

Social Sciences and Humanities

contribution to tackle the Obesity Epidemic

Challenges & Potentials in Obesity Research towards Horizon 2020

Concluding Report

SOCIAL SCIENCES AND HUMANITIES CONTRIBUTION TO TACKLE THE OBESITY EPIDEMIC CHALLENGES & POTENTIALS IN OBESITY RESEARCH TOWARDS HORIZON 2020

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For further information on the full process and the participants at the workshop on SSH obesity research, please visit www.foodfitnesspharma.ku.dk/SSH

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PREFACE

On behalf of representatives from research fields in the social sciences and humanities across Europe, we are pleased to present the concluding report of the workshop on *Social sciences and Humanities contribution to tackle the Obesity epidemic – Challenges & Potentials in Obesity Research towards Horizon 2020*.

The workshop was initiated by representatives of the Danish social sciences and humanities (SSH) research community in the area of obesity research and organised with the European Association for the Study of Obesity (EASO). It builds upon a movement of on-going European and national initiatives in Denmark, France, and Germany with the common objective of outlining national research priorities and roadmaps related to the challenges of obesity.

After the conference ‘*From Biology to Society - What Message Can Obesity Research Deliver to Policy-makers?*’, organised by EASO in February 2012, it was clear that, in order to tackle the challenge of obesity, there is a need to involve multiple disciplines ranging from biomedicine and the natural sciences to the social sciences and humanities. Only through a combined effort with a particular emphasis on SSH research, we will be able to unleash the full potential of obesity research, which is also a key issue in the next European Framework Programme for Research and Innovation, Horizon 2020, beginning in early 2014.

One current challenge for research in Europe is to identify the key issues on our scientific frontier that will have the greatest social, economic, and societal impact for citizens.

To address the obesity epidemic, European researchers need to come together to find the best solutions and use their combined knowledge to provide the most innovative research ideas. By gathering more than 50 researchers and stakeholders from around Europe, we took an important step towards establishing strong networks and building bridges between the natural sciences and social sciences and humanities that can address obesity as a complex societal challenge and help minimise the gap between research, markets, and citizens.

The objectives of the workshop were to create a cross-European forum for identifying, describing, and discussing future potential in obesity research, to establish new and to nurture existing networks and collaborations between researchers across the social sciences and humanities and the natural sciences with an interest in obesity research, and thereby to mobilise significant European research capacities and potential in preparing for Horizon 2020.

This report, which summarises the workshop, should be seen as a platform illustrating the potential in SSH obesity research for true transdisciplinary efforts to address obesity as a complex phenomenon.

*Scientific Advisory Committee &
Strategy and Organising Committee*



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INTRODUCTION

This report will guide you through the agenda and results of the workshop. First, we will show why obesity is a strong example of a research challenge that calls for a collective effort by different scientific disciplines. Second, we will provide some insight into the disciplines of social sciences and humanities and which research questions the disciplines are able to identify and address. Third, we will give a short summary of the presentations at the workshop, highlighting the perspectives and challenges that different stakeholders and researchers have identified as having importance. Last but not least, we will present research potential identified for each of the seven themes at the workshop by describing the societal challenge, the future research potential, and the impact of the research, together with possible research collaboration, stakeholders, and roadblocks.

THE WORKSHOP: WHAT, WHY AND HOW?

Obesity is a rapidly growing public health challenge, and it is becoming one of the main health problems in the world with high societal and individual costs ⁽²¹⁾. Moreover, severe obesity is a gateway to many other chronic diseases, such as type-2 diabetes, cardiovascular and heart diseases, and cancer, as well as a multitude of adverse social and psychological conditions affecting quality of life, mental health, physical health, and health care costs as well as the efficiency of the workforce.

We already know that to unravel the challenge of the obesity epidemic fully, we must take into account the obesogenic environment, the obese themselves, and the way society and individuals address obesity. Insights from SSH will radically broaden the perspective on the obesity epidemic. They allow us to include the point of view of the obese individuals, their rights and status as citizens, their life stories, and their personal narratives, and this will also open up questions on the impact of obesity discourse on the non-obese population and other societal issues pertaining to history, social conditions, morality, law, aesthetics, and psychology.

In other words, to address obesity as a complex phenomenon, there is a need to integrate and mobilise all relevant scientific disciplines to build true transdisciplinary research, which requires determination from all sides. We need to change and broaden our view of obesity by looking at the role of social structures, the social inequality and stigma associated with obesity, and the cost-effectiveness of initiatives and interventions and by critically evaluating the potential in choice architecture, behaviour change, and various forms of policy development and political regulation. At the same time, we also need to heighten awareness of societal effects and the consequences of the obesity epidemic.

In organising the workshop on *Social sciences and Humanities contribution to tackle the Obesity Epidemic – Challenges & Potentials in Obesity Research towards Horizon 2020* ⁽¹³⁾, the ambition was to bring together disciplines such as economics, anthropology, sociology, psychology, political science, architecture and urban planning, ethnology, epidemiology, philosophy, history, geography, communication and information sciences, science and technology studies, and many more within the social sciences and humanities, as they all hold a piece of this highly complex puzzle. By combining these fields with clinical research, physical activity, nutrition, biomedical sciences, and epidemiology, we were able to answer new questions and thereby secure new findings, solutions, and a greater impact on obesity

research. Thus, the future potential of obesity research aims at adding to our understanding of the complex system of mechanisms related to obesity.

The main session at the workshop consisted of round-table discussions, which took their starting point in seven pre-defined themes and a consultation process where all the invitees had the opportunity to provide online input to the themes prior to the workshop. The themes built on expectations and potential for future obesity research, as previously identified by political stakeholders and researchers.

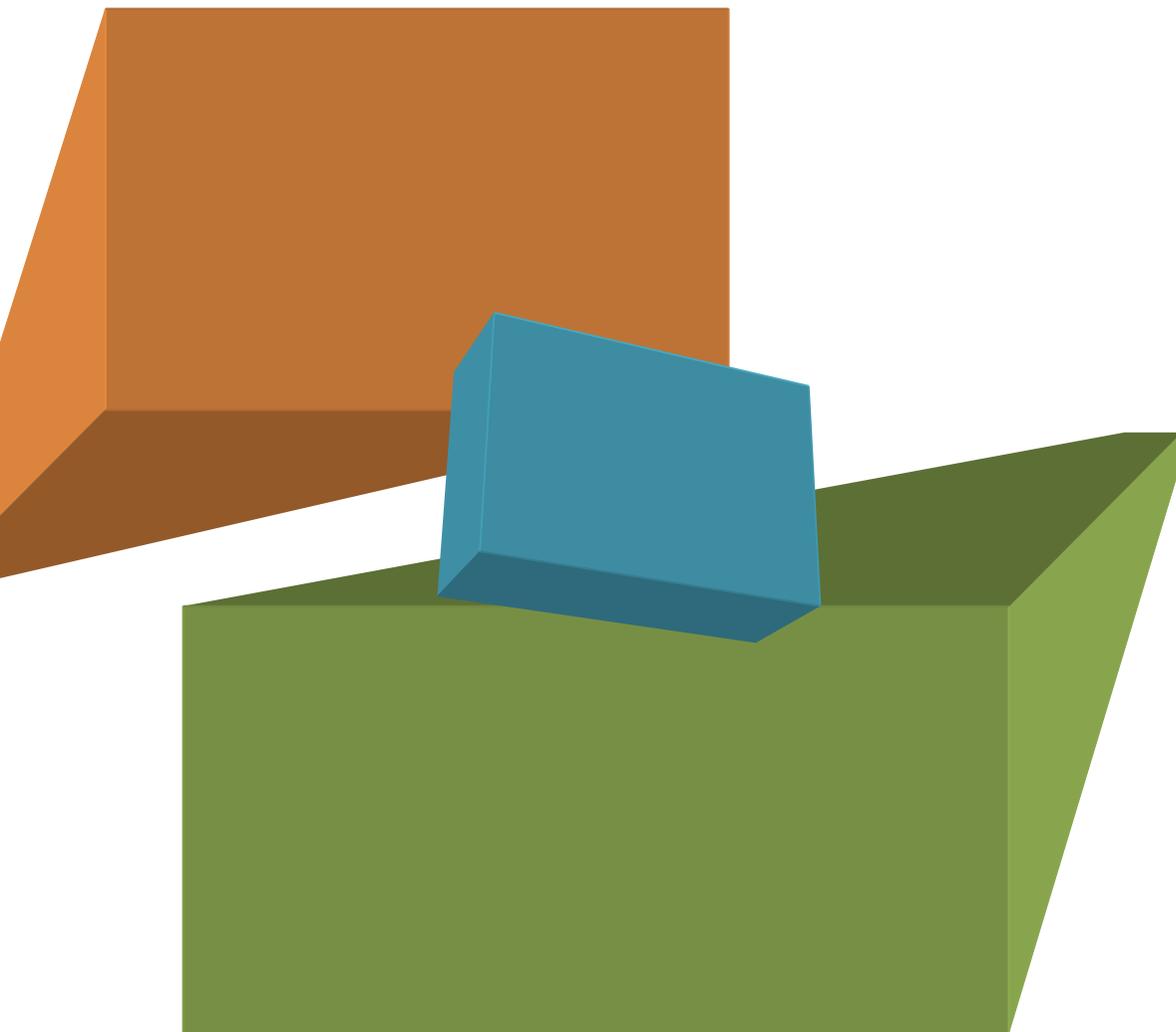
The themes were:

- The obesity epidemic: costs, effects, and consequences
- Rethinking policy and interventions
- Values and norms – blame and stigma from the citizens' perspective
- Dissemination of information: Power, knowledge, and the citizen
- Social structures, urban environment, and choice architecture
- Social inequality, the life-course perspective, and vulnerable groups
- SSH within medical sciences: Towards cross-disciplinary research

The participants were asked to identify the future research potential for each of the themes and to discuss what impact such research would have for addressing the obesity epidemic. Furthermore, necessary scientific collaborators, stakeholders, and roadblocks were identified.

In the round-table discussions, it became clear that, if we combine the SSH disciplines in battling a societal challenge such as obesity, we will be able to tap into promising possibilities that can help identify potential areas of actions to improve the way we tackle obesity.





OBESITY AS A COMPLEX CHALLENGE

Obesity is frequent, serious, complex, and chronic. This is the conclusion from the executive summary of the European Obesity Research Conference held in Brussels, February 2012 ⁽¹³⁾. Obesity imposes an increasingly heavy burden on overweight and obese citizens, healthcare systems, the efficiency of the workforce, and society at large. In biomedicine, obesity is recognised as a serious risk factor for many other diseases, including but not limited to diabetes, heart disease, cancers, respiratory problems, and joint problems. If obesity is prevented, a major supply route for these diseases will be blocked ⁽¹³⁾.

Significant investments have been made to tackle obesity from a biomedical perspective and even though there are small indications of stagnation in the prevalence of obesity in some countries, the obesity epidemic should still be taken very seriously and tackled strategically by a united Europe.

The EASO conference called for research to analyse obesity from a more complex and system-oriented perspective, highlighting the need for transdisciplinary approaches that *combine social sciences and humanities with biomedical research, use both quantitative and qualitative methods, and develop systems thinking and, possibly, new paradigms that recognise that obesity is the output of a complex system* and, thus, cannot be limited to an understanding of human physiology ⁽¹³⁾.

Obesity follows from and affects what people do, how they think and feel, how they perceive the world, and the situations in which they find themselves. These themes are addressed by the social sciences and the humanities. How people think, act, and function is intertwined with societal structures, social institutions and conventions, political regulation, and the strategies, policies and actions of public and private actors. The meaning human beings ascribe to their experiences relate to their wider framework of values and ways of seeing the world. In other words, the meaning and importance of obesity are at least partially embedded in social and cultural contexts and values that might be very different from nation to nation, class to class, and individual to individual. As soon as one remembers that obesity concerns *people*, the challenge stands out as a highly complex and context-dependent phenomenon.

To illustrate: at its biomedical roots, obesity concerns an excess of energy intake in relation to energy expenditure – a relatively simple phenomenon. However, evidently, since most people want to stay or become slim, why do we still see growing rates of obesity in a number of countries? And why is there a social gradient in obesity in which the less well-off tend to be more obese than those who are better off? In other words, obesity has important social (cultural and economic) dimensions, and cannot be reduced to a biomedical issue.

This means that the necessary knowledge base for addressing the obesity challenge must include several disciplinary perspectives. It must be based on a range of methodological approaches to capture all the layers of the phenomenon. Here, the social sciences and humanities have a crucial role to play.

SSH can, among other things, contribute uniquely in the following ways:

- They can analyse social and cultural causes of obesity.
- They can address the issue of *why* and *how* obesity is a problem in the first place.
- They can analyse and enlighten the social, cultural, and moral norms and predicaments, etc., that impact obesity.
- In doing so, SSH can help address the challenges produced by obesity for individuals, healthcare systems, and societies.

WHAT ARE THE SOCIAL SCIENCES AND HUMANITIES?

The social sciences and humanities represent two wide-ranging academic fields embracing a multitude of disciplines. There is no established consensus on the definition of or the differences between the social sciences and the humanities, and the precise profile of these disciplines and the distribution of faculties varies somewhat among countries and institutions and over time. The link between them is that both study *humans* in cultural, historical, social, ethical, and economic contexts and, in doing so, they try to deepen our understanding of the ways human beings act, think, and value various phenomena.

The social sciences study societies and human beings at the macro- and micro-levels and, typically, include academic disciplines such as law, economics, political science, sociology, criminology, anthropology, ethnology, communication studies, information studies, human geography, and psychology. Through social science disciplines, we are able to explore the extent to which economic evaluations guide or should guide obesity policy actions, the psychological and social underpinnings of obesity with a focus on individual experience, or the interplay among obesogenic environments, culture and ethnicity, and socio-economic status.

The humanities study the human condition and, typically, include the academic disciplines of philosophy, history, ethics, archaeology, religion, languages, linguistics, literature, visual and performing arts, and the like. Through humanistic disciplines, we can analyse how public conceptions of public health and the acceptance of governing people's lives has developed through history, how discourse on obesity has developed or how and why individuals, organisations, and member states perceive and rank values such as liberty, health, equity, and responsibility in public health policies.

The boundaries between the *social sciences* and the *humanities* in the examples above are, of course, stereotypical. Depending on how each discipline defines the details of the research questions, both the *social sciences* and the *humanities* can help address the research questions above.

Methodologically, the SSH disciplines include research and analysis that may be more or less theoretically- or empirically-based. They may address human life on the individual or the supra-individual level. Some disciplines focus on interpretation (e.g. anthropology, arts studies); whereas others focus on interventions and change (e.g. economics, business studies, and law.). Methods range from the quantitative statistical analysis of numerical data and mathematical modelling to qualitative in-depth inquiry, formal logic, interpretation, and much more.

As should be clear, SSH is not a uniform research area, but rather, a range of fields of research including multiple disciplines that vary with respect to the questions they address, the methods they use, and the types of answers they produce. Obesity research will benefit from the variety of approaches in addressing the causes, cures, and constraints of obesity viewed as a societal problem but also from the broader sense of the impact of obesity on society in markets, civil society, and political authorities.

SOCIAL SCIENCES & HUMANITIES AND OBESITY

In obesity research, SSH can contribute by deepening our understanding of the causes and impact of obesity on the individual and societal level and by helping to provide knowledge about how obesity can best be addressed by various actors: in the clinic, in communities, in society, and by the individual. SSH can add layers of reflection and critical distance to more reductionist understandings of obesity, and it can help refine and develop novel concepts and frameworks for a more complex understanding.

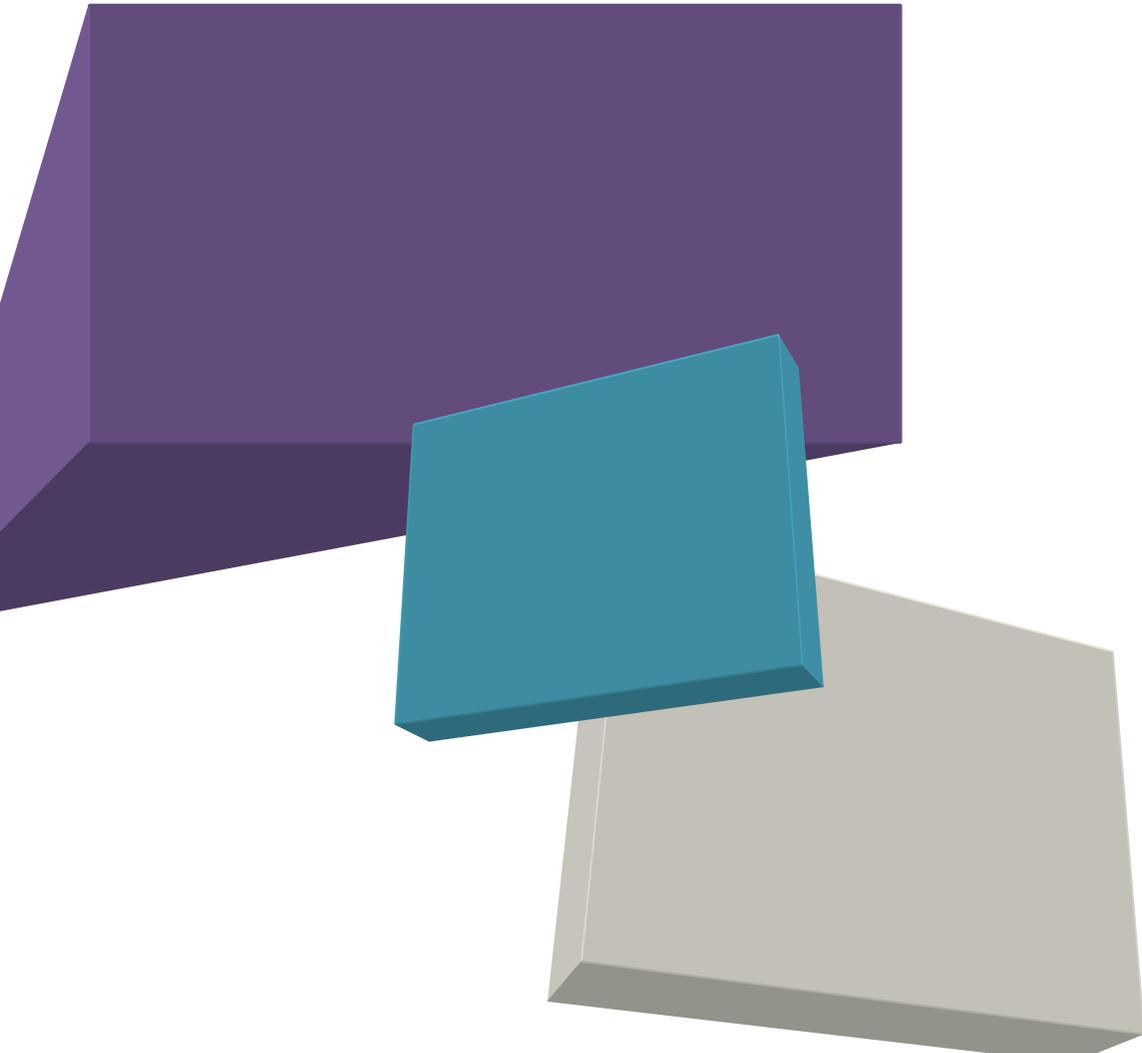
Obesity also has an impact on society and human life that goes beyond those directly involved. Obesity discourse with a focus on body weight and body shape influences the thinking and the values, concerns, and ideals of the broader population – leading, e.g., to healthier and more physically active living habits, on the one hand, and, on the other, to social stigma, exclusion, and discrimination. The obesity problem also raises issues to be addressed and opportunities to be utilised by market actors, civil society, political authorities, and social movements. SSH can contribute to our understanding of such wider aspects of the modern obesity epidemic and, thus, inform policies and actions, help maximise legitimacy, acceptance, and the ethics of intervention, and minimise unintended, negative consequences.

WHAT ANSWERS CAN SOCIAL SCIENCES AND HUMANITIES PROVIDE?

SSH research addresses obesity in a different way than the natural and health sciences. It addresses obesity from the perspective of the human world – consisting of culturally-formed individuals, populations, societies, nations, communities, social groups, and organisations. Human beings possess agency; they attribute meaning to their actions; they create ideas about the world that guide their actions, and they produce and react to the environments in which they live. This produces contingency – not natural laws.

SSH most often produce results that are *contextually specific*. This can help provide a more precise understanding of obesity in relation to population groups, communities, cultures, or social classes. Findings on the causes of obesity or how obesity can best be addressed will always vary according to the specific context.

The daily habits and concerns or practical understandings and orientations associated with the development of obesity may vary considerably between men and women, children and adults, social classes, and member states, which means that policies and services that proved effective in one national, regional, or socio-economic setting may not work in settings where institutional frameworks or economic conditions are different. Social sciences and humanities can help produce valid evidence of the specific conditions for causes, problems, and “cures” in various contexts.



OUTLINING THE PRESENTATIONS FROM THE WORKSHOP

WELCOME AND INTRODUCTION TO THE WORKSHOP

Professor Lotte Holm, University of Copenhagen, Denmark, and Professor Jean-Michel Oppert, past president of EASO, gave a joint introduction to the background and objectives of the workshop.

Professor Holm introduced obesity as a societal challenge that needs to be addressed through biomedical research and, to a much higher extent than has been the case until now, by the social sciences and humanities. The message was that the causes, the consequences, and the potential cures for obesity are not only biomedical. They are also social, political, economic, ethical, and cultural matters. Stakeholders such as EU institutions, public authorities, and the obesity research community increasingly recognise the need for social sciences and humanities to analyse, conceptualise, and understand obesity.



Professor Holm outlined the objectives of the workshop:

- To prepare the European obesity research community for the forthcoming EU framework programme Horizon 2020, which will address societal challenges through research.
- To establish and strengthen the network of researchers in social sciences and humanities with interest, capacity, and experience in obesity research.
- To create a forum for discussion that aims to shape future obesity research.
- To facilitate the creation of new transdisciplinary collaborations in obesity research across Europe.

Professor Holm briefly presented the broad spectrum of participants in the workshop, which included scientists from a number of different SSH disciplines – for example, anthropology, sociology, psychology, political science, philosophy, history, geography, communication, and science and technology studies.

Moreover, biomedical researchers and nutritionists with specific interest and experience in cross-disciplinary collaborations were represented along with staff from EU institutions and international organisations.

Professor Oppert explained the background of the workshop, introducing EASO as the voice of the European obesity research community. Professor Oppert summarised EASO's 2-year consultation process from 2010-2012. This process has challenged the current thinking and paradigms in obesity research and identified key issues to push the scientific frontier in the field. Professor Oppert emphasised the results from the European Obesity Research Conference "From Biology to Society", which was convened by EASO in February 2012.

The recommendations included developing a transdisciplinary approach to obesity research by integrating social and biomedical sciences, developing a life-course perspective on obesity, and developing a deeper understanding of the societal impact of obesity. The present workshop was presented as a direct follow-up on the prior research conference with the clear aim of strengthening existing and establishing new networks that cut across biomedical and social sciences. It should be seen as an important step in breaking down barriers between different academic disciplines and helping to nurture the development of a common transdisciplinary approach to obesity research.



KEYNOTE SPEECH ON THE IMPORTANCE OF SSH RESEARCH IN HORIZON 2020

Patricia Reilly, Cabinet Member of EU Commissioner Maire Geoghan-Quinn, began her presentation by acknowledging the concern that obesity causes for society. She referred to the OECD publication "Health at a Glance: Europe 2012", published in November 2012 as a very important reference for Horizon 2020 ⁽²¹⁾. The publication documents a shocking number of obese and overweight people in Europe, and it also indicates that many parents do not recognise overweight in their own children.



Ms. Reilly emphasised the burden of obesity on public health and financial systems and the need to take action in terms of prevention and care. Ms. Reilly touched on the EU research investments made through FP7. For example, 300 million euro was invested through FP7 to understand obesity, nutrition, food choices, lifestyle interventions, etc. For Horizon 2020, Ms. Reilly pointed out research needs such as new biomarkers, diagnostics and personalised approaches, the unmatched opportunity for comparative studies of the practices across Europe to identify what works, as well as the need to

involve regulators to facilitate the acquisition of new knowledge. Horizon 2020 will fund research based on these challenges, which makes the interdisciplinary approach paramount. She pointed out

that, according to the Commission proposal, the health challenge in Horizon 2020 is the largest in terms of budget allocation. She ended the keynote by stating that this workshop, representing different scientific fields and a strong willingness to work together, is the kind of forum she would like to address more often – people who are ready to break the silos and develop new solutions together.

SOCIAL SCIENCES AND HUMANITIES IN OBESITY RESEARCH: HOW AND WHY SHOULD WE DO IT?

Dr. Harry Rutter, London School of Hygiene and Tropical Medicine, UK, presented the argument for addressing obesity as a complex phenomenon in close collaboration across academic disciplines. Dr. Rutter stated that current biomedical research is generally based on linear cause and effect models which are inadequate to explain the complex adaptive system of obesity. Biomedical science uses established tools to generate evidence based on new and existing knowledge. By contrast, the social sciences and humanities seek to create new understandings of known phenomena. Combining the two approaches builds on the strengths of each to create new synergies.

Dr. Rutter made the point that we tend to study a very limited part of the broad and complex phenomenon of obesity, such as the cost effectiveness of a certain intervention. We thereby exclude an enormous amount of (potential) knowledge by not working together to combine perspectives and approaches.



By focusing only on the cost-effectiveness of particular interventions, for example, we miss tremendous opportunities to address and understand the whole, complex phenomenon of obesity. Thus, there is no single, predictable, one-size-fits-all answer to solve obesity. Instead, the aim should be to improve the overall understating of the system by applying multiple perspectives rather than single, linear models. Although academia and funding systems tend to reward specialisation and knowledge of narrow and specific areas, the need for researchers who can understand and make links between different areas should be recognised to assure an impact on obesity research.

Dr. Rutter also stressed the changing paradigm in public health from acute disease situations towards chronic diseases. This requires a shift in the way care and treatment is tackled – for example, in terms of new relations between doctors and patients. In conclusion, Dr. Rutter emphasised four main points:

- To break down barriers, work across disciplines, and take a system perspective
- To develop methodological work to identify, create, and develop new research methods
- To change funding possibilities and reward systems
- To integrate social sciences and humanities as essential if we are successfully to tackle obesity

THE FUTURE OF OBESITY RESEARCH: WHAT SHOULD BE DONE AND WHAT WILL THE IMPACT BE?

This session was devoted to a presentation of stakeholders' perspectives and their particular needs for new approaches and possibilities in which social sciences and humanities can play a major role. The question was: "What should be done in future obesity research and what will the impact be?"

European Commission, Directorate-General for Health and Consumer policy

Deputy Head of Unit Philippe Roux referred to the EU White Paper on nutrition and obesity published in 2007 ⁽³⁾, which looks broadly at this challenge and reflects the ideas of the scientists at the time and the political forces at stake. The strategy has no single priority because all priorities are inter-linked. Mr. Roux pointed out the following focus areas in developing knowledge about obesity:



Mr. Roux pointed out the following focus areas in developing knowledge about obesity:

- Establishing the evidence based on scientific knowledge. This is undertaken in cooperation with the World Health Organization.
- Making the healthy choice available.
- Health inequalities.
- The relationship between obesity and chronic diseases.

Mr. Roux recommended that we 'start fast and improve' while, at the same time, moving in multiple directions in order to test different ways to intervene. Multidisciplinary approaches and the evaluation of cost-effectiveness are very important. Furthermore, a common and mutual understanding of key elements in focus among the scientists and stakeholders will pave the way for success in supporting and delivering research with a high impact.

The World Health Organization (WHO)

Dr. Joao Breda, Programme Manager from WHO Europe, briefly introduced the WHO Europe office, which comprises 53 countries. The efforts of WHO Europe in the area of obesity started in 2006-2007. The mandate is based on the WHO Europe Action Plan for Food and Nutrition Policy 2007-2012 ⁽²²⁾. Dr. Breda illustrated the high prevalence of overweight in different countries and age groups as well as the high prevalence of physical inactivity and unhealthy diets. The results of foresight studies and the



predicted rapid increases in obesity across Europe as we move towards 2030 were highlighted. The fact that many countries only have insufficient data or no data at all to create the evidence base for obesity and overweight, was emphasised as a significant European challenge.

Dr. Breda's recommendations for future research priorities focused on: the early stages of life and achieving a minimum of denominators, understanding the links between obesity and other non-communicable diseases, questioning the use of Body Mass Index (BMI) to measure overweight, determinants and RF, understanding social determinants of health and social economic status (SES), governance of obesity, and the role of civil society.

He suggested that the socioeconomic aspects of obesity need to be better understood. For instance, it appears that the relationship between low socioeconomic status and obesity differs among countries, and further research is needed to understand these differences.

Experiences working with the food industry

Professor Wim Saris, Maastricht University Medical Centre, The Netherlands, and coordinator of the "Joint Programming Initiative Healthy Diet for a Healthy Life" was invited to give his contribution based on his experiences working with the food industry and in coordinating the FP6 project, Diogenes. He underlined the importance of personalised approaches to prevent and treat obesity since individuals are different not only in lifestyle and culture but in biological traits such as energy efficiency. Professor Saris suggested a prioritised order of the seven predefined themes of the workshop.

Professor Saris also pointed out the need to understand the costs, effects, and consequences of obesity in order to convince politicians that action is needed to tackle obesity and to monitor the effect of the actions taken. Professor Saris stressed the importance of scientific excellence, well-established networks, and large-scale longitudinal intervention studies in order to implement the suggested research successfully. He also mentioned the significant importance of establishing comparable data sets across countries, as many European countries have obesity surveillance systems that are uncoordinated, impossible to merge, and therefore incomparable. In order to realise the research envisioned, collaboration between different funding agencies – national and European – is a prerequisite, and this is what the Joint Programming Initiative (JPI) tries to do. The JPI "Healthy Diet for a Healthy Life" was introduced as an example.



HORIZON 2020: Independent expert group on public health research

Professor Thorkild I.A. Sørensen, Capital Region of Denmark & University of Copenhagen, Denmark, was invited in his capacity as chairman of an independent expert group that was requested to advise DG Research and Innovation (European Commission) on the implementation of Horizon 2020 in the area of public health research for the chapter on "Societal Challenge". He gave a brief syn-

thesis of the draft recommendations prepared by the expert group on four issues raised by the DG Research and Innovation:

- What should the future thematic priorities in Horizon 2020 be?
- What is the best way to structure European public health research in the future?
- How do we develop stronger links and synergies between national research activities and policy agendas as well as EU-funded research?
- How do we improve the generation of evidence from public health research in the development of public health policy?



The report is supposed to be delivered to the EU Commission by early March 2013 and will be made publicly available.

EXPERIENCES FROM FORMER SUCCESSFUL EU-PROJECTS: FROM BEST PRACTICE TO NEXT PRACTICE

Following the stakeholder session, three previous EU-funded research projects were presented: HELENA, IDEFIX, and EATWELL. The purpose was to inspire the participants by discussing good and less good experiences with obesity-related transdisciplinary research projects.

EU FP6 Project HELENA

The HELENA project ⁽²³⁾ funded under the 6th Framework Programme was presented by **Professor Maria Marcela Gonzalez Gross, Universidad Politécnica de Madrid, Spain**. HELENA focused on healthy lifestyle and nutrition in adolescence. HELENA was successful in combining the use of quantitative data with qualitative methods to understand the food choices of young people. Novel results were generated through a cross-disciplinary approach, which otherwise would not have been possible. The results included new knowledge about the relationship between physical activity and total and abdominal fat and between physical activity and vitamin D, which influences bone mass; and the project identified different clusters of behavioural preferences in terms of diet and physical activity.

The project also explored and identified the reasons for snacking and snack choices among adolescents. Professor Gonzalez Gross concluded by summarising the benefits of combining the social sciences and humanities and the biomedical approaches – for example, SSH answers the “why” question related to lifestyle, behaviour, and choice patterns and observes and conducts research on the basis of the objective approach applied by biomedical sciences. Together, they can address the obesity challenge in a holistic way for which there is a strong need.

A primary result of HELENA was the creation of a healthy lifestyle pyramid. It consists of four faces and a base: daily food intake, daily activities (e.g., sedentary activity, sleep patterns, physical activity), the food pyramid, and health and hygiene.



Professor Gonzalez Gross highlighted the successful communication efforts based on HELENA in terms of scientific publications, conference presentations, PhD theses, and stakeholder interaction. HELENA also won a European award as “Communication Star” in March 2011, and it was selected as a “Success Story” by the EU in 2011.

EU FP6 Project IDEFICS

The IDEFICS study ⁽²⁴⁾, funded under the 6th Framework Programme, was presented by **Professor Wolfgang Ahrens** and Professor Iris Pigeot from the Leibniz Institute for Prevention Research and Epidemiology – BIPS in Bremen, Germany.

IDEFICS focused on dietary- and lifestyle-induced health effects in infants and children and tried to identify relevant factors to explain weight differences. The study looked at diet, physical activity, and stress.

IDEFICS generated data from questionnaires directed to parents about social factors, diet, and medical history. It was combined with physical and biological examinations and quantitative data about, e.g., the BMI of the children in the sample. IDEFICS has concluded that adherence to recommendations regarding sufficient physical activity, limited screen time, sufficient sleep duration and an active family life altogether may reduce the risk of children becoming overweight or obese to almost 10% of those who do not meet any of these recommendations. A key conclusion was that the family setting is important in terms of intervention. For example, parental overweight and time spent in front of a screen are significant risk factors for childhood obesity.



IDEFICS resulted in six key recommendations for nutrition, physical activity, and stress – the three risk factors studied: daily intake of water rather than sweet drinks, daily intake of fruit and vegetables,

limited TV watching, daily physical activity and outdoor play, spending time with the family, and adequate sleep. Children that adhere to these six recommendations have a low risk of developing obesity.

Recently, the project I.Family was initiated with the aim of continuing the IDEFICS study, following the same sample of children and focusing on the family setting to develop new, effective interventions.

EU FP7 Project EATWELL

The EATWELL project ⁽²⁵⁾, funded under the 7th Framework Programme, was presented by **Dr. Barbara Niedzwiedzka, Jagiellonian University, Poland**. The background of EATWELL was a political desire to create appropriate evidence for obesity-related intervention policies. EATWELL seeks to integrate different perspectives, expertise, and methods to evaluate the nature and effectiveness of interventions and to develop new methods for future interventions.

The project includes disciplines such as health economics, statistics, policy and psychology, nutrition, marketing, and information science. It allowed for the use of quantitative as well as qualitative methods to answer questions raised such as the benchmarking of policies, the effectiveness of interventions, investigating the suitability of private sector marketing in public campaigns, the public acceptance of interventions, and recommendations for future interventions.

The results of the EATWELL project include the development of large-scale interventions, the identification of evaluation gaps and faults, the identification of missing data, and recommendations for future actions to prevent obesity.



WHAT'S NEXT IN EUROPEAN HEALTH RESEARCH?



Nathalie Vercauteren, scientific officer for diabetes and obesity, DG Research and Innovation, gave a presentation on behalf of the deputy head of unit, Anna Lönnroth. She briefly outlined the Horizon 2020 framework programme for research and innovation - in particular, the pillar focusing on societal challenges including health. The significant challenge to be addressed is the increasing amount expended on chronic diseases and the pressure on European healthcare systems, generating a vital need for new solutions and innovations. Ms. Vercauteren also reminded the audience about the investments made under FP7 in obesity-related research. Turning back to Horizon 2020, it was made clear that the overarching objective of the challenge for "Health, Demographic Change and Well-being" is *"to provide better health while maintaining an economically sustainable healthcare system"*.

To move forward in this respect, we must improve our ability to address the healthcare challenge (while keeping costs under control), to invest in technologies for health promotion, to enable the implementation of new solutions in health care, and to improve prediction, prevention, and management of chronic diseases.

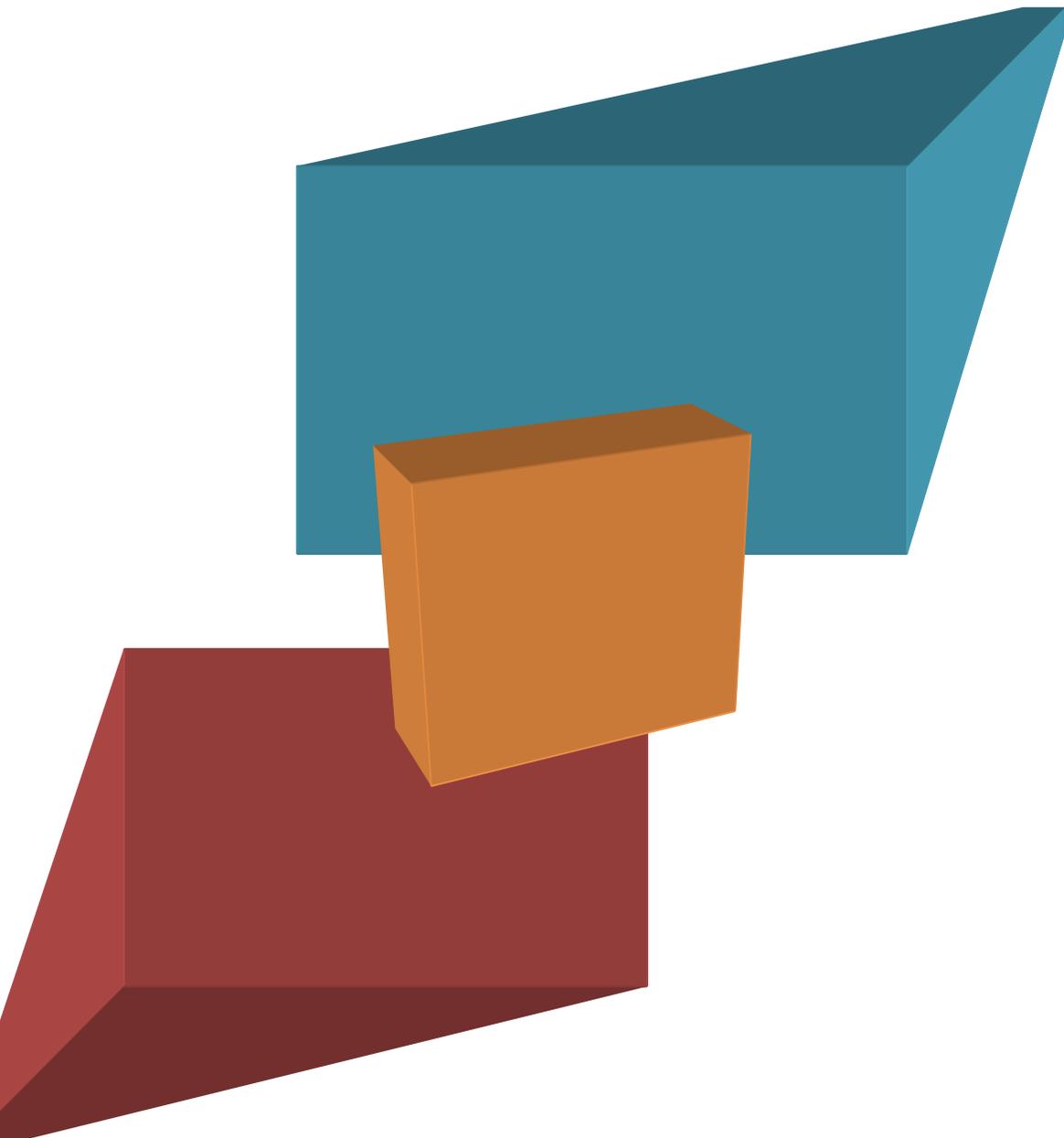
CONCLUDING REMARKS

Professor Gema Frühbeck, President of EASO, Spain, closed the workshop by reminding the participants about the aim of developing a transdisciplinary approach to obesity research as stated at the EASO conference *"From Biology to Society"* in February 2012.

Professor Frühbeck emphasised obesity as a very complex challenge and the need to exploit all perspectives in order to understand the interaction between behaviour, environment, nutrition, genetics and epigenetics, social circumstances, etc. She also highlighted the need to understand the networks and relations around obesity - for example, social networks, the relationship between obesity and other chronic conditions, and the need to combine different sciences or approaches in order to understand the individual causes and circumstances that lead to obesity.



Professor Frühbeck concluded by thanking the organisers for taking the initiative to organise this workshop and the participants for their active contributions throughout the two days.



RESULTS FROM THE WORKSHOP: SOCIETAL CHALLENGES & DEMANDS, FUTURE RESEARCH POTENTIAL, AND POSSIBLE IMPACT

The following pages contain a table of suggestions related to the seven themes on obesity research discussed and developed in the workshop. The seven overarching themes were inspired by a review of political literature and reports highlighting some of the expectations and potential for future obesity research, as previously identified by political stakeholders and researchers (for additional information on the literature and reports, please visit our website).

These suggestions must not be viewed as exhaustive but as inspiration for the potential that exists in social sciences and humanities research. The specific input under each heading is listed in no particular order of priority.

The themes are listed in the following order:

- The obesity epidemic: costs, effects, and consequences
- Rethinking policy and interventions
- Values and norms – blame and stigma from the citizens’ perspective
- Dissemination of information: Power, knowledge, and the citizen
- Social structures, urban environment, and choice architecture
- Social inequality, the life-course perspective, and vulnerable groups
- SSH within medical sciences: Towards cross-disciplinary research

For each of the themes, we have gathered the concrete findings into a table. The first column shows the societal challenge that stakeholders, political literature, and reports highlight as being important to address. In the second column, the research potential that has been identified in the workshop is listed, showing the future potential of combining different research disciplines. In the third column, the potential impact for society, industry, and citizens is outlined. The collective table should give a respectable overview of some of the unexploited opportunities that can be provided by the social sciences and humanities or through collaborations across various academic disciplines.

Below the table of the seven themes, we have included a box containing information on possible research partners, potential stakeholders, and certain roadblocks, showcasing the possibilities and the challenges that accompany all of the themes addressing obesity.

THE OBESITY EPIDEMIC: COSTS, EFFECTS, AND CONSEQUENCES

SOCIETAL CHALLENGE & DEMAND

Good public health is essential for economic and social development (6,13). However, the overall picture of the challenges, effects, and consequences of the obesity epidemic are not known in detail. Therefore, there is a need for a stronger, more transparent, and evidence-based overview of the challenge to achieve the highest attainable standard of health (5,20).

To ensure effective measurement of the scale of the obesity epidemic, the availability, comparability, and dissemination of data on obesity need to be improved. As this needs to be done across member states, it must include a geographic and socioeconomic distribution to form a robust common evidence base (1,2,4) and common indicators of obesity related societal costs (3,4,8,13).

The economic and societal effects of differing levels of obesity across lifespan and different subgroups should also be addressed, including healthcare costs, absence from work, productivity, quality and duration of life, and weight stigma and discrimination (2,13).

FUTURE RESEARCH POTENTIAL

The social sciences and humanities can help create new tools, measurements, and databases, expanding the scope for assessing the extent and costs of obesity, the costs and benefits of intervention, and investments in prevention and treatment.

Addressing the extent to which economic evaluations guide or should guide obesity policy actions. How do such evaluations measure health, and could we benefit from other measures? Investigating moral costs, benefits, values and ethical issues, and the justification of interventions, and learning from variation in interventions and healthcare systems across Europe.

Analysing the effect of the economic crisis on obesity-related behaviours and health inequalities by applying behavioural economic approaches and thereby addressing the consequences of changing economic conditions.

Addressing the inequalities and consequences of obesity treatment. We know that lower social economic status (SES) is associated with a higher likelihood of becoming obese, but we should examine whether treatment and prevention of obesity are also distorted by SES.

The classic perceptions of the economic impact of obesity – for example, the claim that “*throughout their lives, persons with obesity and overweight might ‘consume’ less healthcare than ‘healthy’ people*” is often put forward as an argument for intervention, but we do not know whether this argument is valid or the

IMPACT

The creation of a **better common database for monitoring the obesity epidemic and its distribution across segments of the population and member states.**

The creation of a robust common evidence base for policy development.

Better and more comprehensive evaluation of the effects of interventions and policies.

Richer, broader, and more **accurate measurements of the consequences and costs of obesity-related issues** – for example, total cost of surgery, treatments, and prevention strategies and the relationship between expenditure and societal and personalised benefits.

A more nuanced view of effects on quality of life and the distributive justice of obesity and better measures for tackling obesity.

The research will help develop **more effective healthcare sectors**, improve citizens’ health and well-being, and reduce health inequalities in Europe.

Support for **taking the current economic situation into account in anti-obesity policies.**

Identification of **problems related to the failure of effective prevention and treatment** - whether linked to the promotion of stigma, obesogenic environments, or cultural norms in different SES groups. This will lead to **better treatment outcomes and**

effect of such statements and counterproductive impacts such as stigmatisation and moral decay.

reduce treatment costs.

By developing new cohorts of patients receiving different forms of treatment, we will be able to **differentiate between different causes of treatment and prevention failure**

A critical examination of the classic economic arguments and assumptions may lead to **more realistic policy objectives and better public health policies.**

RETHINKING POLICY AND INTERVENTIONS

SOCIETAL CHALLENGE & DEMAND

Rising healthcare expenditure poses a greater challenge than ever to governments in many countries; healthcare costs are growing faster than GDP ⁽⁶⁾. We know that obesity is a complex challenge influenced by multiple factors. Therefore, it calls for policies and solutions that can incorporate and embrace this complexity and for inter-sectorial approaches addressing more than just health issues ^(5,9,13).

At a societal level, policymakers should be made more aware of the importance and development of obesity ⁽¹¹⁾, and their political will to address obesity at the political rather than the individual level must also be increased ^(7,9). To support this development, we need a better way to re-examine critically the current mechanisms for health, health policy, public health structures, and healthcare delivery ⁽⁵⁾.

There is a need to integrate political perspectives on food and consumption, sports, urban planning, and transportation in order to rethink obesity policies and make them more efficient, intelligent, and innovative ^(3,14,13).

Obesity should be seen not only as a responsibility for national governments but as a collective challenge that needs to be addressed across sectors to achieve collective behavioural change. This should be done by involving, e.g., public-private partnerships, SMEs, NGOs, and other networks that are able to engage both the private sector and the citizens ^(3,13).

FUTURE RESEARCH POTENTIAL

Designing new types of effective interventions by engaging the target group (their values and views), bringing together expertise, and taking into account culturally- and socially-formed conceptions.

Critical examination of prevention policies: what are the drivers for policymakers and how is policy shaped (for whom, when, how, and why?)

Improving state-of-the-art measurements of costs and benefits by addressing the impact of interventions and short- and long-term effects (immediate costs and delayed benefits).

How do we optimise the path from evidence-based research to policy implementation in order to create more (cost-) effective policies and interventions?

Addressing the impact of welfare regimes on obesity levels in different social strata, cultures, and member states in order to identify more efficient policies.

Developing the potential for comparative studies across member states and exploring the use of differences between member states as a resource in order to learn from natural experiments and interventions.

Examining when and how to intervene and including the use of rewards, nudging, and economic incentives.

Examining whether and to what extent rewarding and nudging function

IMPACT

The social sciences and humanities will **help qualify policies, health services and interventions** by analysing and comparing effects of various intervention regimes, including their unintended consequences, and by addressing underlying issues of legitimacy, responsibility, and costs, broadly understood.

Creating new policymaking methods by developing a better understanding of rational and irrational incentives for actors such as corporations, consumers, and politicians.

Developing **frameworks for effective implementation and the integration of interventions** (including sustainable public-private partnerships and sustainable political commitment) and research tools for quantitative and qualitative evaluation of integrated approaches. **Developing capacity-building through broad public action.**

Creating new interventions through critical reflection to influence behaviour by focusing on changing beliefs and/or empowerment.

A better understanding and identification of the collective social costs of obesity and reward structures will make possible a **better use of motivational factors that may be implemented earlier than medical ones.**

Creating more effective healthcare services.

Public health strategies should not increase the burden on the obese ⁽¹⁵⁾. There is a need for a more critical examination of intended and unintended consequences of prevention policies and the comparative and causal connections affecting the increase of obesity both nationally and between member states.

There is a need for a clearer picture of the effectiveness of current methods, approaches, and policies towards the prevention and treatment of obesity. Advanced information systems and computational techniques for the collection and analysis of data as well as the modelling of obesity trends and likely results of an action could support this agenda ^(1,8,18).

Better assessment of compliance and effectiveness (economic, social, psychological, and medical) ^(1,3,10) and systematic identification of actions at the national or local level is needed. This should be done by optimising dedicated obesity interventions and by general changes in healthcare systems, policy, and economic strategies, incl. taxes and environments. This information should also fill the knowledge gap by creating more sustainable, evidence-based initiatives for families, clinical healthcare practice, child care, and school or community settings and pave the way for a better evaluation and assessment of political and medical interventions ⁽⁹⁾.

in the longer term.

Strengthening the evidence base for ‘consumer behaviour’ and regulatory action to change obesity-related behaviours.

Analysing how public conceptions of public health, the acceptance of intervention into governing of people’s lives has developed throughout history and across countries, governmental regimes, and cultures.

How do we perceive and rank values such as liberty, health, equity, and responsibility in public health policies and why? How are assumptions of responsibility justified?

Addressing the balance of societal and individual responsibility and autonomy and re-evaluating the idea of paternalism as well as personal responsibility in public health.

Exploring the role, effect, and potential of social marketing and stakeholder engagement in preventing and treating obesity. What economic or behavioural interventions are effective in changing behaviour on the supplier side, and what are the ethical limitations for marketing and branding in, e.g., the fashion industry or the media?

What conceptions of the good life in relation to health can be found in local communities, and how could they be adapted for effective public health interventions?

How and why does the definition of *health* differ from the definition of *preventive care*, and what implications follow from different views?

Strengthening calls for **better public health legislation** such as a revised Public Health Act that can re-balance health against economic interests.

Making normative assumptions explicit in programs and interventions, thereby taking into account personal responsibility for health and reducing victim-blaming.

Generating innovative trajectories for understanding obesity by sidestepping established scientific definitions and drawing on other possible ways of learning from relevant practices.

Gathering, highlighting, and disseminating the good practices that already exist, thereby **enhancing corporate social responsibility (CSR), improving health services, and inspiring new ways of life.**

VALUES AND NORMS – BLAME AND STIGMA FROM THE CITIZENS' PERSPECTIVE

SOCIETAL CHALLENGE & DEMAND	FUTURE RESEARCH POTENTIAL	IMPACT
<p>Obesity is a blatantly visible and complex condition in society implicating multiple and often highly personal issues for the individual. Therefore, avoidance of stigmatisation is paramount in addressing and communicating about obesity ⁽¹⁴⁾.</p>	<p>What is the extent of stigmatisation and discrimination across Europe in relation to medical treatment, employment, promotion, and education? How is stigmatisation experienced in different population groups and from different perspectives?</p>	<p>The social sciences and humanities will qualify the understanding and reframing of the concept of obesity and normality by highlighting values and norms underlying various perspectives on obesity and help us to understand and counteract blame, stigmatisation, and discrimination against obese individuals.</p>
<p>Norms, values, and guilt in relation to obesity need to be addressed as well as the causes and effects of stigma and how obesity is perceived to find ways to avoid stigmatisation ^(9,21). Furthermore, the framing of obesity in different arenas appears to have an impact on the discourse of obesity, which should be explored and addressed.</p>	<p>How is obesity socially constructed? By whom and how is it mediated as a phenomenon in different settings and through different channels – for example, in the media, the fashion industry, and sports? How does this differ across countries, cultures, and languages?</p>	<p>Modernising classic interventions and, possibly, revising proposed interventions to avoid naïve interventions and negative impact on both obese and non-obese individuals.</p>
<p>To understand better how obesity is perceived by citizens, society, and policymakers, we should at the same time force ourselves to reflect on questions such as ‘what do we consider normal?’ in terms of obesity and ‘what unintended consequences follow from our perception of normality?’ ^(11,15).</p>	<p>Does BMI function as a vehicle for stigmatisation by the healthcare sector, the community and the media, and self-stigmatisation? How can stigmatisation be prevented by changing discourses, narratives, and focus areas – for example, by moving from ‘avoiding obesity’ to ‘enjoying a healthy lifestyle’?</p>	<p>Opportunities to establish new educations and education material for the healthcare sector, individuals, and the media – for example, material for training journalists, new photo-libraries of obese role models, and new educational books incorporating knowledge from new research.</p>
<p>In addressing individual responsibility, safety should not only include physical safety but also incorporate ‘psychological safety’. We should at the same time try to explain in what form and how the role of responsibility should be implemented in policies and in society? ⁽¹¹⁾.</p>	<p>What values are embedded in key terms, ways of speaking about obesity, and different concepts of obesity, and why?</p>	<p>New methods for public dialogue and debate and a new basis for anti-stigma campaigns and policymaking that could reduce stigma.</p>
<p>The primary understanding of obesity indicates that obesity is simply caused by the individual’s lack of exercise or high food intake, but the extent to which research on appetite and food intake behaviour has really helped us understand the problems of obese people appears to be limited.</p>	<p>How do stigmatising attitudes work? What causes stigmatisation, and what are stigmatizing practices? How can they be avoided? What are the individual and societal costs of stigmatisation?</p>	<p>Creating more sensitive screenings for obesity to counterweight victim-blaming and the reduction of stigmatising attitudes.</p>
<p>The interrelationship and interaction of stigma, responsibility, shame, and guilt - as well as public opinion and the legitimacy of obesity-related health services and policies.</p>	<p>The interrelationship and interaction of stigma, responsibility, shame, and guilt - as well as public opinion and the legitimacy of obesity-related health services and policies.</p>	<p>Supporting psychological well-being, which supports weight loss, a better health and improved quality of life for the citizens.</p>
	<p>How is public acceptance of obesity-related health services shaped and</p>	<p>Better understanding of the psychology of stigmatisation to help overcome obesity-related barriers.</p>

ited. Therefore, we also need to see obesity as a response to the living conditions of late modern society rather than a ‘lifestyle disease’ to help avoid the stigmatisation of individuals ⁽¹⁴⁾.

Both the physical and social/emotional sequelae of obesity, which may include stigmatisation and being bullied, affect quality of life in children and adults ⁽⁸⁾.

We often think of obesity as self-inflicted, but it is associated with psychiatric disorders in some cases, including depression and binge-eating disorder. The scope and effect of these cases should be investigated further.

affected by society?

Creating a better understanding of how and why non-obese citizens stay non-obese, and how formerly obese people have been able to maintain their new weight after successful interventions. The bidirectional link between appetite control and the reward system should be explored.

How is it possible to understand the psychological and social underpinnings of obesity by focusing on individual experiences rather than pure outcomes from interventions? And how can effective experiences and strategies be shared between patients to reduce suffering and compensatory overeating and to improve coping skills?

How can the concept of obesity be reframed not to focus on body weight, appearance, and body shape but on specific behaviours such as physical activity, healthy eating, and well-being?

What values and norms define *normal* or *average* weight? Addressing the paradox of stigmatising and pathologising overweight and obesity and views on *average conditions* as *outside of the norm*. How is it possible to address the inter-related stigmatisation factors, i.e. obesity, social-economic status (SES), ethnicity, gender, and age, and how do we address the stigmatisation of children?

ers.

Promoting ethical behaviour in industry and society at large to enhance well-being and government policies.

Creating **awareness of adverse effects and victim-blaming among medical professionals** and enhancing the quality and effectiveness of medical services.

Innovative platforms for the healthcare sector to **facilitate the transfer of coping strategies between patients**, thereby bringing citizens experiences and capacities into play.

DISSEMINATION OF INFORMATION: POWER, KNOWLEDGE, AND THE CITIZEN

SOCIETAL CHALLENGE & DEMAND	FUTURE RESEARCH POTENTIAL	IMPACT
<p>Conventionally, we supply information to citizens about what is healthy and what is not, but this method has not proven to be effective in promoting and sustaining a healthy lifestyle ⁽⁵⁾. Instead, we should explore novel approaches that combine education, personalised information, and technological advances to communicate information more effectively about the causes and consequences of obesity from a lay perspective ^(6, 15).</p> <p>We need consistent, coherent, and clear messages for citizens from industry and society, developed and disseminated through multiple channels and in forms appropriate to the local culture and environment. Specific target groups along with age and gender should be taken into account with a focus on how to create new and more effective types of education to address information gaps and avoid conflicting messages ^(2,3,21).</p> <p>Another question is how to ensure that biased information from advertising and marketing does not falsely mislead consumers and the extent to which a lack of media literacy in vulnerable consumers (e.g., children) affects the development of obesity ⁽¹¹⁾?</p> <p>There is a need for new consumer policies that aim at empowering people to make informed choices about their diet, exercise, and lifestyle in general ⁽¹⁾. At the same time, we need a better understanding of the overall effect of increased empowerment. New modes of empowerment and potential adverse effects should be explored with a focus on</p>	<p>How is it possible to get the right information to the right citizens in light of competing messages and the fact that the messages will change over time as a consequence of new, emerging evidence?</p> <p>How, why, and when is information seen as valid or biased by the individual? How, where, and when are people seeking health information in modern society? How is information being re-distributed, and what are the consequences of this?</p> <p>Can social media be used as a platform for health communication, and how can information be framed in different settings?</p> <p>What are the effects of and potential for 'personalised information'? Should individuals be given 'clear-cut messages' or insight into 'the complexity of obesity'?</p> <p>How do we make the healthy choice available and attractive, and how do we turn information and interventions into positive daily routines, connecting with communities and citizens in everyday life?</p> <p>How is it possible to connect to communities and create new and more effective types of education and information respecting the citizens' own view of and right to the good life?</p> <p>How may health literacy, availability, and accessibility to coherent and credible information about healthy eating and other lifestyle choices be disseminated across member states, ages, and socioeconomic classes?</p>	<p>The social sciences and humanities will enrich obesity research and understanding by focusing on how discourses of obesity, prevention, food, physical activity, and 'the good life' are formed, disseminated, and perceived among various actors and on the role and consequences of empowerment, marketing, and the overload of information.</p> <p>Providing effective information campaigns and legislation to protect citizens and enhance public support for health policies that promote better overall health.</p> <p>Raising awareness of the norms related to valid knowledge and opening them up for discussion to bring new information into play for new and more effective modes of dissemination.</p> <p>Creating interventions that are effective and communicable in a real-world setting and not merely research settings by providing new possibilities for proper implementation.</p> <p>Supporting a change in the discourse on obesity from a focus on preventing obesity as a disease to enjoyment and exercise.</p>

particular groups or time points in life and on barriers to implementing new decision techniques and models for better involvement of target groups ⁽¹¹⁾.

We also need to understand better how learning and developmental factors influence the initiation and maintenance of behaviours that promote healthy lifestyles – for example, to encourage healthy diets and decisions, weight loss, or the prevention of excess weight gain ^(8, 13).

How does (unequal) access to information affect health inequalities and what measures can improve the access vulnerable groups have to health information?

What are the effects of the empowerment of citizens, and what are the effects of advertising and marketing vs. education and information - what could be learned?

SOCIAL STRUCTURES, URBAN ENVIRONMENT, AND CHOICE ARCHITECTURE

SOCIETAL CHALLENGE & DEMAND	FUTURE RESEARCH POTENTIAL	IMPACT
<p>We know that social structures (including infrastructure, the environment, and behaviour) play a crucial role in the development and occurrence of obesity (13,19). As an example, the presence of sidewalks and more street connectivity in neighbourhoods is associated with more physical activity and fewer overweight and obese people (8), and the use of behavioural and nutritional strategies and targeted lifestyle strategies can offer a degree of weight loss approximately double that provided by drugs (10).</p>	<p>What are the gaps between active and sedentary lifestyles, and which domains of life should be targeted?</p> <p>How do urban environments such as food availability, food promotion, food outlets, and supermarkets affect physical activity as well as food consumption?</p> <p>What alterations in urban planning and between rural and urban environments within and across member states affect the development of obesity?</p>	<p>The social sciences and humanities will contribute to understanding how social structures and concrete environments shape or affect the behaviour, choices, and preferences of the individual vis-à-vis obesity and how choice architecture functions and influences citizens, policies, and societies.</p> <p>Supporting efforts to make the healthy option the default and preferred option.</p>
<p>Research has suggested links between obesity and the physical environment since many aspects change when people move from one place to another. When people move from rural to urban environments, their BMI tends to rise as a normal response by normal people to an abnormal environment (17). Furthermore, the impact of the environment has a tendency to change from a life-course perspective and on multiple levels. This calls for longitudinal and multifaceted studies as well as community-based participatory research, which engages and involves community members in interpreting, designing, and implementing large-scale research in diverse communities (7,8).</p>	<p>Studying the rhythm and context of everyday life (time, space, and daily routines) by analysing 'subjective' environments, narratives of temporal structures, physical activity, and registration of eating and sedentary behaviour in different social settings. Collecting and observing collective data with new electronic devices (ICT).</p> <p>Exploring ways for choice architecture and nudging to be used effectively to change relevant behaviour.</p>	<p>Better knowledge about the impact of social factors on environment.</p> <p>A new perspective for better and more effective urban environments that promote physical activity in everyday life.</p> <p>New methods for urban planning, transportation, and developing infrastructure involving citizens and activating communities for user-driven innovation.</p>
<p>We need a better understanding of the different aspects affecting a decline in physical activity levels across Europe and to learn from factors influencing behaviour how better to support pro-active and well-informed citizens (3). A better understanding is needed of the ways public policies can address an obesogen-</p>	<p>How is it possible to combining intelligent and aesthetic pleasing architecture incorporating physical activity into daily routines?</p> <p>How can research in architecture, engineering, and buildings be implemented to coordinate, integrate, regulate, and promote a healthy lifestyle, physical activity, and the most favourable choice for the individual?</p> <p>How will it be possible to develop bottom-up approaches in architecture and urban planning by involving the communities and citizens from</p>	<p>Providing new approaches to community engagement that can improve citizen involvement in, e.g., urban planning for the effective empowerment and commitment of citizens.</p> <p>Developing and promoting the effective use of intelligent nudging, offering citizens attractive, healthy options and, thereby, reducing ineffective control mechanisms, legislation, and bureaucracy.</p> <p>Developing new models for cor-</p>

ic environment (physical and socio-cultural) favouring sedentariness (2,10) as well as knowledge of the measures and taxonomy of a broader spectrum of obesity-related behaviour (13).

There is a need for a better understanding of intelligent choice architecture that can help make the healthy option available, facilitate the incorporation of these daily routines (2,3,10,13), and thereby counter-balance the enormous apparatus of clever advertising from the industry, which nudges people to buy and consume their products (13,17,16).

an early stage? How and why do changes emerge, and how can they best be implemented?

How can marketing and market mechanisms be used to promote a healthy lifestyle? How do we evaluate or monitor the effects of such mechanisms? Can this change behaviour of the suppliers?

Studying the biological (brain, metabolism, genetics), behavioural (food choice, appetite, activity, sedentariness), and environmental (physical, social) interface – particularly, in the setting of changes that occur as “natural events”

porate social responsibility (CSR) that incorporate health indicators and measures of quality of life to tackle obesity and overweight.

SOCIAL INEQUALITY, THE LIFE-COURSE PERSPECTIVE, AND VULNERABLE GROUPS

SOCIETAL CHALLENGE & DEMAND	FUTURE RESEARCH POTENTIAL	IMPACT
<p>One's lifestyle is, to some extent, influenced by social position, income and education, ethnicity and minority status, urban environment, and phases of life course (2,3,8). To improve health equality and to acquire new insight into these questions, research should try to disentangle the causes of obesity in high-risk populations, critical periods, and life events (3,5).</p>	<p>Examining the different aspects and dimensions of inequality with special regard to vulnerable groups (wealth, education, culture, stress, migration, ethnicity, religion, gender, age group, SES, etc.) and their interconnectivity.</p>	<p>The social sciences and humanities will contribute to research and policies by examining vulnerable and/or marginalized social groups and their life opportunities and challenges and by giving them a voice in obesity.</p>
<p>There is a need for a better understanding of the evolution of health inequalities, the effectiveness of policies aiming to reduce these inequalities, and the interplay between the different types of inequality (1).</p>	<p>Using differences between member states and demographics as <i>natural laboratories</i> for large-scale comparative studies to improve our understanding of how social inequality differs across Europe and why.</p>	<p>The research can contribute to policy development in the field of social inequality and obesity by presenting different interpretations of the issues and their consequences.</p>
<p>The recognised combined burden of being 'obese, young, and unemployed' or 'obese and aging' and the vicious circle of obesity that leads to more unhealthy lifestyles and inequalities in health and social status should be addressed to provide a better understand of how to obtain improved quality of life (8,9,13).</p>	<p>Studying temporal patterns in obesity development via longitudinal cohorts combined with in-depth qualitative investigation of relevant sub-groups.</p>	<p>Adapting public health intervention and information to people's way of living and preferences for more effective interventions.</p>
<p>Furthermore, the sociocultural, environmental, and genetic pathways responsible for the occurrence of obesity in persons connected through social networks and in minority groups should be addressed (7,8).</p>	<p>Identifying critical periods of life through 'life course' epidemiology involving family life histories and narratives.</p>	<p>Developing new approaches and insights to tackle obesity and promote health better in an ageing society.</p>
<p>Children are of particular relevance with respect to obesity and health <i>per se</i> and, especially, early learned behaviours that determine preferences and behaviours later in life (2,8,13,21). Furthermore, the increasing burden of disease and disability in the context of an ageing population calls for ways to prevent obesity and</p>	<p>Addressing the critical windows for susceptibility and effective preventions/interventions, including the biological (puberty or menopause), social (parents' divorce, unemployment, loss of spouse), and institutional (school start or retirement) windows.</p>	<p>Raising self-esteem in vulnerable groups, which could lead to greater effectiveness for health information and a reduction of health inequalities.</p>
	<p>Studying divergent paths and the life events and counter-stories of people breaking 'bad' habits and changing life course – for example, obese children who do not become obese as adults – and bringing this knowledge into play in primary and secondary prevention.</p>	<p>Development of ethical guidelines for marketing and responsible marketing mechanisms, which may contribute to healthy consumption.</p>
	<p>Understanding and identifying avenues for tackling knowledge and education gaps and their consequences. As an example: could</p>	<p>Targeted and efficient interventions in children and adolescents who are already obese at critical time points or belong to vulnerable groups.</p>
		<p>Improving platforms and interventions that target potential and challenges related to immigration and incorporate the individual</p>

its co-morbidities throughout life (8,13).

There is also a need in society to identify, test, and monitor better the effects of targeted measures, the content, and the delivery channels of prevention messages to promote healthy diets and physical activity in population groups and households belonging to certain socioeconomic categories and to enable these groups to adopt healthier lifestyles (3,8). At the same time, the long-term effects of targeted prevention or treatment strategies should be addressed (3).

branding of unhealthy products to vulnerable groups be regulated and how?

Analysing the interplay between obesogenic environments vs. culture-ethnicity vs. socio-economic status? Why, how and when do institutional initiatives make a difference for obese or unhealthy migrants?

perceived in specific cultural and life-course contexts.

SSH WITHIN MEDICAL SCIENCES: TOWARDS CROSS-DISCIPLINARY RESEARCH

SOCIETAL CHALLENGE & DEMAND

The challenge of the obesity epidemic calls for integrated transdisciplinary thinking, explorative approaches, hypothesis generation and testing, data integration, and evidence assessment across a broad spectrum of disciplines. By doing this, we optimise the process of translating research into products and services, which will create higher impact for the end-users. At the same time, it could support the promotion of entrepreneurship in the academic community, creating more innovative products, and support the economic recovery and development in society ^(4,8,12,13,14).

Understanding determinants of health and the role and interphases of environmental, behavioural, socio-economic, and genetic factors in their broadest senses – i.e., the ‘exposome’ – calls for different approaches and multiple scientific disciplines to be integrated to address obesity as a complex phenomenon ^(12,13).

Insights are needed into behavioural and social models and aspects and social attitudes and aspirations in relation to personalised health technologies and mobile and/or portable tools including information and communication technologies (ICT) ^(2,4,8,14).

Social epidemiology could be involved in establishing cohorts and exploring existing ageing European cohorts in addressing the interaction between genes and lifestyle as well as identifying genetic and physiological determinants of - and interac-

FUTURE RESEARCH POTENTIAL

Addressing obesity as a complex condition by trying to reflect ‘real-life’ settings and other factors outside biomedicine through the integration of qualitative research methods and interpretative methods from the humanities.

Establishing and fully harvesting the potential in trans-European birth cohorts across lifespans to understand the role and interaction between genetic, physiological, social, and societal factors as determinants of various health outcomes.

Exploring transdisciplinary phenotyping to enable us to move beyond BMI by using multilevel analysis from, e.g., psychosocial traits, genetics, physical activity, biochemistry, and the exploration of the biological expression of eating behaviour.

Exploring existing and long-term cohorts could address new and different aspects of obesity in order to understand better the interplay between different biological, social, and societal parameters affecting the development of obesity.

Addressing the challenges of balancing the research aims of understanding complexity and identifying single key components in the cause, prevention, diagnostics, and treatment of obesity.

Conducting follow-up research on interventions and programmes to make them more effective and inclusive – for example, by learning from families involved in the treatment of obese children, what it means to live with obesity, and how treatment

IMPACT

The social sciences and humanities in collaboration with a range of disciplines from medical and related sciences will enrich obesity research and policies by addressing the complexity of obesity, by qualifying and broadening the standard biomedical perspective on obesity, and by enhancing interventions and programmes to fit the individual and the social context better.

Novel research collaborations across disciplines can optimise the application factor of research results leading to, e.g., the **easier implementation of interventions and the development of innovative products and solutions for the health and care sector and industry.**

More targeted interventions including a **better understanding of behavioural factors** related to weight loss and regaining weight.

Developing selection methods that provide a **better balance between, on one hand, evidence and cost effectiveness and, on the other hand, the high impact of applying the complex findings and approaches** from transdisciplinary research collaborations.

Developing a platform for transdisciplinary research to increase the effectiveness of challenge-driven research.

tions with – behaviour ^(1,13).

Advanced phenotyping in new or follow-up studies on existing cohorts should include novel technologies and information systems for recording lifestyle patterns and psychosocial data and envirotyping living conditions ^(3,13,14,15). Social peer pressure, traditions, culture, and myths may be addressed ⁽¹⁾.

For clinical interventions, integrated approaches and ‘toolbox’ elements promoting healthy diets and physical activity should be identified and transferred to scalable innovation and interventions, including the use of information and communication technologies (ICT) and robots ^(2,8,14).

The dilemma of ‘when to intervene’ (prevention vs. treatment) and how to strengthen compliance should be investigated in collaborations between SSH and medical research ⁽¹⁰⁾.

programmes are received and adopted.

Exploring the great potential for new research that can provide a better understanding of the interaction between different social, societal, and institutional factors (school start, marriage, moving out) and biological factors such as pre-conception, pregnancy, and menopause in relation to obesity.

Understanding the social, cultural, economic, and political drivers of behaviour and the link to neuroendocrine functions.

Developing social epidemiological studies at group and population levels in order to assess the role of such factors in underlying causes, motivations, and indicators of the obesity epidemic.

Exploring obesity development as the biological process of the increased development of adipose tissue and the accumulation of triglycerides that may be a response to a spuriously sensed need for future reserve energy .

Supporting and exploring the creation of unified theories about obesity by integrating in a coherent way the pre-existing evidence from all disciplines, the open questions, and the derived hypotheses.

Exploring transdisciplinarity: Where, how, and why do different scientific disciplines (e.g., epidemiological studies on vulnerable groups) intersect with research from the social sciences and humanities? How is it possible to achieve real integration of scientific disciplines, and how can we challenge the dominating hierarchies in the sciences?

ACADEMIC COLLABORATION PARTNERS AND PARTICIPANTS

Advertising, advocacy analysts, architecture, anthropology, behavioural science, biochemistry, biosemiotics (and their research subjects documenting everyday lives to integrate better the voice and nature of citizens), clinicians, cohort studies, communication, consumer research, CSR researchers, demographers, designers, discourse analysis, economics, educators, endocrinology, epidemiology, ethics, ethnography, ethnology, food and dietary behaviour science, genetics, geography, governance and politics, the health and care sector, health economy, history, internet institutes, journalism, law and advocacy, linguistics, longitudinal studies involving social scientists, neurobiology, neuroscience, nutrition, marketing, media analysis experts, media, media sciences, medicine, medics and practitioners, metabolism research, online communities, philosophy, physical activity and sports, policy analysts, political science, psychology, public health and public health ethics, science and technology studies, social epidemiology, social marketing, social psychology, sociology, urban planning.

POTENTIAL STAKEHOLDERS FOR FUTURE RESEARCH

Citizens (obese and normal weight), citizen and patient organisations, clinicians, the construction industry, consumer associations, educational institutions and systems (universities, high schools, schools), employers, environmental organisations, the EU, European member states, finance ministers (national and international), the food and beverage industry (incl. the fast food industry), governments and policymakers (national and international), governmental health service providers, healthcare sectors (national and international), health insurance providers, health professional associations and non-governmental advocacy organisations, health promotion organisations, medical doctors, news agencies, NGOs, the OECD, online media, the pharmaceutical industry, the physical activity industry, primary care physicians, public health organisations and governmental professionals at all levels from international organisations (WHO, OECD and EU), regional and local institutions (municipalities and their institutions – for example, schools, kindergartens, high schools, hospitals), research networks and organisations, scientific societies, self-organising communities, trade unions, treatment services and professionals, urban planners and counter-movements, the World Health Organization (WHO).

POSSIBLE ROADBLOCKS TO RESEARCH

Economic methods and 'hard' measurements are the most common sorts of evidence base today. Therefore, new measurements that are 'softer' and more inclusive – measuring effect and not merely effectiveness – could be difficult to acknowledge and implement properly in scientific communities and in society.

It might be a detour to ask 'what are the worldviews and norms embedded in current nutrition science' or to ask 'how do 'good professionals' work, and what can we learn from it?' because these questions do not fit most of the dominant models for scientific knowledge. However, the promise is that this might be innovative and productive in the long run.

Citizens, industry, health professionals, scientists, health policymakers and media might find it difficult to accept their own contributions to stigmatisation.

The many different and opposing point-of-views of 'the healthy choice' may be the main obstacle. Some health information is not supported by research but is solely based on assumptions. So, we need to be able to determine

better when and, more importantly, under what circumstances information can be considered valid.

Transdisciplinary cooperation is required for the proper implementation of new innovative communication. At the same time, it will enhance the complexity of the process. We know, for instance, about the difficulties of getting people suffering from obesity to shift from healthcare to physical activity providers in the public domain, and we also know about the misperceptions of policymakers regarding the acceptance of health-enhancing activities by the public. Furthermore, the lack of a common language, limited public acceptance, limited freedom, and the difficulty of involving the food industry with science research projects could also prove to be an obstacle.

The pitfalls of scientific collaborations have to be explored and overcome. The methodological framework is available, but it needs to be developed and improved to deal with the combination of data from different sources. Data collection and publishing should be planned at an early stage. In addressing market structures and commercial interests to protect citizens, corporate incentives for generating 'opposing views' should be considered.

The overlap between socioeconomic status and migration and ethnicity issues are an area of future research, but the difficulty of segmenting these issues can create difficulties in determining and reaching target groups. It is important to include both major long-term cohort studies and qualitative social science research, but lack of knowledge and mutual recognition within the scientific community may be a barrier with respect to this.

The dominance of certain disciplines may exclude or hinder collaboration with respect to what is considered knowledge and empirical data. To avoid such obstacles, the disciplines need to acknowledge diverse methodologies or create new common methods.

Lack of a common language between disciplines.

Cohort studies almost always lack opportunities for in-depth social research. Most transdisciplinary research and the development of new cohorts and resource populations take time to establish, develop, and maintain. Therefore, the funding systems should consider the possibility of supporting projects with a longer duration.

Another roadblock might be getting top-level researchers in all primarily biomedical disciplines to abandon any naive energy-balance-based thinking and focus on obesity research driven by more unifying, inclusive and complex theories.

CONCLUDING REMARKS

As illustrated in this report, there is a great potential in obesity research conducted in the setting of social sciences and humanities and involving the collective range of academic disciplines.

In order to build upon the noteworthy SSH experiences already available, we gathered some of the best researchers within the social sciences and humanities to support the creation and strengthening of the network of researchers with interest, ability, and experience in obesity research. At the workshop, we created a forum for SSH and researchers from biomedical fields of research to discuss and shape the future of obesity research and to facilitate the creation of new transdisciplinary collaborations across Europe.

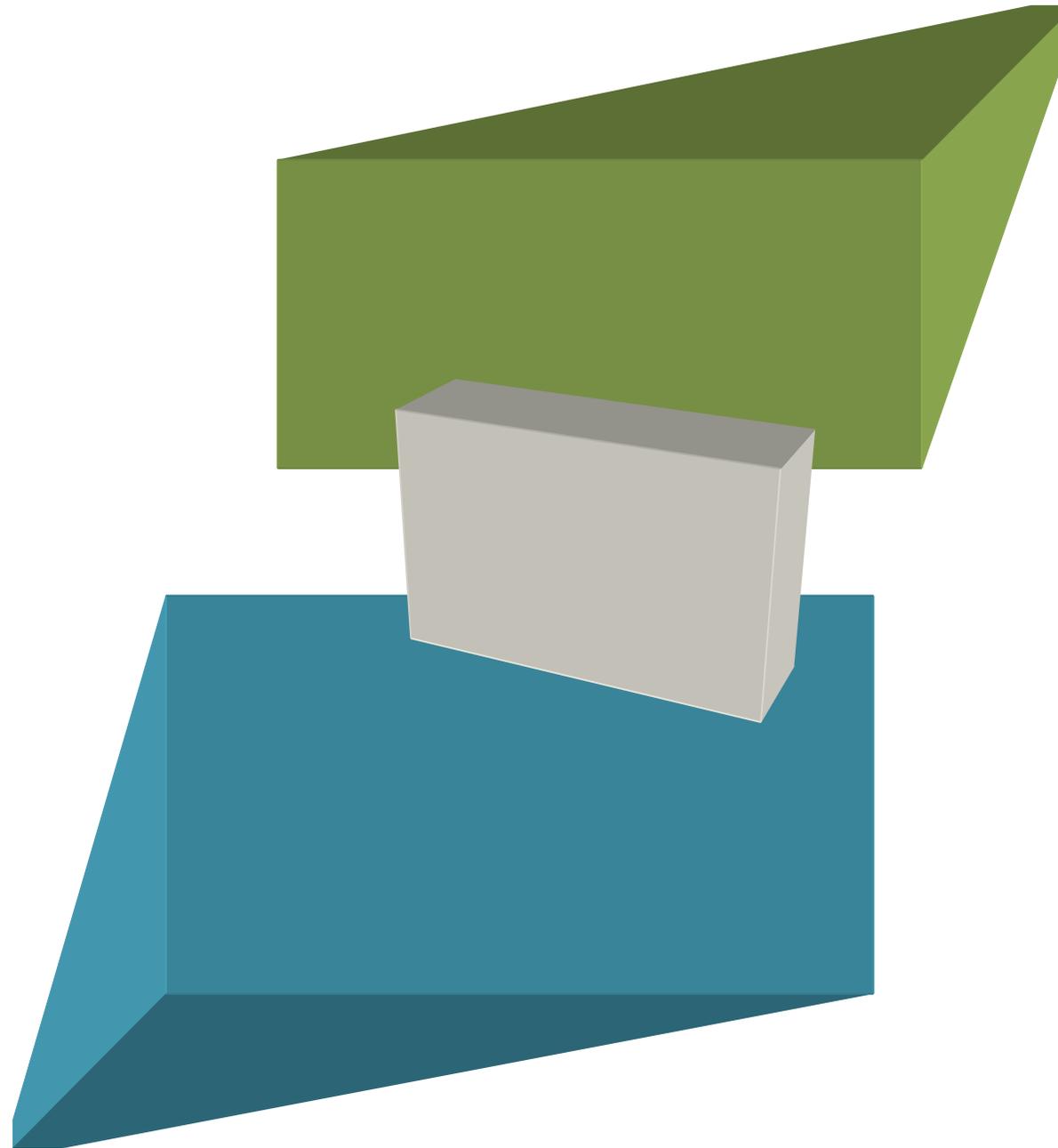
The research questions and potential defined in the workshop are quite different in appearance – offering complexity and reflection, which affects the answers offered to society. In addition, the type of impact derived from the workshop is also considerably different from the impact offered by the biomedical sciences alone: the creation of a robust evidence base on the costs, development, and consequences of obesity treatment and prevention, more nuanced views of quality of life, a new basis for anti-stigma campaigns, and the enhancement of ethical guidance for industry and society, to name just a few.

However, bringing some of the brightest researchers together is only part of the solution.

Another issue of equal importance is the platform from which the research is to evolve. Horizon 2020 calls for new forms of research that can provide solutions for the great challenges in society that we are not able to resolve through research conducted in the traditional mono-disciplinary silos alone. The platform is being built; the political will is there; and both politicians and stakeholders seem ready to acknowledge and accept the new scientific constellations and their innovative research ideas.

Furthermore, the scientific communities are ready. Scientists from the European member states as well as the European Association for the Study of Obesity have stepped up to the plate and displayed the readiness and ability to deliver the innovative research sought by society. It is important that we act now.

If we succeed in continuing this development, building upon the significant expertise and strong networks across academic disciplines, and are thereby able to generate innovative research ideas that can support society and citizens, the expectations for better understanding and meeting the challenge of obesity seem brighter than ever before.



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