

The Need for a Strategic, System-wide Approach to Obesity Care

Status and Future Needs in Obesity Care:
Insights from Healthcare Professionals
and Decision Makers in Eight Countries

Acknowledgements

The global Obesity Policy Engagement Network (OPEN) is a partnership programme between the Obesity Society, the European Association for the Study of Obesity, the World Obesity Federation, the European Coalition for People living with Obesity, the Global Obesity Patient Alliance, and Novo Nordisk to improve obesity care internationally. OPEN was initiated, and is funded, by Novo Nordisk.

Members of the OPEN Working Group, which authored / contributed to this White Paper, comprises representatives from national obesity networks, universities, and research institutions across eight member countries of OPEN.

Jennifer Brown, Registered Dietitian, Chair, Bariatric Quality Improvement Committee, The Ottawa Hospital Bariatric Centre of Excellence

Felipe F. Casanueva, Professor of Medicine, Department of Medicine, Endocrinology Division, Santiago de Compostela University

Professor John B Dixon, Adjunct Professor, Iverson Health Innovation Research Institute, Swinburne University of Technology, Melbourne, Vice President, National Association of Clinical Obesity Services

Professor Dr. Rohana Abdul Ghani, Consultant Endocrinologist, Universiti Teknologi MARA (UiTM)

Associate Professor Dr. Zubaidah Nor Hanipah, Clinical Consultant in General Surgery, Bariatric, and Metabolic Surgery, Universiti Putra Malaysia

Andreas Herdt, Patient Representative, Obesity Editor, Adipositaschirurgie Selbsthilfe Deutschland e.V.

Susana Monereo Megias, Head of the Endocrinology and Nutrition Service at Hospital Universitario Gregorio Marañón de Madrid. Quiron Salud Group

Luis Fernando Villaça Meyer, Director of Operations, Instituto Cordial

Guilherme Nafalski, Health Project Coordinator, Instituto Cordial

Professor Andreu Palou, Biochemistry and Molecular Biology, University of the Balearic Islands, Director of the general Laboratory of Molecular Biology, Nutrition and Biotechnology

Nicole Pearce, Director of Education, Obesity Canada

Doralice Batista das Neves Ramos, Researcher and Coordinator in Obesity, Instituto Cordial

Professor Paolo Sbraccia, Internal Medicine in the Department of Systems Medicine of the University of Rome University of Rome Tor Vergata

Federico Serra, General Director of Open Italy and of the IBDO Foundation

Catherine Smith, Nurse Practitioner, Committee member of The National Association of Clinical Obesity Services, board member of the Australian College of Nurse Practitioners, leadership team member of The Obesity Collective, Fellow of the Australian College Operating Room Nurses

Dr Sanjeev Sockalingam, Scientific Director, Obesity Canada

Dr. Terri-Lynne South, GP and Dietitian, Chair of the Royal Australian College of General Practitioners Special Interest Group in Obesity Medicine, Committee member of The National Association of Clinical Obesity Services

Seniz Ünal, Clinical Psychologist and Psychotherapist, Dr. Seniz Ünal, Psychological Consultancy Center

Professor Dilek Yazıcı, Division of Endocrinology, Department of Internal Medicine, School of Medicine, Koç University

Professor Volkan Yumuk, Division of Endocrinology, Metabolism & Diabetes, Istanbul University Cerrahpasa Medical Facility, President of Turkish Association for the Study of Obesity, President Elect of European Association for the Study of Obesity

The Global Challenge of Obesity

Obesity is a serious chronic, relapsing disease¹ and one of the leading causes of death and disability worldwide.² It is estimated that 1 in 5 adults will be living with obesity worldwide by 2025,³ and that more than 1 billion people will be affected by 2030.⁴ There are a range of evidence-based management modalities available for people living with obesity⁵ – but several obstacles persist that limit their widespread implementation.⁶

Policy changes are needed to connect the various stakeholders that impact management pathways and improve access to obesity care. Beyond this, more must be done to educate the public and the healthcare community on stigma related to obesity. For too long, people living with obesity have faced widespread weight bias and limited healthcare utilisation.⁷ These individuals deserve quality obesity care, including proper screening, diagnosis, counselling, and management according to evidence-based clinical guidelines.

This paper highlights challenges in obesity management in the healthcare setting as determined by OPEN, a transdisciplinary group of subject matter experts in obesity care, policy, and research. Below, OPEN identifies key focus areas for countries, healthcare systems, healthcare decision makers, and healthcare providers, and offers recommendations for combatting the increasing global public health crisis of obesity.



Overview

Over the last two decades, the perception of obesity has gradually changed. A movement has begun among stakeholders and policy makers across the world to recognise obesity as a non-communicable disease (NCD) in its own right.⁸ In 2021, the European Union officially recognised obesity as a chronic relapsing disease that acts as a gateway to other NCDs.¹ In 2022, the World Health Organization (WHO) launched an obesity acceleration plan for which they, for the first time, developed a comprehensive Health Service Delivery framework for people living with obesity.⁹ The framework promotes expanded access to obesity prevention and management services for all age groups across the life course.⁹

While these developments represent important progress, many in the obesity healthcare setting and health policy community do not yet fully embrace the notion that obesity is a chronic disease.^{10,11} This belief extends to the public, who often view people living with obesity as lacking willpower or self-control.⁶ Furthermore, obesity is often misunderstood by the people who are most impacted – those living with obesity, who may forgo healthcare visits due to the perceived weight bias they expect to encounter.⁷ For people living with obesity who seek care, transdisciplinary healthcare teams offering expert obesity care may not be accessible in their community.⁶

Research has shown that obesity does not receive the same level of care, insurance coverage, or education as other chronic diseases.¹² Ambitious national action plans in line with the WHO Health Service Delivery framework are crucial to combat the growing impact of obesity and strengthen the resilience of our national healthcare systems.¹³

Obesity is a highly prevalent, chronic disease

- More than 988 million people globally are living with obesity,^a an estimated threefold increase since 1975.^b
- The prevalence of obesity is expected to rise to 24% of the global population by 2035 (compared to 14% in 2020), affecting nearly 2 billion adults, children, and adolescents.^c

References:

- a. Zhao X-Y, Wang J-Q, G. Neely GG, et al. Natural compounds as obesity pharmacotherapies. *Natural compounds as obesity pharmacotherapies*. *Phytother Res*. 2024;38(2):797-838.
- b. World Health Organization. Obesity and overweight. 9 June 2021. Available at: <https://www.who.int/news-room/fact-sheets/detail/obesity-and-overweight>. Accessed February 15, 2024.
- c. World Obesity Federation, *World Obesity Atlas 2023*. Available at: <https://data.worldobesity.org/publications/WOF-Obesity-Atlas-V5.pdf>. Accessed February 15, 2024.

To gain insight into the current challenges around obesity management, and to help prioritise efforts to improve access to comprehensive, evidence-based care, OPEN conducted a Models of Care survey on healthcare professionals (HCPs) and healthcare decision makers (HCDMs) to evaluate knowledge, attitudes, and strategic priorities under existing models of obesity care in eight middle- to high-income countries – Australia, Brazil, Canada, Germany, Italy, Malaysia, Spain, and Turkey. HCPs included in the survey were general practitioners (GPs)/primary care providers (PCPs), endocrinologists, cardiologists, and practice nurses; HCDMs included health commissioners, heads of department, hospital/clinic/practice heads, and individuals who sit on national/regional health committees.

OPEN Models of Care Survey Findings and Recommendations

Priority Area: Education/Training

Research has shown that HCPs are generally lacking adequate training for the management of obesity.⁶ Many undergraduate/graduate obesity programmes for medical, nursing, and allied healthcare students, resident physicians, and fellow physicians are limited in scope compared with other chronic diseases, and learnings do not translate into clinical practice.¹⁴ A lack of training for practising HCPs is hindering adherence to and uptake of evidence-based guidelines on obesity management.¹⁵ A 2018 survey of GPs conducted by the European Association for the Study of Obesity found that 43% of GPs in Europe received none or less than four hours of training on obesity, which typically takes around 10 years.¹⁶ Less than 1 in 5 (13%) GPs said they received between nine to 12 hours of training.¹

Results of the OPEN Models of Care survey suggest a slight increase in obesity training during the past five years; HCPs said that they, on average, received 14 hours of training as part of their medical education. Despite this recent upward trend, obesity training still lags behind that of other NCDs, such as diabetes mellitus and heart disease.¹⁴ The survey also found that obesity training is similar regardless of medical specialty. Endocrinologists said they received an average of 15 hours of training, about the same amount as cardiologists, GPs/PCPs, and practice nurses (mean of 14 hours for each).

In the US, the Obesity Medicine Education Collaborative (OMEC) has integrated **32 obesity-focused competencies** into curricula for undergraduate and graduate medical students. According to OMEC, implementation of these competencies provides the framework to a) improve the diagnosis and management of obesity and b) reduce weight bias towards those living with the disease.^d

Reference:
d. Kushner RF, Horn DB, Butsch WS, et al. Development of obesity competencies for medical education: a report from the Obesity Medicine Education Collaborative. *Obesity*. 2019;27:1063-1067.

Recommendation:

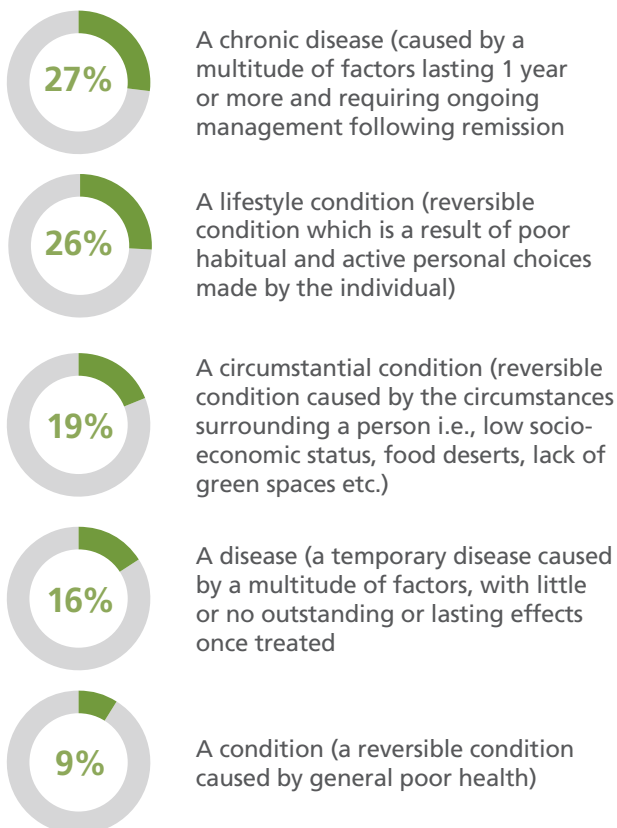
Integrate obesity education into trainee programmes and provide ongoing training to those currently involved in obesity care. Learning should enhance knowledge of prevalent attitudes toward obesity (e.g., weight bias) and the aetiology of obesity (i.e., genetic, biological, environmental, and psychological causes); and that timely diagnosis and long-term management are key to preventing the progression of obesity and the onset of obesity-related complications.



Priority Area: Perceptions of Obesity

The WHO first classified obesity as a chronic disease in 1948,¹⁷ and scientific evidence has shown that obesity is caused by multiple factors which impact a person’s disease progression and reduce the likelihood of achieving remission following weight-loss management and/or lifestyle interventions.^{11,18} However, the healthcare community has generally been slow to adopt this view of obesity¹¹, with just 27% of HCPs and HCDMs in the OPEN Models of Care survey categorising obesity as a chronic disease. Practice nurses – who, as front-line health providers play a significant role in educating and caring for those with obesity¹⁹ – were the most likely HCPs to view obesity as a lifestyle condition (29%) and the least likely to view it as a chronic disease (24%).

Weight stigma – blaming those living with obesity for being lazy, irresponsible, and lacking self-discipline – is a prevalent issue,²⁰ even though many factors in obesity are outside of a person’s control and are the result of complex biological, genetic, and environmental factors.²¹ Fear of weight stigma can lead to avoidance of medical care and create barriers to obesity prevention and management.²² We must continue to put a human face on people who are living with obesity, drawing on their lived experiences to understand the challenges they face and debunk long-held misconceptions about the disease.



■ HCPs and HCDMs

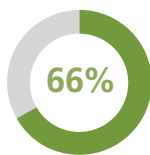
Reducing weight bias and stigma, understanding the multiple causes of obesity, and supporting person-centered care that values individuals’ lived experiences may improve access to evidence-based obesity care (i.e., psychological/behavioural services, pharmacological/surgical interventions, and adjunctive nutritional and physical therapy).^e

Reference: e. Wharton S, Lau DCW, Vallis M, et al. Obesity in adults: a clinical practice guideline. CMAJ. 2020;192:E875-EE91.

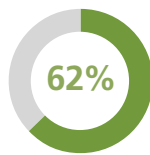
The survey found that stigma around obesity is common in the healthcare community. Among survey respondents, 40% of HCPs and 29% of HCDMs agreed they are biased towards people living with obesity, and more (45% of HCPs and 39% of HCDMs) said their colleagues hold these biases. Research has shown that weight bias, stigma, and discrimination are major barriers to obesity screening/diagnosis and may limit funding for obesity education and research compared to other NCDs.²³

Priority Area: Perceptions of Obesity

The survey highlighted the need for greater awareness of obesity overall. 66% of HCPs and 63% of HCDMs surveyed called for greater health literacy on obesity in the general public to inform decisions and actions towards people living with obesity. When asked about the health literacy of people at risk of or living with obesity, 66% of HCPs and 63% HCDMs highlighted a need for greater health literacy to inform decisions and actions regarding prevention, treatment, and management of obesity. Similarly, 66% of HCPs and 62% HCDMs expressed a need for improved health literacy on obesity in the medical community to inform decisions and actions regarding prevention, treatment, and management of people at risk or living with obesity.



HCPs



HCDMs

Called for greater health literacy on obesity in the medical community to inform decisions and actions regarding prevention, treatment, and management of people at risk or living with obesity

Recommendations:



- Educate HCPs, HCDMs, and policy makers about the underlying causes of obesity to inform decision making and allow people living with obesity to have the necessary long-term support to manage the disease.
- Integrate weight bias and patient communication skills into education for medical/nursing/allied healthcare trainees.
- Shift public and health providers' perception of obesity from an individual responsibility to a whole-system approach that involves coordinated action across a broad range of disciplines and stakeholders.
- Empower those living with obesity to share their authentic lived experiences and advocate for tailored person-centered care across the entire life course.

Priority Area: Standards of Care

Translating research findings into clinical practice is essential to delivering effective care and outcomes for people living with obesity.²⁴ However, most of the current research on obesity is limited in scope as it is based on epidemiologic studies that use body mass index (BMI $\geq 30\text{kg/m}^2$) as a proxy measure for obesity-related health risks at the population level.^{25,26} While BMI is a useful tool to screen for obesity,^{19,25} it is less accurate for determining individual risk factors (e.g., location/distribution of adiposity in people without excess weight, environmental and socioeconomic causes²⁷) and therefore does not provide a comprehensive picture of a person's health.^{23,25,27} Regulatory authorities such as the US Centers for Disease Control and Prevention state that BMI may be used for early detection of obesity, but HCPs should perform appropriate diagnostic assessments to evaluate an individual's health risk.²⁸

The OPEN Models of Care survey suggests that HCDMs and HCPs are faced with limitations in research and data that hinders informed decision making. When asked to choose between a range of factors that most inform their decisions around obesity care plans and guidance, medical research and data was the factor chosen by the largest proportion of HCDMs (36%). However, under half (44%) of HCDMs surveyed said they receive regular updates on new research in obesity. In addition, nearly one third of HCDMs (32%) said that another key factor that influences their decisions is the number of people with obesity presenting in their health service/area yet, according to HCPs surveyed, on average less than half (43%) of patients diagnosed with obesity have it documented in their health records as a chronic disease. This is a missed opportunity, as research suggests that a documented diagnosis of obesity from a HCP is an important step to engage people with obesity to manage their disease (e.g., through counselling on diet/physical activity and/or referral to supporting resources/obesity specialists).²⁹

The survey also found that "clinical inertia," or non-adherence to clinical practice guidelines,³⁰ is impacting obesity guidance and planning. While the majority of HCDMs (85%) agreed there are dedicated clinical guidelines on obesity in place, 38% said they consult them when assessing obesity services and 12% said they do not have the resources or services to implement them. Amongst HCPs, 89.5% indicated that they are aware of clinical practice guidelines on obesity, of which less than half (47%) are familiar with the guidelines and have consulted them, and 28% consider the guidelines to be inadequate.

Recommendations:



- Strengthen current population-based, scientific obesity research with data across all age groups to examine trends in weight-change patterns and health risks over the life course.
- Enhance care providers' methods to diagnose and document obesity management in the patient's electronic medical record (including proper insurance/reimbursement coding) to support decision making and ensure quality care and services for individuals.
- Optimise and increase use/implementation of clinical practice guidelines for obesity

Priority Area: Care Delivery

A transdisciplinary, holistic, person-centered approach is recommended for people living with obesity.³¹ Specifically, this may include (depending on location) coordinated care from a team of nurses, HCPs, and specialists (e.g., endocrinologists) partnering with allied healthcare professionals (e.g., dietitians/nutritionists, exercise physiologists, and clinical psychologists).³¹ However, many HCPs, particularly in primary care, have cited obstacles to providing a transdisciplinary team approach for people living with obesity.³²

Several responses from the OPEN Models of Care survey corroborate these challenges. While 61% of HCPs said they feel well-equipped to provide the best care for people living with obesity, less than half of HCPs surveyed (40%) agree that there is sufficient capacity/time available to care for the number of patients with obesity. Furthermore, 54% of HCPs agreed that referral pathways are clearly established, but less than half said that obesity care is well organised in their clinic (46%) and that GPs/PCPs and specialists collaborate on care (45%). HCDMs were less likely to agree on these points: 42% cited there are clear referral pathways, 34% said obesity care is well organised across health services, and 38% said GPs/PCPs and specialists sufficiently collaborate to support people living with obesity.

The survey also revealed a gap between healthcare provider supply and demand, as well as the need to improve access to obesity-related services. About 39% of HCPs agreed there are enough GPs/PCPs, specialists, and allied healthcare providers to deliver appropriate long-term care for people living with obesity. More than half of HCPs (52%) and about one-third of HCDMs (32%) agreed that services are available to all people living with obesity. When asked about specific services, about half of HCPs and HCDMs agreed that counselling and specialty services (endocrinology and cardiology) are not reimbursed or available/accessible to people living with obesity.

Recommendations:



- Allocate government funding that prioritises transdisciplinary obesity care and support for all age groups across the life course.
- Establish clear clinical and referral pathways and working partnerships between GPs/PCPs, allied healthcare professionals, and specialists to enable ongoing evidence-based obesity care.
- Expand coverage of essential services for people living with obesity.

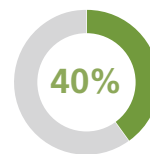
Priority Area: Health System Priorities

Over the past few decades, a wide range of obesity care policies and clinical practice guidelines have been implemented in countries throughout the world and have shaped current funding on primary prevention and acute intervention of obesity-related complications.^{8,33,34,35} Governments and health authorities have mostly focused on anti-obesity models that increase public awareness of healthy lifestyle choices^{33,34,35}; however, these strategies have failed to reduce the global prevalence of obesity.^{8,33,34}

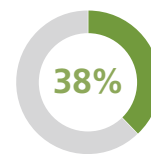
In the survey, 37% of HCDMs deemed obesity to be a high healthcare priority and according to HCDMs surveyed, government/health authority funding is more likely to be distributed towards school food and nutrition policies (40%) and legislation on front-of-package nutrition labeling (38%), and less likely to support obesity screening (28%) and clinical frameworks (26%). Amongst HCPs surveyed, 60% said that more robust screening measures/methods are needed, 61% agreed screening and early diagnosis is key to prevent new cases/progression of obesity and more than half of all respondents (60% of HCPs and 54% of HCDMs) agreed that obesity care needs more funding, focus, and attention.

Government/health authority funding distribution:

MORE LIKELY

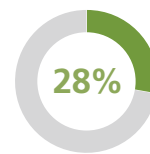


School food and nutrition policies

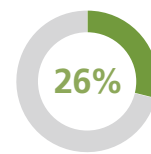


Legislation on front-of-package nutrition labeling

LESS LIKELY



Support obesity screening



Support clinical frameworks

Recommendation:

- Implement models of care following the WHO Health Service Delivery framework and incorporate evidence-based obesity management within existing care pathways.



Research has shown that managing obesity within frameworks that include/address it as a NCD could help address over 230 complications of obesity and other specific major NCDs, including up to:

- 80% of type 2 diabetes mellitus
- 35% of ischaemic heart disease
- 55% of hypertensive disease in adults
- 20% of some adult cancers

Reference:

f. Frühbeck G, Toplak H, Woodward E, et al. Obesity: the gateway to ill health - an EASO Position Statement on a rising public health, clinical and scientific challenge in Europe. *Obes Facts*. 2013;6(2):117-120.

g. Wolin KY, Carson K, Colditz GA. Obesity and cancer. *Oncologist*. 2010;15:556-565.

Summary and Conclusion

We are at a crucial moment in addressing the obesity challenge. Despite increasing recognition of obesity as a chronic relapsing disease,¹ it remains a global health epidemic.⁸ Every stakeholder – from HCPs to policy makers to the public – must work together to increase knowledge of the causes and health impacts of obesity and find opportunities to improve the state of obesity care across the world. Interventions must be tailored for healthcare systems to provide optimal individualised care for those living with obesity.¹³

Currently, the high costs associated with obesity management are leading to disparities in access to obesity care in many countries.³⁶ Going forward, national healthcare systems must adopt new health service delivery models that follow the WHO Health Service Delivery framework,¹³ which supports prevention and disease management and access to holistic, evidence-based obesity care over the life course.⁹

Obesity care must be afforded the same level of urgency as other NCDs, for which equitable access to appropriate person-centered care and whole-system support and resources is a staple of healthcare.^{9,10,35}

A comprehensive approach to obesity is an investment in the future

- Lowering the obesity rate by 5% could translate to an average annual reduction of 5.2% in economic costs globally between 2020 and 2060.^h

Reference:

h. Okunogbe A, Nugent R, Spencer G, et al. Economic impacts of overweight and obesity: current and future estimates for eight countries. *BMJ Global Health*. 2021;6:e006351. doi:10.1136/bmjgh-2021-006351.

Call to Action

The OPEN Models of Care survey underscored barriers to diagnosis, service delivery, and management of obesity; gaps in health literacy on obesity; and a lack of research and funding for obesity care. These priority areas identified by the OPEN Working Group are a call to action to improve policy and practices for the benefit of those living with obesity.

Next Steps:



Fill current education and research gaps to inform appropriate policy interventions and standardised guidelines on managing obesity



Raise broader awareness and understanding of the causes and impact of obesity to reduce weight biases and stigma



Prioritise interventions that address the underlying factors (biological, genetic, environmental, psychological, and socioeconomic) that contribute to the development and persistence of obesity



Conduct national cost analyses measuring the economic burden of obesity care. Governments can draw on this data to implement new policy options and modify existing strategies to address obesity

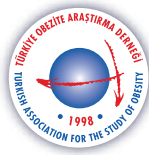
To learn more, visit: www.obesityopen.org/resources/systemwide-approach-to-obesity-care/

References

- European Commission. Knowledge for Policy: Health Promotion and Disease Prevention Knowledge Gateway. Obesity Prevention. Available at: https://knowledge4policy.ec.europa.eu/health-promotion-knowledge-gateway/obesity_en. Accessed February 14, 2024.
- Frühbeck G, Toplak H, Woodward E, et al. Obesity: the gateway to ill health – an EASO Position Statement on a rising public health, clinical and scientific challenge in Europe. *Obes Facts*. 2013;6:117-120.
- World Obesity Federation. Obesity: Missing the 2025 Targets. Available at: <https://www.worldobesityday.org/assets/downloads/WOF-Missing-the-targets-executive-summary.pdf>. Accessed February 15, 2024.
- World Obesity Federation, 2022. The Economic Impact of Overweight & Obesity 2nd Edition with Estimates for 161 Countries. Available at: <https://data.worldobesity.org/publications/WOF-Economic-Impacts-2-V2.pdf>. Accessed February 15, 2024.
- Cornier M-A. A review of current guidelines for the treatment of obesity. *Am J Manag Care*. 2022;28:5288-5296.
- Heymesfield SB, Aronne LJ, Eneli I, et al. Clinical perspectives on obesity treatment: challenges, gaps, and promising opportunities. NAM Perspectives. Discussion Paper, National Academy of Medicine, Washington. 2018. DC. <https://doi.org/10.31478/201809b>.
- Alberga AS, Edache IY, Forhan M, et al. Weight bias and health care utilization: a scoping review. *Prim Health Care Res Dev*. 2019;20(e116): 1-14.
- Craig HC, Doran ZM, le Roux CW. The concept of healthy behaviours in obesity may have unintended consequences. *Nutrients*. 2023;15, 12. <https://doi.org/10.3390/nu15010012>.
- World Health Organization. Health service delivery framework for prevention and management of obesity. Geneva: World Health Organization; 2023. Licence: CC BY-NC-SA 3.0 IGO. Available at: <https://iris.who.int/bitstream/handle/10665/367784/9789240073234-eng.pdf?sequence=1>. Accessed February 15, 2024.
- Luli M, Yeo G, Farrell E, et al. The implications of defining obesity as a disease: a report from the Association for the Study of Obesity 2021 annual conference. *EClinicalMedicine*. 2023;58:101962.
- Tsai AG, Histon T, Kyle TK, et al. Evidence of a gap in understanding obesity among physicians. *Obes Sci Pract*. 2017. Jan 12;4(1):46-51. doi: 10.1002/osp4.146. eCollection 2018 Feb.
- Busetto L, Sbraccia P, Vettor R. Obesity management: at the forefront against disease stigma and therapeutic inertia. *Eat Weight Disord*. 2022;27(2):761-768.
- Branca F, Ursu P, Aguayo V. A plan for accelerated action on obesity. *Lancet Glob Health*. 2023;11(8):e1170- e1171.
- Mastrocola MR, Roque SS, Benning LV, et al. Obesity education in medical schools, residencies, and fellowships throughout the world: a systematic review. *Int J Obes (Lond)*. 2020;44(2):269-279. Kim TN. Barriers to obesity management: patient and physician factors. *J Obes Metab Syndr*. 2020;29:244-247.
- European Association for the Study of Obesity. Survey of European GPs: GPs' Perceptions, Knowledge and Treatment of Obesity. 2018. Available at: <https://woday.eu/wp-content/uploads/2021/11/180517-Report-Final.pdf>. Accessed February 15, 2024.
- James WPT. WHO recognition of the global obesity epidemic. *Int J Obes (Lond)*. 2008;32:5120-5126.
- Bray G, Kim KK, Wilding JPH, et al. Obesity: a chronic relapsing progressive disease process. A position statement of the World Obesity Federation. *Obes Rev*. 2017;18:715-723.
- American Nurses Association. Essential Care and Coverage for Those Living with Obesity: Nurses Obesity Network Joint Statement, February 2023. Available at: <https://www.nursingworld.org/practice-policy/nursing-excellence/official-position-statements/id/obesity/>. Accessed February 16, 2024.
- World Obesity Federation. World Obesity Day 11th October 2018. End Weight Stigma campaign toolkit. Available at: Accessed February 16, 2024.
- Mahmoud AM. An overview of epigenetics in obesity: the role of lifestyle and therapeutic interventions. *Int. J. Mol. Sci*. 2022;23, 1341. <https://doi.org/10.3390/ijms23031341>.
- Phelan SM, Burgess DJ, Yeazel MW, et al. Impact of weight bias and stigma on quality of care and outcomes for patients with obesity. *Obes Rev*. 2015;16:319-326.
- Rubino F, Puhl RM, Cummings DE, et al. Joint international consensus statement for ending stigma of obesity. *Nat Med*. 2020;26:485-497.
- Schuster RJ, Tasosa J, Terwoord NA. Translational research – implementation of NHLBI obesity guidelines in a primary care community setting: The Physician Obesity Awareness Project. *J Nutr Health Aging*. 2008;12:7645-7695.
- World Health Organization. WHO European Regional Obesity Report 2022. Copenhagen: WHO Regional Office for Europe; 2022. Licence: CC BY-NC-SA 3.0 IGO. Available at: <https://iris.who.int/bitstream/handle/10665/353747/9789289057738-eng.pdf?sequence=1>. Accessed February 16, 2024.
- Hassapidou M, Vlassopoulos A, Kalliostra M, et al. European Association for the Study of Obesity position statement on medical nutrition therapy for the management of overweight and obesity in adults developed in collaboration with the European Federation of the Associations of Dietitians. *Obes Facts*. 2023;16:11-28.
- Garvey WT, Mechanick JI. Proposal for a scientifically-correct and medically-actionable disease classification system (ICD) for obesity. *Obesity (Silver Spring)*. 2020;28(3):484-492.
- Centers for Disease Control and Prevention. Body Mass Index: Considerations for Practitioners. Available at: <https://www.cdc.gov/obesity/downloads/bmiforpractitioners.pdf>. Accessed February 16, 2024.
- Ciemins EL, Joshi V, Cuddeback JK, et al. Diagnosing obesity as a first step to weight loss: an observational study. *Obesity*. 2020;28:2305-2309.
- Lavoie KL, Rash JA, Campbell TS. Changing provider behavior in the context of chronic disease management: focus on clinical inertia. *Annu. Rev. Pharmacol. Toxicol*. 2017. 57:263-283.
- Aditya BS, Wilding JPH. Modern management of obesity. *Clin Med (Lond)*. 2009;9:617-621.
- Bright D, O'Hare K, Beesley R. Tipping the scales: Provider perspectives on a multi-disciplinary approach to obesity. *Exp Biol Med (Maywood)*. 2019;244: 183-192.
- Kuk JL, Wicklum SC, Twells LK. Canadian Adult Obesity Clinical Practice Guidelines: Prevention and Harm Reduction of Obesity (Clinical Prevention). Available at: <https://obesitycanada.ca/guidelines/prevention>. Accessed February 18, 2024.
- Theis DRZ, White M. Is obesity policy in England fit for purpose? Analysis of government strategies and policies, 1992-2020. *Milbank Q*. 2021;99:126-170.
- Salas XR, Forhan M, Caulfield T, et al. A critical analysis of obesity prevention policies and strategies. *Can J Public Health*. 2017;108(5-6):e598-e608.
- Templin T, Hashiguchi TCO, Thomson B, et al. The overweight and obesity transition from the wealthy to the poor in low- and middle-income countries: a survey of household data from 103 countries. *PLoS Med*. 2019;16(11): e1002968. <https://doi.org/10.1371/journal.pmed.1002968>.

Endorsements

The Models of Care Survey and White Paper were developed with input from healthcare professionals and obesity experts from partner organisations and national networks represented in the Obesity Policy Engagement Network (OPEN). We would like to thank all contributors as well as the following organisations who have endorsed the White Paper.



TÜRKİYE OBEZİTE ARAŞTIRMA DERNEĞİ
TURKISH ASSOCIATION FOR THE STUDY OF OBESITY



OPEN Italy
Obesity Policy Engagement Network

OPEN
ESPAÑA