Unit No. 2

A PRACTICAL APPROACH TO THE PATIENT WITH OBESITY

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ABSTRACT

The prevalence of obesity and obesity-related comorbidities is rising in Singapore and across the globe. Primary care physicians are at the frontline of healthcare and play a central role in the management of obesity. In this article, we discuss the 5As framework (Ask, Assess, Advise, Agree, and Assist) as a practical framework for obesity counselling, focusing on how to initiate the conversation and assess the person with obesity. The assessment includes taking a weight history, excluding secondary causes, understanding lifestyle factors contributing to weight gain, and assessing for complications of obesity. This assessment then makes possible subsequent patient engagement, which would include advising, agreeing (goal setting), and assisting the patient on an individualised care plan.

Keywords: Obesity, weight management, clinical examination, patient-centred care

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INTRODUCTION

Over the past four decades, the global prevalence of obesity has risen markedly from 7 percent in 1980 to 12.5 percent in 2015,[1] affecting all regions including Singapore.[1,2] Obesity is not benign and it has been linked to many other health conditions, such as type 2 diabetes, cardiovascular disease, mood disorders, and certain cancers, resulting in reduced quality of life, higher healthcare costs, and increased mortality.[3-6] Obesity has clearly become a major global and regional health problem.

However, according to international surveys and interviews, people with obesity might not perceive their weight to be a significant problem.[7] Even if they do, it might take several years of struggling with excess weight before they finally consult a healthcare professional.[8] Therefore, the primary care physician, being at the frontline of healthcare, has a key role in identifying the person with obesity and broaching the topic of weight management. Additionally, counselling delivered by primary care providers can positively impact their patients.[9] In a meta-analysis of 12 studies involving 207,226 individuals, those who were provided with weight loss advice by their primary care provider were nearly four times more likely to attempt weight loss.[9] However, observational and self-report evidence suggests that less than half of patients with obesity are advised by their physicians to lose weight.[8,10] Primary care physicians often cite lack of motivation by the patient as the main reason for not discussing weight during consultations.[7,8] Other barriers described include limited understanding of obesity care, concern about negative consequences of raising a sensitive topic, and limited time and resources.[10]

On the other hand, studies on patients with obesity suggest that patients do believe that it is the responsibility of their primary care physicians to initiate the conversation about weight management and would like them to do so.[8,11] Only 3 percent were offended by such a conversation, according to an online survey conducted in 11 countries involving 14,502 participants.[8] This survey also showed that nearly half of them said they were motivated to lose weight, with >80 percent of the total participants saying they had made at least one serious weight loss effort in the past.[8] These results should reassure primary care physicians that a sizeable population with obesity is willing to receive help for their weight.

Hence, this article aims to reiterate the central role of the primary care physician in the management of obesity and discuss how to initiate the conversation and assess the person with obesity.

5As FRAMEWORK FOR OBESITY COUNSELLING

A practical framework for obesity counselling is the 5As framework (*Ask, Assess, Advise, Agree, and Assist*), a universal approach to encouraging behaviour change, which was initially developed to support smoking cessation (refer to **Figure 1**).[12] This intervention strategy takes the individual's perceived need as the starting point, which then makes it possible to implement a process of care that is individualised and patient-centred.[13] A 2014 study found that this framework was easy to implement, doubled the initiation of obesity management in primary care clinics, and resulted in positive behavioural health changes for patients.[14] Another study found that patients managed by internal medicine residents trained in the 5As framework lost a mean of 1.53 kg at 12 months while those managed by non-trained residents gained a mean of 0.30 kg. This difference was statistically significant.[15] However, while this approach seems simple, it should not be applied simplistically. The success of this framework rests on a strong therapeutic relationship between the physician and patient, where the physician can guide the patient through this journey of behaviour change at a pace that is suited to the patient's situation.[13]

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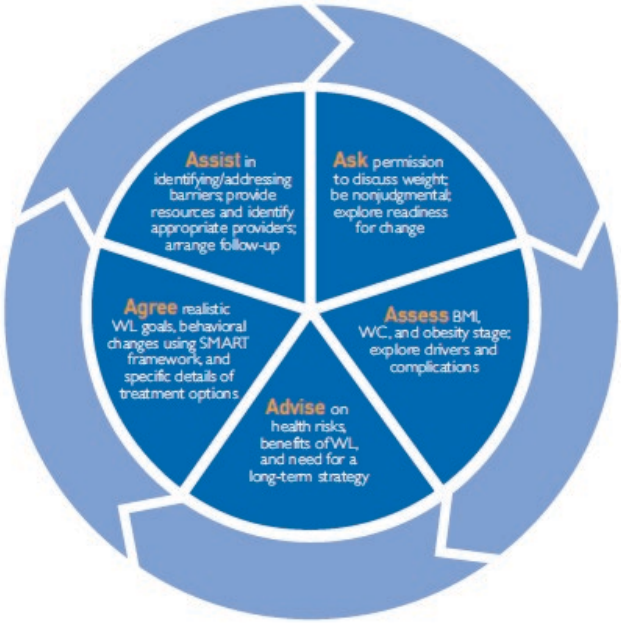
Figure 1: The 5 As framework for obesity counselling



BMI = body mass index
SMART = specific, measurable, achievable, relevant, time-based
WC = waist circumference
WL = weight loss[12]

Ask: Initiating the Conversation

Communication is a fundamental aspect of obesity management. The first A (Ask) involves seeking permission to talk about obesity and its management, especially if the "reason for encounter" is not related to weight. Based on a local qualitative study, primary care physicians tend to do this by presenting the patient's anthropometric measurements and getting them to reflect on the weight instead of directly asking for permission.[16] When a patient presents with a problem that could be attributed to weight, primary care physicians usually have no issues initiating the conversation.[7] However, the physician should be cautious about focusing on the patient's weight at the cost of neglecting to explore other possible causes of the problem.[17,18]

Regardless, there are two main points to highlight regarding a successful conversation about obesity.[17] First, the physician should communicate in a non-judgemental, respectful manner, with empathy, and without any bias, especially since evidence now suggests that obesity has a complex aetiology that may not fully be under voluntary control.[17,18] Patients with obesity have been described as lazy, non-compliant, weak-willed, unintelligent, and even dishonest by healthcare professionals, and this stigmatisation only exacerbates the problem.[17] Hence, the physician should take care not to use inappropriate or hurtful words and use people-first language ("patient with obesity") as opposed to condition-first language ("the obese patient"). This is recommended for other medical conditions as well.[12,17]

Second, in order to have a motivating conversation so that behaviour change can be elicited, the physician should employ motivational interviewing (MI).[19] MI is a patient-centred, goal-directed counselling technique aimed at increasing intrinsic motivation for change by exploring and resolving ambivalence to change.[19] MI's core principles include expressing empathy, developing discrepancy (between patient's goals and current behaviour), rolling with resistance, avoiding argumentation, and supporting the patient's self-efficacy (empowerment); it involves **o**pen questions, **a**ffirming the patient's perspectives, **r**eflecting what was heard to ensure understanding, and **s**ummarising shared understanding to set specific goals (acronym OARS).[19] In a meta-analysis of 11 Randomised Control Trials involving 1,448 participants, MI significantly enhanced weight loss in overweight and obese patients.[20] Hence, MI is an effective counselling approach, which can be used within the 5As framework for obesity counselling.

Assess: History

History—An Obesity-Focused History

Once the patient is ready to engage in conversation about his or her weight, the physician can initiate an obesity-focused history taking. An obesity-focused history taking has the following aims:

- Assessing for secondary obesity and contributing factors of obesity
- Assessing for obesity-related comorbidities
- Gathering information to formulate a treatment plan

Weight History

In taking a weight history, the mnemonic "OPQRST" may be used to evaluate weight. This includes **o**nset, **p**recipitating events, **q**uality of life, **r**emedy, **s**etting, and **t**emporal pattern (refer to **Table 1**).[21,22] In addition, comprehensive history-taking also includes delving into the pattern of weight changes, duration of obesity, highest weight, previous weight loss attempts, and response to these attempts. If time permits, graphing the patient's weight over time and inserting events or treatments that they feel were temporally related to weight changes may be useful. This weight chart may reveal significant events that cause changes in weight trajectory, such as physiological changes (e.g., puberty, pregnancy, menopause), medical factors (e.g., diagnosis of medical disorders, initiation of medications), and social factors (e.g., change of job, marriage, divorce, grief, etc). By using open-ended questions, the physician permits the patient to express their own weight journey and challenges. This also enables the physician to understand the patient's knowledge, attitude, and motivation, which would provide a basis for formulating a treatment plan.

Table 1: Using the mnemonic OPQRST to take a weight history[21,22]

	Sample Questions
Onset	"When did you first begin to gain weight?" "Have you struggled with your weight since childhood?" "What did you weigh in school, in college, in your early 20s, 30s, 40s?" "Did the weight gain begin when you started taking a certain medication?"
Precipitating	"What life events may have led to your weight gain—such as work stress, marriage, divorce, financial loss, a period of depression, the onset of an illness?" "How much weight did you gain with pregnancy?" "How much weight did you gain when you stopped smoking?" "How much additional weight did you gain when you started insulin?"
Quality of life	"At what weight did you feel your best?" "What is hard to do at your current weight?" "How does your weight affect how you feel and function?"
Remedy	"What have you tried in the past to control your weight?" "Which medications, if any, have you taken to help control your weight?" "What have you found to be particularly helpful when trying to lose weight?"
Setting	"What was going on in your life when you last felt in control of your weight?" "What was going on when you gained your weight?" "What role has stress played in your weight gain?" "Which people in your life, if any, have been helpful to support your efforts to control your weight?"
Temporal pattern	"What is the pattern of your weight gain?" "Did you gradually gain your weight over time?" "Are there large swings in your weight, and if so, what is the weight change?" "What was your lightest and heaviest weight as an adult?"

Assessing for Secondary Obesity and Contributing Factors

Secondary Causes

The physician should be aware of secondary causes of obesity. Secondary causes can be elicited in the history, physical examination, and initial investigations. Certain clinical features such as the early or sudden onset of obesity, temporal relationship to an event, or associated signs and symptoms of another medical condition (e.g., Cushing's syndrome, hypothyroidism) may suggest an underlying medical disorder. The onset of weight gain after initiating a medication may suggest drug-induced weight gain. Paediatric patients with extreme early-onset obesity (<5 years of age), severe hyperphagia, developmental delay, and/or dysmorphism will warrant a referral to a paediatrician.[23] The causes of obesity are summarised in **Table 2**.[24]

Table 2: Causes of obesity[24]

Causes of Obesity
Primary Genetic and epigenetic causes Monogenic disorders (e.g., MC4R mutation, Leptin deficiency, POMC deficiency) Syndromes (e.g., Prader-Willi syndrome, Bardet-Biedl syndrome)
Secondary Neurological Brain injury Brain tumour Cranial irradiation Hypothalamic obesity Endocrine Hypothyroidism[a] Cushing's syndrome Hypogonadism Psychological Depression[b] Eating disorders Drug-induced Anti-depressants Anti-psychotics Anticonvulsants Sulphonylureas Insulin Thiazolidinediones Steroids Oral contraceptives
[a]Controversial whether hypothyroidism causes obesity or exacerbates obesity [b]Depression associated with overeating or binging

Table 3: STOP-BANG Questionnaire[29]

Snoring	Do you SNORE loudly (louder than talking or loud enough to be heard through closed doors)?	☐ Yes	☐ No
Tired	Do you often feel TIRED, fatigued, or sleepy during the daytime?	☐ Yes	☐ No
Observed	Has anyone OBSERVED you stop breathing during your sleep?	☐ Yes	☐ No
Pressure	Do you have, or are you being treated for high blood PRESSURE?	☐ Yes	☐ No
BMI	BMI of more than 35 kg/m^2?	☐ Yes	☐ No
Age	AGE over 50 years old?	☐ Yes	☐ No
Neck	NECK circumference >40 cm?	☐ Yes	☐ No
Gender	GENDER: Male?	☐ Yes	☐ No
Scoring criteria: Low risk of OSA: Yes to 0–2 questions Intermediate risk of OSA: Yes to 3–4 questions High risk of OSA: Yes to 5–8 questions			

Lifestyle and Social Factors

Taking a dietary and physical activity history will enable the physician and patient to identify areas where they can start making changes to improve their health. Energy intake from self-reported dietary history is frequently underestimated, but it is an important starting point for awareness and self-reflection. A 24-hour diet recall may be used. Assessing the type of food, portion size, the timing of meals, and location of meals is useful in dietary assessment since disordered eating patterns such as night eating or emotional eating may be uncovered.

Physical activity is an important factor in weight loss maintenance. Furthermore, physical activity is also associated with decreased mortality independent of weight.[25,26] During the assessment of a person's baseline physical activity, the physician should also assess for any medical limitations for exercise (e.g., cardiovascular disease, respiratory disease, musculoskeletal problems) as this will influence exercise prescription. The use of smartphone apps and fitness devices for food and physical activity tracking might help patients monitor their dietary intake and physical activity, and their usage should be noted so that an individualised plan can be formulated.

Disordered sleep patterns are associated with weight gain. Shift workers who have disrupted circadian rhythms have an increased risk of weight gain.[27] Disrupted sleep or poor sleep quality may also be due to obstructive sleep apnoea (OSA), which has a high prevalence in patients with obesity.[28] A useful tool in assessing for OSA is the STOP-BANG questionnaire to screen for OSA (refer to **Table 3**).[29]

Past Medical History

Many medical conditions are caused or contributed to by obesity. These include type 2 diabetes mellitus (T2DM), hypertension, dyslipidaemia, non-alcoholic fatty liver disease (NAFLD), polycystic ovarian syndrome, OSA, ischaemic heart disease, etc. The presence and control of these obesity-related complications (refer to **Table 4**) will influence treatment options and urgency of treatment of obesity. Many medications used to manage obesity-related comorbidities might contribute to weight gain. Psychological history including history of depression, anxiety, eating disorders, and the use of psychiatric medications are important to note and would impact the management of obesity.

Table 4: Complications of obesity

Metabolic
Diabetes mellitus
Hypertension
Dyslipidaemia
Gout
Non-alcoholic fatty liver disease
Polycystic ovarian syndrome
Coronary artery disease
Cancer—breast, endometrial, colon, cervical, oesophageal, kidney, prostate, etc.
Mechanical
Obstructive sleep apnoea
Gastroesophageal reflux disease
Osteoarthritis
Venous stasis
Mental or Psychological
Depression
Eating disorders
Stigma and discrimination

Assess: Examination and Further Investigations

Assessment of Obesity

Obesity is abnormal or excessive fat accumulation that presents a risk to health. The most utilised marker for classifying weight is the body mass index (BMI), which is calculated from weight (kg) divided by height (m) squared. Overweight is defined by a BMI of ≥25 kg/m^2 and obesity is defined by a BMI of ≥30 kg/m^2, where the severity of obesity increases with increasing BMI (refer to **Table 5**). In Asians, a BMI of >23.0 kg/m^2 is considered overweight and

the BMI cutoffs for intervention for obesity categories are lowered by 2.5 kg/m^2 as Asians have higher adiposity for a given BMI and metabolic risk.[30]

Another useful clinical measurement of obesity is waist circumference, widely recognised as a measure of central adiposity. An increased waist circumference is associated with increased visceral adiposity and increased risk of cardiometabolic disease.[31,32] The waist circumference is measured at the midpoint between the iliac crest and lower border of the ribs. A waist circumference of >80 cm and >90 cm in Asian females and males, respectively, indicates increased metabolic risk. Another marker is the waist-hip ratio, which is calculated from waist circumference divided by hip circumference. A ratio of >0.90 in men and >0.85 in women is indicative of an increased risk of metabolic complications.[33] However, waist circumference is preferred because it is a better marker of abdominal fat content and is easier to measure and interpret.[34] Neck circumference has also been associated with visceral adiposity and is used in the STOP-BANG score for OSA.[29,35]

The rest of the physical examination and investigations should be guided by the patient's history, suspicion of secondary causes, and the screening for obesity-related complications, especially cardiovascular- and metabolic-related complications. Acanthosis nigricans, a dark velvety discolouration of the skin on the neck and armpits, may be seen and is a sign of insulin resistance. If secondary causes of obesity are suspected (refer to **Table 2**), further investigations or appropriate referrals may be required. The physician should screen for obesity-related complications (refer to **Table 4**) in the clinical examination and investigations as obesity management is now more "complications-centric" instead of being based on BMI classification alone. **Table 6** suggests investigations to consider in patients with obesity.

Table 5. BMI classification for obesity and waist circumference threshold for increased metabolic risk

BMI Classification	**WHO cutoff for BMI (kg/m^2)**	**BMI cutoff for action in Asians* (kg/m^2)[30]**
Obese	>30.0	
Class I obesity	30.0–34.9	27.5–32.4
Class II obesity	35.0–39.9	32.5–37.4
Class III obesity	>40.0	>37.5
*BMI threshold for action is lowered by 2.5 kg/m^2 in Asians		
Waist circumference (WC) for increased metabolic risk	**WC threshold (cm)[33]**	**WC threshold in Asians (cm)[40]**
Female	>88	>80
Male	>108	>90

Table 6. Investigations in a patient with obesity

<u>To investigate underlying causes</u> Thyroid function test Cushing's work up if clinically indicated (overnight dexamethasone suppression test, 24-hour urinary free cortisol, late-night salivary cortisol, or referral to an endocrinologist)	 Exclude hypothyroidism Exclude Cushing's syndrome
<u>Screening for complications of obesity</u> *Clinical* Blood pressure STOP-BANG score *Laboratory investigations* Fasting glucose and HbA1C Lipid panel Renal panel Liver panel Others (e.g., Mammogram, pap smear, referrals as required)	 Screen for hypertension Screen for OSA Screen for DM, IFG, and IGT Screen for dyslipidaemia Screen for abnormal renal function Screen for NAFLD Screen for cancers
OSA: Obstructive sleep apnoea DM: Diabetes mellitus IFG: Impaired fasting glucose IGT: Impaired glucose tolerance NAFLD: Non-alcoholic fatty liver disease	

In the assessment of obesity, there are new staging systems for obesity that are more comprehensive and predictive of outcomes than BMI alone. One staging system is the Edmonton Obesity Staging Scale (EOSS).[36] The EOSS has five stages from Stage 0 to Stage 4, depending on the presence of obesity-related comorbidities, their severity, and functional limitations (refer to **Table 7**). It is superior to BMI classification in predicting mortality for people who are overweight and with obesity.[36,37] The presence of obesity-related comorbidities and a higher EOSS stage may suggest more urgent action required to address obesity. For example, a patient with obesity with T2DM, NAFLD, and OSA would require more urgent and aggressive weight management than a patient with similar BMI without any obesity-related comorbidities. Thus, it is useful to consider the staging and the impact of obesity on health when assessing a patient.

Table 7. Edmonton obesity staging scale (EOSS)[36]

Stage 0	No signs of obesity-related risk factors No physical symptoms No psychological symptoms or functional limitations
Stage 1	Subclinical obesity-related risk factors (e.g., Borderline hypertension, impaired fasting glucose, impaired glucose tolerance, elevated liver enzymes, etc.) Mild physical symptoms Mild obesity-related psychopathology, functional limitations, and/or mild impairment in well-being
Stage 2 Established obesity-related comorbidities (e.g., Type 2 diabetes mellitus, hypertension, OSA, PCOS) Moderate obesity-related functional limitations and/or moderate impairment of well-being	
Stage 3	Significant obesity-related comorbidities (e.g., Myocardial infarction, heart failure, diabetes complications, incapacitating osteoarthritis) Significant obesity-related psychopathology, functional limitations, and/or impairment of well-being
Stage 4	Severe (potentially end-stage) disabilities from obesity-related comorbidities Severe disabling obesity-related psychopathology, functional limitations, and/or severe impairment of well-being

Advise

The next step would be to provide advice. This entails informing the patient about the results of the assessment and treatment options. Advice should include the health risks of obesity, weight loss benefits, and discussion of strategies for weight loss.

Agree: Discussing a Management Plan and Goal-Setting

Assessing readiness for change is important before discussing a management plan with the patient. When confronted with any potential change, ambivalence is expected. The physician can help the patient to resolve any ambivalence through MI techniques, before progressing further in the discussion.

Discussing a management plan should be patient-centred and collaborative. Patient-centred care encourages active collaboration and shared decision-making between patients and providers. Apart from clinical considerations, the patient and provider would need to consider emotional, mental, social, and financial perspectives.[38] Patients who share their perspectives achieve better outcomes.[22,39] As lifestyle modification requires changes in a person's daily behaviours, each person's treatment needs to be tailored and personalised. To facilitate this process, the physician may need to start by setting realistic weight loss expectations and clarifying misconceptions. A modest target of 5–10 percent weight loss can have significant benefits on obesity-related comorbidities.[32] For some patients, preventing further weight gain may be a realistic initial target.

In formulating a management plan, focusing on behavioural goals where patients have more locus of control may be more beneficial, rather than only concentrating on weight loss outcomes. These behavioural goals may be related to healthy eating, physical activity, or other psychosocial behavioural goal. Examples include intake of fruits and vegetables, avoidance of sugar-sweetened beverages, self-monitoring of dietary intake, self-monitoring of weight, reducing sedentary time, increasing steps, or exercise sessions per week. Patients should choose their own behavioural goal to work on. Ideally, this goal should be sustainable and one that the patient believes is important and is confident in carrying out. In collaborating with the patient to form behavioural goals, one may use the SMART (**s**pecific, **m**easurable, **a**chievable, **r**elevant, **t**ime-based) goals as a guide.

Assist

To conclude the consultation for obesity, the patient should be assisted in further management. This may include prescription of medications for weight management and/or adjustment of medications that contribute to weight gain by adjusting doses or using weight-friendly alternatives, if possible. It is also important to assist the patient in further management by providing educational resources, arranging follow-ups, or referral to other community resources or healthcare providers.

CONCLUSION

The role of the primary care physician is central to the management of obesity. The 5As framework (Ask, Assess, Advise, Agree, Assist) is a useful tool for guiding consultations. The clinical assessment of obesity is an important skill to learn. It is important to exclude secondary medical causes and understand lifestyle factors contributing to weight gain. The use of motivational interviewing and focusing on behavioural goals may be useful during the consultation. Lastly, the management of patients with obesity should be patient-centred and collaborative.

REFERENCES

1. Chooi YC, Ding C, Magkos F. The epidemiology of obesity. Metabolism. 2019 Mar;92:6-10. doi: 10.1016/j.metabol.2018.09.005. Epub 2018 Sep 22. PMID: 30253139.
2. Ministry of Health Singapore. National Health Survey 2010 [Internet]. Singapore: Epidemiology & Disease Control Division, Ministry of Health Singapore [updated 2011 November; cited 2021 March]. Available from: https://www.moh.gov.sg/resources-statistics/reports/national-health-survey-2010
3. Cuthbertson DJ, Steele T, Wilding JP, et al. What have human experimental overfeeding studies taught us about adipose tissue expansion and susceptibility to obesity and metabolic complications? Int J Obes (Lond). 2017 Jun;41(6):853-865. doi: 10.1038/ijo.2017.4. Epub 2017 Jan 12. PMID: 28077863.
4. Obesity: preventing and managing the global epidemic. Report of a WHO consultation. World Health Organ Tech Rep Ser. 2000;894:i-xii, 1-253. PMID: 11234459.
5. Ng M, Fleming T, Robinson M, et al. Global, regional, and national prevalence of overweight and obesity in children and adults during 1980-2013: a systematic analysis for the Global Burden of Disease Study 2013. Lancet. 2014 Aug 30;384(9945):766-81. doi: 10.1016/S0140-6736(14)60460-8. Epub 2014 May 29. Erratum in: Lancet. 2014 Aug 30;384(9945):746. PMID: 24880830; PMCID: PMC4624264.
6. Upadhyay J, Farr O, Perakakis N, Ghaly W, Mantzoros C. Obesity as a Disease. Med Clin North Am. 2018 Jan;102(1):13-33. doi: 10.1016/j.mcna.2017.08.004. Epub 2017 Oct 21. PMID: 29156181.
7. McHale CT, Laidlaw AH, Cecil JE. Primary care patient and practitioner views of weight and weight-related discussion: a mixed-methods study. BMJ Open. 2020 Mar 9;10(3):e034023. doi: 10.1136/bmjopen-2019-034023. PMID: 32156764; PMCID: PMC7064140.
8. Caterson ID, Alfadda AA, Auerbach P, et al. Gaps to bridge: Misalignment between perception, reality and actions in obesity. Diabetes Obes Metab. 2019 Aug;21(8):1914-1924. doi: 10.1111/dom.13752. Epub 2019 May 3. PMID: 31032548; PMCID: PMC6767048.
9. Rose SA, Poynter PS, Anderson JW, Noar SM, Conigliaro J. Physician weight loss advice and patient weight loss behavior change: a literature review and meta-analysis of survey data. Int J Obes (Lond). 2013 Jan;37(1):118-28. doi: 10.1038/ijo.2012.24. Epub 2012 Mar 27. PMID: 22450855.
10. Blackburn M, Stathi A, Keogh E, Eccleston C. Raising the topic of weight in general practice: perspectives of GPs and primary care nurses. BMJ Open. 2015 Aug 7;5(8):e008546. doi: 10.1136/bmjopen-2015-008546. PMID: 26254471; PMCID: PMC4538258.
11. Torti J, Luig T, Borowitz M, Johnson JA, Sharma AM, Campbell-Scherer DL. The 5As team patient study: patient perspectives on the role of primary care in obesity management. BMC Fam Pract. 2017 Feb 8;18(1):19. doi: 10.1186/s12875-017-0596-2. Erratum in: BMC Fam Pract. 2017 May 4;18(1):58. PMID: 28178930; PMCID: PMC5299769.
12. Kahan SI. Practical Strategies for Engaging Individuals With Obesity in Primary Care. Mayo Clin Proc. 2018 Mar;93(3):351-359. doi: 10.1016/j.mayocp.2018.01.006. PMID: 29502565.
13. Sturgiss E, van Weel C. The 5 As framework for obesity management: Do we need a more intricate model? Can Fam Physician. 2017 Jul;63(7):506-508. PMID: 28701434; PMCID: PMC5507219.
14. Rueda-Clausen CF, Benterud E, Bond T, Olszowka R, Vallis MT, Sharma AM. Effect of implementing the 5As of obesity management framework on provider-patient interactions in primary care. Clin Obes. 2014 Feb;4(1):39-44. doi: 10.1111/cob.12038. Epub 2013 Oct 29. PMID: 25425131.
15. Jay MR, Gillespie CC, Schlair SL, et al. The impact of primary care resident physician training on patient weight loss at 12 months. Obesity (Silver Spring). 2013 Jan;21(1):45-50. doi: 10.1002/oby.20237. PMID: 23505167.
16. Lee JJ, Tung YC, Tai KP, et al. Do primary care physicians use the 5As in counselling obese patients? A qualitative study. Proceedings of Singapore Healthcare. 2017 Sep;26(3):144-9.
17. Durrer Schutz D, Busetto L, Dicker D, et al. European Practical and Patient-Centred Guidelines for Adult Obesity Management in Primary Care. Obes Facts. 2019;12(1):40-66. doi: 10.1159/000496183. Epub 2019 Jan 23. PMID: 30673677; PMCID: PMC6465693.
18. Wharton S, Lau DCW, Vallis M, et al. Obesity in adults: a clinical practice guideline. CMAJ. 2020 Aug 4;192(31):E875-E891. doi: 10.1503/cmaj.191707. PMID: 32753461; PMCID: PMC7828878.
19. Kelley CP, Sbrocco G, Sbrocco T. Behavioral Modification for the Management of Obesity. Prim Care. 2016 Mar;43(1):159-75, x. doi: 10.1016/j.pop.2015.10.004. PMID: 26896208; PMCID: PMC4772897.
20. Armstrong MJ, Mottershead TA, Ronksley PE, Sigal RJ, Campbell TS, Hemmelgarn BR. Motivational interviewing to improve weight loss in overweight and/or obese patients: a systematic review and meta-analysis of randomised controlled trials. Obes Rev. 2011 Sep;12(9):709-23. doi: 10.1111/j.1467-789X.2011.00892.x. Epub 2011 Jun 21. PMID: 21692966.
21. Kushner R. Taking a weight history–using mnemonics to learn a missing skill in medical education. MedEdPublish. 2017 Nov 29;6.
22. Kushner RF, Batsis JA, Butsch WS, et al. Weight History in Clinical Practice: The State of the Science and Future Directions. Obesity (Silver Spring). 2020 Jan;28(1):9-17. doi: 10.1002/oby.22642. PMID: 31858735.
23. Styne DM, Arslanian SA, Connor EL, et al. Pediatric Obesity-Assessment, Treatment, and Prevention: An Endocrine Society Clinical Practice Guideline. J Clin Endocrinol Metab. 2017 Mar 1;102(3):709-757. doi: 10.1210/jc.2016-2573. PMID: 28359099; PMCID: PMC6283429.
24. Apovian CM, Aronne LJ, Bessesen DH, et al. Pharmacological management of obesity: an endocrine Society clinical practice guideline. J Clin Endocrinol Metab. 2015 Feb;100(2):342-62. doi: 10.1210/jc.2014-3415. Epub 2015 Jan 15. Erratum in: J Clin Endocrinol Metab. 2015 May;100(5):2135-6. PMID: 25590212.
25. Lee CD, Blair SN, Jackson AS. Cardiorespiratory fitness, body composition, and all-cause and cardiovascular disease mortality in men. Am J Clin Nutr. 1999 Mar;69(3):373-80. doi: 10.1093/ajcn/69.3.373. PMID: 10075319.
26. Hu G, Tuomilehto J, Silventoinen K, Barengo NC, Peltonen M, Jousilahti P. The effects of physical activity and body mass index on cardiovascular, cancer and all-cause mortality among 47 212 middle-aged Finnish men and women. Int J Obes (Lond). 2005 Aug;29(8):894-902. doi: 10.1038/sj.ijo.0802870. PMID: 15724141.
27. Sun M, Feng W, Wang F, et al. Meta-analysis on shift work and risks of specific obesity types. Obes Rev. 2018 Jan;19(1):28-40. doi: 10.1111/obr.12621. Epub 2017 Oct 4. PMID: 28975706.
28. Lee YH, Johan A, Wong KK, Edwards N, Sullivan C. Prevalence and risk factors for obstructive sleep apnea in a multiethnic population of patients presenting for bariatric surgery in Singapore. Sleep Med. 2009 Feb;10(2):226-32. doi: 10.1016/j.sleep.2008.01.005. Epub 2008 Apr 1. PMID: 18387341.
29. Chung F, Yegneswaran B, Liao P, et al. STOP questionnaire: a tool to screen patients for obstructive sleep apnea. Anesthesiology. 2008 May;108(5):812-21. doi: 10.1097/ALN.0b013e31816d83e4. PMID: 18431116.

30. WHO Expert Consultation. Appropriate body-mass index for Asian populations and its implications for policy and intervention strategies. Lancet. 2004 Jan 10;363(9403):157-63. doi: 10.1016/S0140-6736(03)15268-3. Erratum in: Lancet. 2004 Mar 13;363(9412):902. PMID: 14726171.
31. Zhu S, Wang Z, Heshka S, Heo M, Faith MS, Heymsfield SB. Waist circumference and obesity-associated risk factors among whites in the third National Health and Nutrition Examination Survey: clinical action thresholds. Am J Clin Nutr. 2002 Oct;76(4):743-9. doi: 10.1093/ajcn/76.4.743. PMID: 12324286.
32. Garvey WT, Mechanick JI, Brett EM, et al. AMERICAN ASSOCIATION OF CLINICAL ENDOCRINOLOGISTS AND AMERICAN COLLEGE OF ENDOCRINOLOGY COMPREHENSIVE CLINICAL PRACTICE GUIDELINES FOR MEDICAL CARE OF PATIENTS WITH OBESITY. Endocr Pract. 2016 Jul;22 Suppl 3:1-203. doi: 10.4158/EP161365.GL. Epub 2016 May 24. PMID: 27219496.
33. World Health Organization. Waist circumference and waist-hip ratio: report of a WHO expert consultation, Geneva, 8-11 December 2008.
34. Lee YS, Biddle S, Chan MF, et al. Health Promotion Board-Ministry of Health Clinical Practice Guidelines: Obesity. Singapore Med J. 2016 Jun;57(6):292-300. doi: 10.11622/smedj.2016103. PMID: 27353244; PMCID: PMC4971447.
35. Yang L, Samarasinghe YP, Kane P, Amiel SA, Aylwin SJ. Visceral adiposity is closely correlated with neck circumference and represents a significant indicator of insulin resistance in WHO grade III obesity. Clin Endocrinol (Oxf). 2010 Aug;73(2):197-200. doi: 10.1111/j.1365-2265.2009.03772.x. Epub 2009 Dec 29. PMID: 20050862.
36. Kuk JL, Ardern CI, Church TS, et al. Edmonton Obesity Staging System: association with weight history and mortality risk. Appl Physiol Nutr Metab. 2011 Aug;36(4):570-6. doi: 10.1139/h11-058. Epub 2011 Aug 14. PMID: 21838602.
37. Padwal RS, Pajewski NM, Allison DB, Sharma AM. Using the Edmonton obesity staging system to predict mortality in a population-representative cohort of people with overweight and obesity. CMAJ. 2011 Oct 4;183(14):E1059-66. doi: 10.1503/cmaj.110387. Epub 2011 Aug 15. PMID: 21844111; PMCID: PMC3185097.
38. NEJM Catalyst. What Is Patient-Centered Care? [Internet]. NEJM Group [2017 January; cited 2021 March]. Available from: https://catalyst.nejm.org/doi/full/10.1056/CAT.17.0559
39. Haidet P, Paterniti DA. "Building" a history rather than "taking" one: a perspective on information sharing during the medical interview. Arch Intern Med. 2003 May 26;163(10):1134-40. doi: 10.1001/archinte.163.10.1134. PMID: 12767949.
40. Federation ID. The IDF consensus worldwide definition of the metabolic syndrome. IDF Communications. 2006:1-24.

LEARNING POINTS

- **Initiate a collaborative conversation about weight management with patients in a non-judgemental and respectful manner with empathy.**
- **The 5As framework is a useful and practical framework for obesity counselling.**
- **Motivational interviewing is an effective counselling approach that can be used within this framework.**
- **A comprehensive clinical assessment should be performed for the patient with obesity, aiming to assess for secondary causes, contributing factors of obesity, and obesity-related comorbidities.**