and analysis

Timeline	Steps
January–March 2018	Joint EC/WHO Europe survey to monitor the implementation of the European Council Recommendation on promoting HEPA across Sectors.
February–March 2019	Information about national PA recommendations retrieved and reviewed. Links to national PA recommendations checked, available official PA recommendations documents downloaded.
November 2019	Extraction of data on (1) participants of development process, (2) methods implemented and (3) sources/basis of national PA recommendations.
December 2019	Template sent to PA Focal Points of five case study countries; guiding questions include (1) details on process participants, (2) details on methods employed and rationale for choosing them, (3) details on development process and timeline, (4) details on main source documents used for recommendation development.
January 2020	Data analysis and synthesis.
March 2020	Review of case studies by PA Focal Points.

EC, European Commission; HEPA, Health-Enhancing Physical Activity; PA, physical activity.

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implementation of the 2013 EU Council Recommendations on HEPA across Sectors and to support exchange on PA promotion policy between countries. Focal Points are PA experts officially nominated by their governments to support data collection on HEPA monitoring. They usually work in national ministries of health, ministries of sport or related national agencies, giving them an intimate knowledge of national PA promotion and policy. Focal points were asked to complete an electronic questionnaire for their country. The questionnaire included a set of questions about the availability, addressed population groups, scientific basis and implementation status of national PA recommendations (indicator 1). All 28 countries that were EU member states at the time completed the questionnaire and provided information about the development status of their national PA recommendations, their basis (eg, other international or national recommendations), and links to relevant documents. We retrieved the answers to Indicator 1, checked the links to national PA recommendations and downloaded all available official documents. Documents in languages other than English or German were translated via Google Translate. We then conducted a detailed comparative analysis of the contents of the different recommendations, which has recently been reported elsewhere.[18]

For the paper at hand, we selected all those publicly available documents for further analysis that contained information about the processes employed for developing the national PA recommendations. In doing so, we considered all development processes regardless of the age group covered, but focused less on documents describing the translation of existing WHO PA recommendations and more on those covering more elaborate processes of developing national recommendations from scratch. We extracted and comparatively analysed data on (1) the participants of the development process, (2) the different methods used during development and (3) on which sources national PA recommendations were based.

The initial analysis showed that the official recommendations documents of five countries (Austria,[22] France,[23] Germany,[24] The Netherlands[25] and the UK[26]) contained dedicated sections with descriptions of the development methodology. As this suggested that more detailed information on the development processes and their underlying rationale was readily available for those countries, we selected them as case studies in order to enrich the data and provide examples of actual procedures successfully employed by governments in the past. A template was sent to the PA focal points of these countries asking them to provide short structured reports with additional information on their national guideline development process. This included (1) information about the composition of the development group (including anonymised information on participants' institutional background, professional perspective and expertise), (2) details on methods employed and rationale for choosing them, (3) details on development process and timeline, (4) details on main source documents used for recommendation development. To facilitate the completion process, we prefilled the template with all the information available from the EC/WHO Europe survey and the official documents. We then brought completed templates into a unified format to increase comparability and supplied them back to the specific Focal Points for final verification.

Patient and public involvement

No patient involved.

RESULTS

Overall analysis

The analysis of Focal Points' answers to the 2018 EC/WHO Europe questionnaire on HEPA across Sectors showed that official documents with national PA recommendations were available for 23 EU Member states.[1 18] Five of these were excluded from the analysis, either because their documents did not contain information about minimum PA recommendations[27 28] or because the recommendations were presented on websites only and did not contain any information about the authors or the development process.[29–38] Eventually, 18 EU Member States were included in the analysis (Austria,[22] Belgium (Flanders),[39] Croatia,[40] Finland,[41–44] France,[23] Germany,[24] Greece,[45] Ireland,[46] Italy,[47] Latvia,[48] Lithuania,[49] Luxembourg,[50] Malta,[51] The Netherlands,[25] Slovakia,[52] Slovenia,[53] Spain,[54] UK[26]).An overview of the results is presented in table 2.

To begin with, countries chose different publication strategies for their PA recommendations, with potential implications for the required resources, synergies with other initiatives and visibility of the topic on the national agenda. Eleven countries published their national PA recommendations in the form of dedicated, separate documents, while seven included them in other documents related more generally to PA and/or health promotion. Croatia,[40] Greece[45] and Luxembourg[50] combined recommendations on PA and healthy nutrition. The French national PA recommendations are part of a general document about national PA and physical inactivity indicators.[23] Other countries included PA recommendations in national action plans or policies on PA (Slovakia),[52] obesity (Malta),[51] or nutrition and PA for health (Slovenia).[53]

Sixteen national documents were published by government organisations. The national PA recommendations for Finland[41–44] were prepared and published by a private research organisation (UKK Institute) with links to and funding from the national government, and for Latvia,[48] no information was available about the authors and publishers. In most of the countries, documents originated from the health sector, while organisations from education, culture, sport and nutrition were also involved in some cases (Finland,[41–44] France,[23] Spain).[54] Nine countries indicated that special organised working groups composed of national experts were formed to develop recommendations, and four additionally

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Table 2 National PA recommendations development methodology (based on national PA recommendation documents identified by national PA focal points in 2018 EU/WHO questionnaire monitoring the implementation of the EU Council recommendation on Hepa across sectors)

	AUT	BEL	CRO	DEU	FIN	FRA	GRE	IRE	ITA	LVA	LTU	LUX	MAT	NET	SVK	SVN	SPA	UNK
Publication format																		
Recommendations published in dedicated document	X	X		X	X			X	X	X	X			X			X	X
Authorship																		
Published/approved by government organisation	X	X	X	X		X	X	X	X		X	X	X	X	X	X	X	X
Prepared by organised working group	X	X		X		X	X	X						X			X	X
Participation or review by international experts	X			X		X												X
Methods																		
Working group meetings	X			X		X	X							X				X
Stakeholder consultation						X		X										X
Literature review		X		X		X	X	X			X		X	X				X
Analysis of other nat'l/ int'l recommendations	X	X		X			X	X					X	X			X	X
Adoption of WHO 2010 recommendations			X			X			X	X		X			X	X	X	
Basis for recommendations																		
WHO 2010 PA recommendations		X	X	X		X			X	X	X	X			X	X	X	X
Other nat'l/int'l recommendations	X	X		X	X		X	X					X	X				X
Information from literature review		X				X		X			X			X				X

AUT, Austria; BEL, Belgium; CRO, Croatia; DEU, Germany; EU, European Union; FIN, Finland; FRA, France; GRE, Greece; IRE, Ireland; ITA, Italy; LTU, Lithuania; LUX, Luxembourg; LVA, Latvia; MAT, Malta; NET, Netherlands; PA, physical activity; SPA, Spain; SVK, Slovakia; SVN, Slovenia; UNK, United Kingdom.

involved international experts in the development process (Austria,[22] Germany,[24] France,[23] UK).[26]

Regarding specific methods and steps used in the development process, Austria,[22] Germany,[24] France,[23] the Netherlands[25] and the UK[26] mentioned that special working group meetings were organised for each age category in the guidelines (eg, under 5s); France[23] conducted interviews with national stakeholders; Ireland[46] held special consultations with other national and international professionals in the field of PA promotion. The UK[26] used a web-based platform to provide an opportunity for the wider scientific community, stakeholders and interested parties to give their input for the upcoming recommendations.

Nine countries performed a literature review to collect relevant scientific information about recommended levels of PA. Nine countries analysed other national and international PA recommendations. Eight countries explicitly reported the adoption of the WHO Global Recommendations on PA for Health (2010) as a method to create their own national recommendations. All in all, the two predominant strategies pursued were (1) a combination of literature review and analysis of other recommendations (seven countries) or (2) a direct adoption of existing WHO recommendations without any review of other existing material (six countries).

Twelve countries reported that their national recommendations were at least partly based on the WHO 2010 recommendations, whose core statement is that individuals should engage in at least 150 min of moderate aerobic PA throughout the week, or 75 min of vigorous PA, or an equivalent combination of both. Other international or national PA recommendations (the USA (2008), Canada, Australia, Switzerland) were used as a basis for nine countries. Six countries stated that their recommendations

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were based on the information gathered from their literature reviews.

Case studies

The PA Focal Points from all five countries that were selected as case studies agreed to contribute to the study by verifying the information provided in the prefilled templates and completing their country descriptions. General information provided by the PA focal points is presented in the table 3.

The following sections provide the summaries of the specific steps of development processes in Austria, France, Germany, the Netherlands and the UK.

Austria

The development process of the Austrian 2010 PA recommendations was commissioned by the Austrian Health Promotion Fund (Fonds Gesundes Österreich, FGÖ). FGÖ is a division of the Austrian National Public Health Institute (Gesundheit Österreich GmbH), a corporation fully owned by the Austrian Ministry of Health (with the Minister acting as president of the FGÖ). They commissioned the Austrian Public Health Association to team up with the Austrian Society for Sports Medicine and Prevention and the Austrian Sport Science Society to develop recommendations for HEPA based on the latest scientific evidence. The development team eventually consisted of 14 researchers with a background in sport science, public health, sports medicine, economics, injury prevention and PA promotion from universities, universities of applied sciences, different specialist societies, health promotion organisations and non-governmental organisations. The development process took place between March 2009 and January 2010. The starting point was a review of recently published and well-documented PA guidelines from other countries. On this basis, the development team drafted recommendations and sent them to the three international experts for comments. An updated draft was then discussed at a 1-day meeting with the entire development team and two international experts, leading to further revisions. In a half-day meeting of the working group and 30 national experts, the guidelines were introduced to a broader academic and professional community and further fine-tuned. The recommendations were then finalised based on this feedback.

France

The 2016 French PA recommendations were based on a report produced in 2007 by a multidisciplinary expert group commissioned by the National Institute for Health and Medical Research (INSERM), which had systematically reviewed more than 2000 international research articles. In 2016, the National Agency of Sanitary Security (ANSES) assembled another group of experts from sociology, epidemiology, physiology, clinical medicine, biology, psychology and public health in order to update the recommendations of the INSERM group. This process took about 24 months and involved more than 15 meetings. The ANSES group set out by developing a methodology and by conducting a systematic analysis of studies and meta-analysis on PA. Experts from the different disciplines carried out individual searches for different population groups, including children and adolescents, adults, older people and women during the pregnancy. The first step was the systematic analysis of studies and meta-analyses published. The evaluation of the methodological quality and the robustness of the results was assessed using three levels of proof commonly employed in evidence-based medicine (A: established scientific proof; B: sScientific presumption; C: low level of scientific proof).[23] The subgroups produced individual reports, which were subsequently synthesised into a set of draft recommendations. These were validated and elaborated in a collective effort by the entire expert group before being submitted to an extended group of national and international experts for review. The recommendations were finalised and published in 2016. They were used to update the fourth National Programme for Nutrition and Health (PNNS 2019–2023) and served as a basis for a large-scale communication campaign for the general population.

Germany

The German 2016 PA recommendations were developed under the auspices of the Federal Ministry of Health. The members of the recommendations development group were recruited from the ministry's working group 'Bewegungsförderung im Alltag' (PA Promotion in Daily Living), a permanent advisory board for the implementation of the National Action Plan 'IN FORM – German national initiative to promote healthy diets and PA'. The team eventually consisted of 16 researchers from five German universities with a background in sport science, sports medicine and PA promotion. The development process took place between February 2015 and February 2016. It was decided to base the recommendations on other high-quality national and international recommendations for PA. As a first step, a systematic literature review on the latest international PA recommendations for (1) children and adolescents, (2) adults and older adults and (3) persons with chronic diseases was conducted. Participating researchers then developed an evaluation framework covering four domains (scope and target groups, methodology, level of detail and clarity, and presentation) and 28 individual quality criteria.[55] Using this framework, the quality of the PA recommendations identified in the review was then systematically assessed using a four-point scale, and high-quality recommendations (defined as those reaching at least 60% of the maximum score on each of the four domains) for each target group were identified. The content of these high-quality recommendations was analysed and summarised in a draft document. The draft was discussed at a 1-day workshop meeting with the entire development team and two international experts. The recommendations were then finalised based on this feedback.

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Table 3 Comparison of methodological approaches for selected countries

	Austria	Germany	France	The netherlands	UK
Lead institution	Austrian Health Promotion Fund (Fonds Gesundes Österreich, FGÖ). FGÖ is a division of the Austrian National Public Health Institute (Gesundheit Österreich GmbH), a corporation fully owned by the Austrian Ministry of Health.	Ministry of Health	Directorate General for Health	Health Council of the Netherlands	Department of Health, England
Size and composition of the expert group	Members: n=14 (plus additional invited national experts) Involved disciplines: sport science, public health, sports medicine, economics, injury prevention and PA Involved institution types: universities, universities of applied sciences, specialist societies, health promotion organisations and NGOs International experts: n=3	Members: n=16 Involved disciplines: sport science, sports medicine and PA promotion Involved institution types: universities International experts: n=2	Members: n=12 Involved disciplines: sociology, epidemiology, physiology, clinical medicine, biology, psychology and public health Involved institution types: universities, universities of applied sciences, universities of PA with a particular focus on expertise covering the epidemiological evidence on health benefits of PA International experts: n=1 (in the scientific committee of the Institution)	Members: n=14 Involved disciplines: sport science, exercise physiology, social science, public health and epidemiology Involved institution types: universities, university of applied sciences and national research institutes International experts: n=0	Members: n=15 (plus additional invited national experts for working groups for early years (0–5) and sedentary behaviour) Involved disciplines: PA, with a particular focus on expertise covering the epidemiological evidence on health benefits of PA Involved institution types: universities, universities of applied sciences, national research institutes, health promotion organisations, and Government Departments International experts: n=3
Main steps of the development process	1. Formation of expert group. 2. Literature review: recently published, well-documented national guidelines from other countries 3. Development of draft recommendations 4. Review by international experts and discussion with expert group 5. Revision of draft recommendations 6. Meeting with additional invited national experts 7. Fine-tuning and publication of recommendations.	1. Formation of expert group. 2. Systematic literature review: latest national and international PA recommendations. 3. Development of evaluation grid for assessing quality of PA recommendation. 4. Identification of high-quality recommendations using the evaluation grid. 5. Analysis and summary high-quality recommendations content in a draft document. 6. Meeting with the entire recommendations' development team and international experts. 7. Finalisation and publication of recommendations.	1. Formation of expert group. 2. Literature review by individual experts for different population groups. 3. Assessment strength of evidence. 4. Development of draft recommendations based on reports from different subgroups. 5. Revision of draft recommendations by the entire expert group. 6. Review of draft recommendations by extended group of national and international expert. 7. Finalisation and publication of recommendations.	1. Formation of expert group. 2. Development of review methodology. 3. Systematic literature review: PA recommendations from Australia and the USA and additional, recently published evidence from scientific literature. 4. Identification the strength of the evidence. 5. Development of draft recommendations. 6. Meeting with the entire recommendations' development team 7. Finalisation and publication of recommendations.	1. Formation of expert working groups. 2. Systematic literature review. 3. Development of drafts recommendations for different target groups. 4. Review of first drafts by all other members. 5. Teleconferences to review the evidence and develop revised drafts. 6. Scientific consensus meeting with all working groups. 7. Revision of recommendations using a web based platform by scientific community, stakeholders and other interested parties. 8. Finalisation and publication of recommendations.

Continued

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Table 3 Continued

	Austria	Germany	France	The netherlands	UK
Type of evidence review	Other national and international PA recommendations	Other high-quality national and international PA recommendations	Single studies and meta-analysis from international scientific and medical literature	Existing PA recommendations from Australia and the USA, and additional, recently published evidence from pooled analyses, meta analyses and systematic reviews of RCTs or prospective cohort studies	▲ Recently published evidence reviews used to construct or update international PA guidelines; ▲ Additional pooled analyses, meta-analyses and systematic reviews from prospective and RCT research; ▲ And any additional relevant papers identified by the respective expert working group
Timeline	March 2009–January 2010	February 2015– February 2016	November 2013–February 2016	May 2016–August 2017	June 2009–summer 2011

NGOs, non-governmental organisations; PA, physical activity.

The Netherlands

The development of the 2017 Dutch PA recommendations was guided by the Health Council of the Netherlands, which is an independent scientific advisory body whose legal task is to advise ministers and parliament in the field of public health and health/healthcare research. The development committee consisted of 14 experts with a background in sport science, exercise physiology, social science, public health and epidemiology from four universities, one university of applied sciences and two national research institutes. A secretariat appointed by the Health Council took the lead and main responsibility for drafting the recommendations. Regular meetings (approx. one per quarter) started in May 2016, and the final guidelines were published in August 2017. The Committee built on existing PA recommendations from Australia and the USA, supplementing them with additional recently published evidence. In order to do so, the secretariat developed a review methodology, which was discussed and agreed-upon at a meeting of the entire committee. The secretariat then conducted a systematic literature search limited to pooled analyses, meta analyses and systematic reviews of randomized controlled trials (RCT) or prospective cohort studies on PA and sedentary behaviour. Based on a decision algorithm,[56 57] it appraised the strength of the evidence available for different thematic areas and prepared a set of draft recommendations. This draft was discussed, revised and finalised at subsequent meetings of the committee.

UK

Work on the UK 2011 PA recommendations was led by the Department of Health in England. International and UK Experts were identified and invited to form three EWG for children and young people, adults and older adults, respectively. Each EWG consisted of three national and one international expert. The development process took place between June 2009 and summer 2011. Each EWG drew on three types of evidence: (1) recently published evidence reviews used to construct or update international PA guidelines; (2) additional pooled analyses, meta-analyses and systematic reviews from prospective and RCT research published since the most recent reviews and (3) any additional relevant papers identified by the respective EWG. On this basis, the EWGs collated the scientific evidence and prepared draft recommendations for new PA guidelines. First drafts were circulated to all other members of the overall group, and several teleconferences were held to review the evidence and develop revised drafts. A 2-day scientific consensus meeting was held to review the working papers produced by all EWGs and discuss the draft recommendations. In order to provide the broader scientific community, stakeholders and other interested parties with an opportunity for input, a national consultation process was conducted using a web-based platform. The EWGs reviewed and revised their recommendations based on this feedback.

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The final individual EWG recommendations were then compiled into the updated PA guidelines for the UK.

DISCUSSION

Our study aimed to identify the methods used in the development of EU countries national PA guidelines developed by 2018. Based on the availability of the relevant data, it inevitably comes with a number of limitations that have to be borne in mind when interpreting our results. For one, our analysis is based on a broader EU/WHO Europe survey, not on data collected specifically for this purpose. Thus, despite our best of efforts to verify the available data and close existing gaps through additional research, some information is missing. Second, our five case studies are based on a convenience sample of countries for which a certain amount of information was already available and which had the necessary capacity to provide detailed descriptions of their development of own recommendations. Selecting case study countries systematically (eg, to mirror the full spectrum of population size, economic performance and geographical location) would have been more scientifically rigorous but might have exceeded the capacity of the national PA focal points. Finally, our analysis was limited to guideline development processes conducted before the 2018 round of data collection by the EC and WHO, and more recent and/or currently ongoing processes (eg, in the UK,[58] Italy,[59] Finland[60] and Austria) were not considered.

These limitations notwithstanding, we believe that our results can make important contributions to our understanding of national PA guideline development and has important implications for future research and policy. To our knowledge, this is the first study that analysed and compared methodology of developing national PA recommendations in the EU (and, for that matter, in any group of countries). The data used for the study were collected directly from EU member states governments, thus giving us the unique opportunity to assess situation in an entire region in a comparative fashion. Our results indicate important differences in these methods, the resources used and in the final recommendations themselves, depending on whether they primarily used an 'adoption' or a 'construction' approach, or a mix of both.

Most of the analysed PA recommendations were approved by government organisations, mostly from the health sector. Sport is part of the portfolio of the national ministry of health in several EU countries, which may explain this perceived dominance of the health sector. Alternatively, the health sector may have more resources (and, potentially, a higher vested interest or perceived obligation) than other sectors to organise the development of national PA recommendations.

A closer involvement of organisations from other sectors might help improve guideline implementation. The formation of dedicated workgroups was a widespread strategy, but it was not used by all countries. It is particularly interesting to note that only four countries relied on support by international experts. The results also showed that countries used different approaches to develop national recommendations. The main strategies were (1) adoption of WHO 2010 recommendations or (2) a combination of analysis and adoption of other national and international recommendations and literature review. However, there seems to be no discernable pattern as to what 'type' of country uses which strategy. One might expect countries with higher health promotion capacity and more resources to adopt their own standards that require more resource-intensive approaches, while directly adopting international recommendations might appear to be the most cost-effective choice for countries with limited capacities. However, this hypothesis neglects the potential desire of governments to utilise the development process to put PA on the national policy agenda, and it is not borne out by our results (eg, Italy—one of the largest EU member states with a potentially high health promotion capacity—chose to directly adopt WHO recommendations, while Malta—one of the smallest members—conducted a literature review). Regardless of the chosen methodological approach, none of the documents indicated any recommendations that were developed precisely taking into account the specifics of the country (eg, climate, landscape, cultural aspects, etc). Taking national context during development process can potentially help to increase uptake of recommendations.

As mentioned above, the five case studies are not necessarily 'typical' for the entirety of approaches in the EU, as they all relied on review processes rather than directly adopting WHO recommendations. However, the cases add important information to this overall comparison, for example, regarding the potential composition of guideline development groups, key steps in the process, stages at which to involve external experts and time frames that a country should expect when drafting their own recommendations. All five countries formed special EWGs to develop recommendations, and four of them also asked for advice from international experts. This strategy appears very promising in order to improve the evidence base of the recommendations, but it is presumably also resource-consuming and time-consuming: countries spent between 1 and 2 years to develop and publish their national PA recommendations.

It is interesting to note that countries did not seem to coordinate their development processes internationally, potentially leading to the replication of efforts to review the existing evidence and to recommendations that closely resemble existing guidelines. However, feedback from our case study countries indicates that the primary goal of their national literature reviews was not to come up with new information but (1) to use a sound scientific methodology to justify the adoption of existing (eg, WHO) recommendations and (2) to provide national stakeholders with working documents in their own language.

On the other hand, as we have shown elsewhere,[18] these similar processes still have led to noticeable differences in

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national PA recommendations. For example, among the case study countries, Austria and the UK are completely in line with the 2010 WHO recommendations, France largely mirrors them but has slight discrepancies for all age groups, Germany uses WHO's recommendations for adults but different ones for children, and the Dutch guideline committee does not see a scientific basis for requiring continuous activity periods of at least 10 min.[18]

To our best of knowledge, there is currently no evidence that a specific strategy produces better PA recommendations in terms of improved population PA levels or health status, and our findings seem to point to arguments for both the direct adoption of WHO recommendations and national-level literature reviews. The former is potentially faster and cheaper, while the latter may improve the acceptance of guidelines in the national academic and professional community, may constitute a networking and capacity-building exercise in its own right, and may support the production of supporting material in the national language. At the same time, the adoption of specific PA guidelines potentially impacts countries' existing surveillance data (prevalence of PA and trend data) and makes cross-country comparisons within Europe even harder. Also, in countries where the public tends to be more aware of international developments, there is a danger that new national recommendations differing from other countries and WHO guidelines will increase public confusion and negative press for PA promotion.

CONCLUSION

The information collated in this study may be a source of inspiration for other countries currently planning the development or update of national PA recommendations. Many EU countries already have recommendations,[18] but revisions might be warranted in light of the quick evolution of the evidence base (see, eg, changes regarding aerobic/strength training and 10 min bout limits in the new UK and Dutch recommendations, respectively). In general, there is currently no evidence for the general superiority of a specific strategy to recommendation development (esp. direct adoption of WHO recommendations vs literature reviews), although there are arguments for and against all of them.

However, experience from our case studies indicates that more national governments could consider using intersectoral workgroups and international expert advice. In addition, general guidelines for the development of public health recommendations have recently been published (eg, Grading of Recommendations Assessment, Development and Evaluation-ADOLOPMENT framework)[61] and already been applied to the development of national PA recommendations.[62]

In the future, WHO might also be able to play a larger role in facilitating or providing expert advice. It might want to consider defining 'core' elements of its own recommendations for adoption by member states, thus increasing standardisation while still allowing for adaptation to national contexts. EU governments in particular might want to consider an even closer collaboration for future updates of PA recommendations in order to benefit from synergy effects, for example, by coordinating literature reviews and building on each others' previous work. One might even consider the creation of a joint expert group with academics from all Member States that could work to regularly update the evidence base of recommendations. This would allow countries to focus their efforts on adopting common core recommendations to their specific national contexts.

From a research perspective, a number of important questions seem to warrant further investigation: Is it possible to define elements of 'good practice' or even standard procedures for recommendations development, and can the supremacy of certain approaches over others (eg, direct adoption of WHO guidelines vs own literature review) be empirically demonstrated? How can countries with limited capacity best be supported, and how should countries react when new global guidelines become available? How important is the process of developing guidelines itself, not only in terms of the final output but with respect to national capacity building and agenda setting? In order to answer these questions, there is a need to learn more about methodologies employed outside of Europe, to compare methodologies globally, and to link development processes to the quality and impact of resulting recommendations. This might enable us eventually to define some core elements of a 'good' development process, both with respect to ensuring recognition of the evidence base and to build national capacity for PA promotion.

Author affiliations
[1]Department of Sport Science and Sport, Friedrich-Alexander-Universität Erlangen-Nürnberg, Erlangen, Germany
[2]Centre for Exercise, Nutrition and Health Sciences, School for Policy Studies, University of Bristol Faculty of Health Sciences, Bristol, UK
[3]European Office for the Prevention and Control of Noncommunicable Diseases, World Health Organization Regional Office for Europe, Moscow, Russian Federation
[4]EPIUnit – Instituto de Saúde Pública, Universidade do Porto, Porto, Portugal
[5]Institute of Sports Science, University of Graz, Graz, Austria
[6]Centre for Public Health, Institute of Social Medicine, Medical University of Vienna, Vienna, Austria
[7]Abteilung Breitensport, Bundes-Sport GmbH, Vienna, Austria
[8]Department of Sport Medicine and Functional Exploration, University Hospital CHU G. Montpied, INRA, UNH, CRNH Auvergne, University of Auvergne, Clermont-Ferrand, France
[9]IRMES (Institut de Recherche bioMédicale et d'Epidémiologie du Sport/INSEP), Université de Paris, Paris, France
[10]Centre for Nutrition, Prevention and Health Services, National Institute for Public Health and the Environment, Bilthoven, The Netherlands
[11]Population Health, United Kingdom Department of Health and Social Care, London, UK

Contributors AT, PG, KA-O and JJB conceptualised the study. SW and RM developed the survey questionnaire and collected the survey data. PG, AT and KA-O analysed the survey data. AT obtained and analysed national recommendation documents. CF, ST, TED, CH, MD, J-FT, WW-V, SF and BB provided detailed information about national physical activity recommendations development in their countries and verified summary for publication. AT and PG drafted the manuscript.

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All authors participated in the revision of the article. All authors contributed to and have approved the final manuscript.

Funding This work was partly supported by the German Ministry of health; Bundesministerium für Gesundheit (ZMVI1-2520WHO001).

Disclaimer The writing group takes sole responsibility for the content of this article and the content of this article reflects the views of the authors only. JB, RM and SW are staff members of the WHO. The authors alone are responsible for the views expressed in this publication and they do not necessarily represent the decisions or the stated policy of the WHO.

Competing interests None declared.

Patient and public involvement Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

Patient consent for publication Not required.

Ethics approval Ethical approval not required for the use of country-level policy data as included in this study.

Provenance and peer review Not commissioned; externally peer reviewed.

Data availability statement Data are available on reasonable request. Data are available on written request from the WHO Regional Office for Europe, but written consent of the Physical Activity Focal Points of involved countries, the European Commission and the WHO Regional Office for Europe may be required.

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ORCID iDs
Antonina Tcymbal http://orcid.org/0000-0002-3164-1084
Peter Gelius http://orcid.org/0000-0002-4120-4996
Romeu Mendes http://orcid.org/0000-0002-3806-438X
Thomas Ernst Dorner http://orcid.org/0000-0002-5218-1160

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