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How Cost-Benefit Evaluations and Stigmatization Influence Individuals' Acceptance of Medical Interventions for Severe Obesity

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Abstract: Obesity has become a global epidemic, and the Chinese government has launched the "Weight Management Year" program in 2025. Besides traditional methods (e.g., balanced dieting and regular exercise), medical interventions (e.g., weight loss surgery and medications) also serve as alternatives for overweight people to lose weight. But medical interventions to lose weight have been socially stigmatized on social media, which might discourage individuals from receiving medical treatments. This study investigated how five factors, including self-efficacy, outcome expectancy, perceived severity of type-2 diabetes, perceived safety concern of semaglutide, and perceived stigma of semaglutide, influence individuals ' attitudes towards medical interventions for weight loss purposes and whether they would recommend semaglutide to others from a cost-benefit perspective. According to the result of the hierarchical regressional model based on an online survey (N = 397), only outcome expectancy and perceived stigma of semaglutide significantly influence the willingness to recommend. This means that health educators should raise the public's awareness of the potential harm of obesity and normalize the use of medical treatments for weight loss purposes.

Keywords: Weight Management, Semaglutide, Social Cognitive Theory, Stigmatization

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Introduction

Obesity as a health problem

Obesity has become a global epidemic, and it is not a health problem limited to developed countries (Doytch et al., 2016). A longitudinal study in Shanghai, China, documented a significant rise in obesity prevalence among adolescents, partly due to the interruption of lifestyle during the outbreak of COVID-19 (D. Yang et al., 2022). Obesity is correlated with many comorbidities (see the review in Giardino et al., 2019, p. 1), such as type 2 diabetes, from which China has the largest population suffering worldwide (Xu et al., 2024). Thus, to mitigate the medical burden from obesity and the related diseases, and raise public awareness of it, the Chinese government has launched the program of "Weight Management Year" and the "sixth national physical fitness monitoring campaign" in 2025 (China Daily, 2025).

The stigmatized medical treatments for obesity

Healthy lifestyles, such as balanced eating and regular exercise, have been proven to be an efficient way to lose weight (Dailey et al., 2010). Besides these traditional methods, novel medical interventions such as weight loss surgery (Giardino et al., 2019) and medicine serve as an efficient alternative for those individuals, if regular treatment (e.g., exercise) fails to lose weight (Isaacs et al., 2016). A worrying trend, from the perspective of communication, has been documented that medical interventions for weight management are stigmatized (Haggerty et al., 2023; Huang, 2025). For example, those people using medications to lose weight are negatively depicted as lacking responsibility, putting no effort into changing their bad lifestyles in social media posts (Haggerty et al., 2023). Coupled with misinformation about weight loss medications (Propfe & Seifert, 2025), scholars worried that the negative information, including misinformation, social stigma, and biased perception, might discourage individuals from reaching out to medical experts to

control their weight, and this avoidance might make their health conditions even worse (Haggerty et al., 2023).

Research aims

Due to the negative impacts of stigma on overweight people (Giardino et al., 2019) and on medical interventions for weight loss (Haggerty et al., 2023; Huang, 2025), it is necessary to explore public attitudes toward medical interventions for weight loss so that effective communicative strategies can be designed to foster a positive attitude and normalize the medical interventions (Rahmani et al., 2024). By doing this, medical interventions forweight loss will be more socially acceptable.

However, the prior studies mainly focused on the weight loss for individual's own purpose because losing weight is important for themselves (e.g., Sarge & Knobloch- Westerwick, 2013), or discussed the motivated factors of adherence to regular weight loss methods (balanced eating or exercise) (e.g., Dailey et al., 2010), or explored the negative impacts of social stigma on medical interventions for weight loss from a qualitative method (e.g., Haggerty et al., 2023; Huang, 2025). It is unclear what factors might facilitate or hinder the public acceptance of medical interventions for weight loss, and their willingness to recommend this novel weight loss method to those people in need.

To address this unanswered question, this study extends the research framework developed by Giardino et al. (2019) and uses a cost-benefit perspective to analyze the recommendation behavior (i.e., what factors might encourage or discourage individuals to recommend novel medical treatments for weight loss to those people in need). Briefly, this study postulates that the two factors from Social Cognitive Theory (i.e., self-efficacy and outcome

expectancy) might serve as encouragers; the perceived safety concern of medical treatments (i.e., the potential side-effects), the perceived severity of obesity-related diseases (i.e., the need to maintain health), and the social stigmatization of using medical treatments to lose weight might serve as discouragers.

Contributions

This study extends Giardino et al. (2019)'s research framework by providing a more comprehensive view to discuss the health recommendation behaviors in the context of the health management domain. The extended research model will help us better understand the social attitudes towards and increase the social acceptance of medical innovations in the weight loss practice.

This is because, besides medical providers, socially significant others also serve as an important channel to influence individuals ' lifestyle of weight management based on everyday communication (Dailey et al., 2010). According to this rationale, the overweight people might be more easily exposed to novel medical interventions for weight loss through daily communication with socially significant others if significant others hold a positive attitude rather than a biased stigma towards medical interventions.

To discuss it concretely, the research context is based on the case of semaglutide, as one of the medical interventions, because this medicine is officially approved by the Chinese National Medical Products Administration for type-2 diabetes treatment and weight management (Xinmin evening news, 2024). This novel medical intervention for weight loss can serve as an ideal example to investigate the public attitudes towards it, because the misinformation has been circulated on social media and might mislead the public's perceptions about it (Propfe & Seifert, 2025).

As a disclaimer, the wording of "overweight people" is used neutrally in this study, which discusses the fact that their BMI is ≥ 30 (World Health Organization, 2024). The self- reflection of wording in this study is carefully conducted to avoid any stigmatization; secondly, this study does not approve of any kind of over-medication or self-diagnosis. The medical interventions for weight loss should be guided and validated by medical experts.

Literature Review

Model development

The research framework of this study is based on Giardino et al. (2019), who examined that the obese participants ' acceptance of weight loss surgery for their own sake is correlated with two groups of factors: medical reasons (e.g., health purposes) and social reasons (e.g., stigma). This research perspective effectively explains individuals' acceptance of medical treatments for weight management for their own purposes. However, existing literature provides little evidence on whether this research framework can also properly explain individuals' willingness to recommend medical treatments (e.g., semaglutide as an example in this study) to others. Meanwhile, compared to the real-life situation where obese patients evaluate the costs and benefits of having weight-loss surgery for themselves, it is reasonable to believe that individuals who recommend such medical treatments to others would consider more factors. For this consideration, the original research framework of Giardino et al. (2019) might not fully address the research question in this study.

To extend the research framework of Giardino et al. (2019), this study adds the cost- benefit evaluation of the vaccine intake intentions from Rahmani et al.

(2024) to build a more comprehensive view. This study assumes that the intentions to recommend medical interventions for weight loss to others are influenced by four groups of factors, including: **a).** The ability to achieve this goal (i.e., self-efficacy); **b).** The benefit evaluation of recommending to others (i.e., outcome expectancy); **c).**The cost evaluation of recommending to others (i.e., the perceived safety concern and the perceived severity of obesity-related diseases; **d).** The social factor (i.e., the perceived stigma of using medical interventions to lose weight). The following section will develop the research model accordingly.

Social Cognitive Theory

Prior studies have demonstrated that social cognitive theory can explain individuals' willingness to accept health behaviors, such as vaccination (e.g., Borah et al., 2023, 2024) and weight management (Sarge & Knobloch-Westerwick, 2013). Self-efficacy and outcome expectancy are important factors in increasing the willingness to lose weight (examples are summarized in the review of Sarge & Knobloch-Westerwick, 2013). Sarge and Knobloch- Westerwick (2013) explained in this way: individuals' weight control willingness is partly dependent on their perceptions of the ability to achieve this goal (i.e., self-efficacy) and the satisfaction of conducting weight loss behaviors (i.e., outcome expectancy). To be specific, the benefits generated from weight loss, including physical benefits (e.g., becoming healthier) and psychological benefits (e.g., increasing their self-image and self-esteem), might positively motivate people to actively engage in weight loss behaviors (Sarge & Knobloch-Westerwick, 2013). This means that when individuals believe that they are able to lose weight and that losing weight is

important and relevant to themselves, those two factors might positively motivate them to lose weight.

However, those aforementioned studies (e.g., Borah et al., 2023, 2024; Sarge & Knobloch-Westerwick, 2013) mainly explain individuals' acceptance of health behaviors for their well-being. Scarce evidence might directly prove that social cognitive theory can address the question in our study: whether social cognitive theory can explain individuals' willingness to recommend medical interventions for weight loss to others (i.e., overweight people). This is because, according to the explanation from Sarge and Knobloch- Westerwick (2013), recommending medical interventions for weight loss to others might not be directly relevant and important to themselves. Unlike the study from Borah et al.(2023), who conducted their research from the social cognitive theory in an individualistic society that emphasized that the purpose of vaccination is individuals' responsibility to protect themselves, China is a collectivistic society where we can assume that individuals might also sense the positive outcome expectancy to recommend medical interventions to others, because their recommendation provide an alternative to those overweight people to maintain health. As the prior studies argued that Chinese netizens would share COVID-19-related information with others during the pandemic because of the egoistic and reciprocity motivation (Liu et al., 2024). Thus, this study assumes that this "collective responsibility" for information receivers noted in Liu et al. (2024) might also motivate individuals to help others to lose weight by recommending novel medical interventions. And this recommendation might also motivate individuals ' self-worth and self-satisfaction

(Sarge & Knobloch-Westerwick, 2013). Thus, to apply the rationale from Sarge and Knobloch-Westerwick (2013) to our research context, we conceptualize self-efficacy as individuals' evaluation of their ability to recommend medical interventions for weight loss to others, and outcome expectancy as their benefit evaluations of recommending medical interventions for weight loss to others. This study assumes that these two factors would be positively motivating individuals' willingness to recommend:

H1: Self-efficacy is positively correlated with the willingness to recommend medical interventions (i.e., semaglutide) for weight loss purposes to others.

H2: Outcome expectancy is positively correlated with the willingness to recommend medical interventions (i.e., semaglutide) for weight loss purposes to others.

Perceived safety concern ofsemaglutide

Besides the benefit evaluation of recommending medical interventions to others to lose weight, inspired by Rahmani et al. (2024), the cost evaluations may also play an important role. The first risk factor considered in this study is the perceived safety of medication, and this factor is a well-established concept in the literature of vaccination during the COVID- 19 (e.g., Guidry et al., 2021; Neumann-Böhme et al., 2020) and H1N1 pandemic (e.g., Quinn et al., 2009; Z. J. Yang, 2015), and the literature revealed that individuals might fear that the potential side effects and the effectiveness (i.e., whether the vaccine will effectively protect them against illness) of the vaccination (Neumann-Böhme et al., 2020), and this uncertainty is highly correlated with the concerns over the speed of vaccine development during the outbreak of COVID-19 (Guidry et al., 2021; Neumann-Böhme et al., 2020). This study assumes that the public might hold similar safety concerns about semaglutide as to COVID-19 vaccines, because scholars (Li et al., 2023) commented that the potential side effects of semaglutide, a novel medical intervention which has been recently officially introduced in China, are still unclear, due to a lack of sufficient cases based on the Chinese population.

Thus, this study assumes that individuals might hold a safety concern about semaglutide, a newly introduced medication, and this safety concern might discourage individuals from recommending semaglutide to others because they are afraid that the potential side effects of semaglutide might be harmful to others. This concern might make individuals more prudent in discussing semaglutide with others:

H3: Perceived safety concern of semaglutide is negatively correlated with the willingness to recommend semaglutide to others for weight loss purposes.

Perceived severity of Type-2 diabetes

The second risk factor considered in this study is the perceived severity of obesity-related diseases. This concept is adapted from the health belief model(Rosenstock, 1974). Prior studies assume that the changes in an individual's health-related behavior are motivated by "the thought of a health threat or condition" (Z. J. Yang, 2015, p. 70). Hence, in the context of this study, perceived severity refers to when individuals sense that being obese might cause harmful comorbidities, and this life-threatening condition might motivate individuals to actively engage in weight management behaviors for health purposes.

However, when reviewing the predictive power of perceived severity, some studies found that it exerts a weak influence on outcome behaviors (Z. J. Yang, 2015), and recent empirical studies even found the non-significant effect of perceived severity towards vaccination (Guidry et al., 2021). Prior studies provide a sound explanation of non- significant phenomenon: for example, young adults are too confident in their physical quality, so that they underestimate the perceived severity of the illness towards them (Z. J. Yang, 2015).

Besides the lack of awareness of perceived severity (Z. J. Yang, 2015), this study assumes that the measurement of perceived severity might be too abstract for participants to comprehend the perceived severity of a certain illness. This possible explanation is based on the

context of obesity, because the literature has documented many physical and psychological comorbidities related to obesity (see the review in Giardino et al., 2019, p. 1). Thus, this study assumes that it would be helpful for health educators to examine the impacts of perceived severity of several typical obesity-related diseases on the willingness towards weight management behaviors. Thereby, health educators can tailor the messages in health campaigns to a targeted group by emphasizing the severity of typical obesity-related diseases. To provide a concrete context, this study asks participants to evaluate the perceived severity of Type-2 diabetes, which is one of the most typical obesity-related chronic diseases in China (Xu et al., 2024). Because Type-2 diabetes has become one of the most widespread chronic health conditions in China, health educators should bear the responsibility to raise the public's awareness of the potential correlation between Type-2 diabetes and obesity. Thereby, to mitigate the harmful impacts of Type-2 diabetes, individuals might engage in weight management (including medical interventions, such as semaglutide) and recommend others to lose weight.

In sum, based on the health belief model and Giardino et al. (2019)'s research model, this study argues that individuals ' recommendation behaviors are correlated with the risk appraisal of obesity-related diseases. To give a concrete context, this explorative study attempts to discuss the most severe and obesity related disease, Type-2 diabetes, in this research model. That is, the willingness of individuals ' recommendations would be high if they think Type-2 diabetes has a severe impact on obese people. And this concern also applies to those without Type-2 diabetes: obesity is highly correlated with diabetes, and if they are recommended to take medical intervention to lose weight, this can help them reduce the likelihood of developing diabetes. The following hypothesis has been formulated:

H4: Perceived severity of Type-2 diabetes is positively correlated with the willingness to recommend semaglutide to others for weight loss purposes.

Perceived stigma ofsemaglutide

Obesity not only exacerbates health conditions but also places overweight people in a negative social status (see the review in Giardino et al., 2019). In a study, getting rid of stigma became the main reason why participants wanted to receive weight loss surgery (Giardino et al., 2019). However, on social media, losing weight by medical interventions (including medicine and surgery) has been biasedly depicted as a lack of responsibility and willpower (e.g., Haggerty et al., 2023; Huang, 2025). It seems likely that only those individuals who failed to lose weight by traditional methods (healthy eating and regular exercise) are eager to find an effortless way to receive medical interventions (Haggerty et al., 2023). Thus, communication scholars (Haggerty et al., 2023) worry that this misperception and social stigmatization of medical interventions for weight loss purposes might discourage people from receiving medical treatments, which means that social stigmatization of medical interventions for weight loss purposes might indirectly make overweight people's health condition even worse because they might not receive medical treatments to avoid being stigmatized.

However, there is an unanswered question about whether this stigmatization would also prevent individuals from recommending medical treatments to other overweight people, because the current literature mainly concerns the discouraging effects on themselves (e.g., Giardino et al., 2019; Haggerty et al., 2023). Based on the literature, this study assumes that the social stigmatization of medical interventions for weight loss purposes might also discourage people from recommending medical treatment to others. Due to the nature of stigmatization, individuals might believe that others would be offended if they recommend medical treatment to overweight people, because the social stigmatization depicts only failures who can't adhere to regular exercise and dieting would use medical intervention to lose weight (Haggerty et al., 2023). To avoid this possible conflict, individuals might be reluctant to discuss this weight loss method in interpersonal communications:

H5: Perceived stigma of semaglutide is negatively correlated with the willingness to recommend semaglutide to others for weight loss purposes.

In summary, the conceptual model of this study is presented in **Figure 1**.

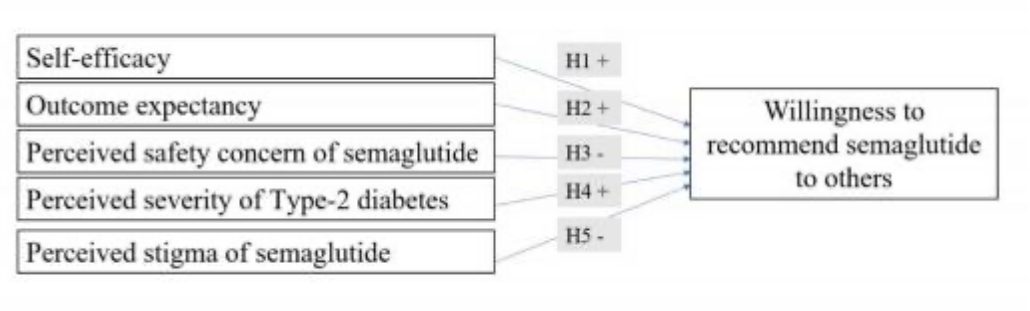

Figure 1. Research Model

Method

Sampling andprocedures

This study employed an online survey based on a convenience sample. Participants were invited by the researcher, and others were recommended by them. A total of 397 participants finished the questionnaire from 1st April to 3rd April in 2025. The demographic information is summarized in Table 1.

Table 1. Demographic Distributions

Factors	Cases	%
Gender		
Male	186	46.9
Female	211	53.1
Identity		
students	101	25.4

Others	296	74.6
Education backgrounds		
Lower secondary education	38	9.6
Upper secondary education	72	18.1
Short-cycle tertiary education	102	25.7
Bachelor's or equivalent level	162	40.8
Master's or equivalent level	23	5.8
Disposable incomes (Chinese Yuan, RMB)		
≤1500	70	17.6
1500-3000	86	21.7
3000-6000	87	21.9
6000-9000	111	28
≥12000	43	10.8
Years ofage		
≤18	42	10.6
18~25	88	22.2
26~30	80	20.2
31~40	71	17.9
41~50	48	12.1
51~60	42	10.6
≥60	26	6.5
Major		
Have medical education or experience	96	24.2
Others	301	75.8
The perceived difficulty oflosing weight		
Not at all	114	28.7
Not difficult	133	33.5
Neutral	77	19.4
difficult	36	9.1
Very difficult	37	9.3
Willingness to lose weight		
Not at all	30	7.6
Less likely	50	12.6

Neutral	66	16.6
Likely	141	35.5
Very strong	110	27.7
Total	397	100

Measurements

The questionnaire includes two parts. The first part contains the measurement scales of six factors in the research model, and they are: Willingness to recommend semaglutide to others as the dependent variable, self-efficacy, outcome expectancy, perceived severity of type-2 diabetes, perceived safety concern of semaglutide, and perceived stigma of semaglutide as independent variables. The measurement scales (Range: " 1" = "totally disagree", "5" = "totally agree") are developed from prior studies. Details are summarized in Table 2. The details of the measurement scales are presented in the Appendix list. The correlation metrics of variables are presented in Table 3. The second part contains the demographic factors. The demographic factors serve as control variables in the research model.

Semaglutide has been treated as an explicit concept in two ways in the questionnaire: firstly, semaglutide was introduced at the beginning of the questionnaire through three paragraphs within roughly 420 Chinese characters. This introduction of semaglutide explains its functions, targeted users, the date of approvals issued by authorities, and the potential side effects; secondly, semaglutide was explicitly mentioned in the wording of measurement scales, and details can be checked in the appendix.

Table 2. Details of Measurement Scales

Factors	Number of items	Sources	Mean	Standard deviation	Cronbach α
Willingness to	3	(Borah et al., 2023)	3.78	0.83	1.04

recommend semaglutide to others					
Self-efficacy	3	(Borah et al., 2023)	3.58	1.07	0.81
Outcome expectancy	3	(Wong, 2014)	3.83	1.01	0.80
Perceived severity of Type-2 diabetes	4	(Liao et al., 2025)	2.40	1.07	0.85
Perceived safety concern of semaglutide	3	(Paredes et al., 2023)	2.14	0.98	0.78
Perceived stigma of semaglutide	5	(Ort & Sukalla, 2023)	2.30	1.03	0.88

Table 3. The correlation Metrics

	1	2	3	4	5	6
1. Willingness to recommend semaglutide to others						
2. Self-efficacy	.17**					
3. Outcome expectancy	.29**	.22**				
4. Perceived severity of Type-2 diabetes	-.23**	-.18**	-.38**			
5. Perceived safety concern of semaglutide	-.20**	-.19**	-.32**	.27**		
6. Perceived stigma of semaglutide	-.24**	-.20**	-.29**	.25**	.17**	

Note. ** = $p < 0.01$.

Analytical strategies

This study employed IBM SPSS 26 to process the statistical inferences. The results of the hierarchical regressional model are summarized in Table 4. The demographic factors are entered in Block 1. The factors from the social cognitive theory (i.e., self-efficacy and outcome expectancy) are entered in Block 2. Perceived severity of Type-2 diabetes and perceived safety concern of semaglutide are entered in Block 3. The perceived stigma of semaglutide is entered in Block 4.

Research ethics consideration

The Research Ethics Committee from the Faculty of Humanities and Arts at Macau University of Science and Technology has conducted the research ethical review in this study. The certificate number is MUST-FA-20250021-2.

Results

H1 postulates that self-efficacy is positively correlated with the willingness to recommend medical interventions (i.e., semaglutide) for weight loss purposes to others. According to the results (β =0.05, SE = 0.05, t = 1.09, p = 0.28), H1 is rejected.

H2 postulates that outcome expectancy is positively correlated with the willingness to recommend medical interventions (i.e., semaglutide) for weight loss purposes to others. According to the results (β =0.16, SE = 0.06, t = 2.86, p = 0.005), H2 is accepted.

H3 postulates that the perceived safety concern of semaglutide is negatively correlated with the willingness to recommend medical interventions (i.e., semaglutide) for weight loss purposes to others. According to the results (β =-0.06, SE = 0.06, t = -1.14, p = 0.25), H3 is rejected.

H4 postulates that the perceived severity of Type-2 diabetes is positively correlated with the willingness to recommend medical interventions (i.e., semaglutide) for weight loss purposes to others. According to the results (β =-0.07, SE = 0.05, t = -1.29, p = 0.20), H4 is rejected.

H5 postulates that the perceived stigma of semaglutide is negatively correlated with the willingness to recommend medical interventions (i.e., semaglutide) for weight loss purposes to others. According to the results (β =-0.11, SE = 0.05, t = -2.16, p = 0.032), H5 is accepted.

Even though the predictive power of demographic factors is not the main focus in this study, the factor of disposable income is positively related to the outcome factor, and this predictive power is robust throughout the hierarchical regressional model.

In summary, the regressional model explained 15% variance of the outcome variable (i.e., the willingness to recommend medical interventions for weight loss purposes to others, R^2 = 0.15). The results are summarized in **Figure 2**.

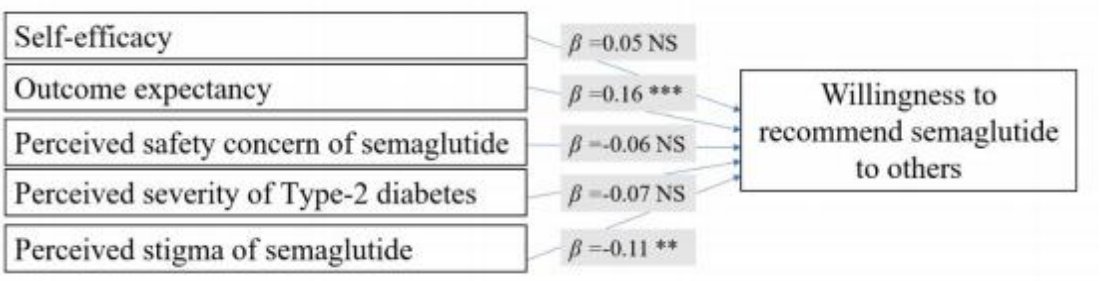

Figure 2. Model Results

Note. NS = not significant; R^2 = 0.15； ** =p < 0.05; ***p < 0.01.

Table 4. The Results of the Regression Model

	Block 1			Block 2			Block 3			Block 4		
Model summary	$R^2 = 0.08$ $F_{(8,388)} = 4.38$***			$R^2 = 0.13$ $\Delta R^2 = 0.05$ $F_{(10,386)} = 5.98$***			$R^2 = 0.14$ $\Delta R^2 = 0.01$ $F_{(12,384)} = 5.35$***			$R^2 = 0.15$ $\Delta R^2 = 0.01$ $F_{(13,383)} = 5.34$***		
	β value	*SE*	*t-*	*β value*	*SE*	*t-*	*β value*	*SE*	*t-*	*β value*	*SE*	*t-*
Constant	0.45		8.25	0.49		5.62	0.54		5.91	0.57		6.32
Control variables												
Gender	0.01 0.19		0.10	0.00 0.09	0.10	-	0.00 0.09	0.10	-	-0.01 0.15	0.10	-
Identity	-0.08 1.14	0.17	-	-0.07 1.04	0.17	-	-0.06 0.86	0.17	-	-0.07 0.93	0.17	-
Education backgrounds	0.01 0.16		0.05	0.01 0.15		0.05	0.01 0.20		0.05	0.02 0.33		0.05
Disposable incomes	0. 15** 2.20		0.06	0. 14** 2.15		0.05	0. 14** 2.03		0.05	0. 13** 1.99		0.05
Years of age	-0.001 0.01	0.04	-	-0.01 0.20	0.04	-	-0.02 0.25	0.04	-	-0.01 0.09	0.04	-
Major	-0.01 0.28	0.12	-	-0.02 0.33	0.12	-	-0.01 0.29	0.12	-	-0.02 0.39	0.12	-
The perceived difficulty of losing weight	-0. 16** 2.68	0.05	-	-0. 13** 2.09	0.05	-	-0.11* 1.75	0.05	-	-0.09 1.50	0.05	-
Willingness to lose weight	0. 13** 2.16		0.05	0.08 1.25		0.05	0.06 1.03		0.05	0.05 0.82		0.05
Independent variables												
Self-efficacy				0.08 1.59		0.05	0.07 1.35		0.05	**0.05** 1.09		0.05
Outcome expectancy				0.21*** 4.17		0.05	0. 17*** 3.22		0.06	**0.16** 2.86		0.06
Perceived severity of Type-2 diabetes							-0.08 1.46	0.05	-	**-0.07** 1.29	0.05	-
Perceived safety concern of semaglutide							-0.06 1.16	0.06	-	**-0.06** 1.14	0.06	-
Perceived stigma of semaglutide										**-0.11** 2.16	0.05	-

Note. Outcome variable: willingness to recommend semaglutide to others; *$p < 0.1$; ** =$p < 0.05$; ***$p < 0.01$.

Discussion and conclusion

Summaries of key findings

As mentioned earlier, due to the negative impacts of obesity and its comorbidities, this study used a cost-benefit perspective adapted from Giardino et al. (2019) to evaluate the public attitudes towards the medical interventions for weight loss purposes, because those overweight people suffering from severe obesity might regard the medical interventions as the last hope (see the review in Giardino et al., 2019, p. 2). However, the social stigmatization of medical interventions for weight loss purposes might discourage overweight people from receiving medical treatment (Haggerty et al., 2023). But current studies provide scarce evidence on whether the cost-benefit perspective and social stigmatization might also discourage ordinary people from recommending the novel medical treatment (i.e., semaglutide as a case in this study) to others. Thus, this study used the social cognitive theory, coupled with perceived severity of type-2 diabetes, perceived safety concern of semaglutide, and perceived stigma of semaglutide to answer this question.

Based on the results, this study found that only outcome expectancy and perceived stigma of semaglutide significantly influence individuals' willingness to recommend. This means that individuals would recommend semaglutide, a novel medical intervention to lose weight, to others because this recommended weight-loss treatment is beneficial to others' well-being. Thus, the positive outcome of recommendations will also produce self- satisfaction and motivate individuals to do so, which is in line with the assumption and prior studies (Sarge & Knobloch-Westerwick, 2013). Secondly, this study observed that social stigmatization not only discourages self-acceptance of weight-loss medical treatments, as noted in Haggerty et al. (2023), but also discourages individuals' willingness to recommend them to others. This means that social stigmatization serves as a pivotal barrier to public acceptance of weight-loss medical treatments, which might decrease the potential benefits of novel weight-loss medical treatments to the whole society.

Implications

Firstly, this study found that self-efficacy failed to motivate individuals' willingness to recommend, and this result is incongruent with prior studies (Sarge & Knobloch- Westerwick, 2013). This result indicates that individuals might believe that they have limited abilities to persuade other overweight people to try semaglutide to lose weight. This study assumes that this might be due to participants ' unfamiliarity with this novel medical treatment. Thereby, participants in this study are unsure how to recommend to overweight people based on their limited knowledge. As a result, participants might be skeptical of the necessity to recommend medical treatments rather than traditional methods (i.e., balanced dieting and regular exercise) to lose weight.

Secondly, this study also rejected the assumption that a positive relationship exists between the perceived severity of Type-2 diabetes and willingness to recommend. This means that individuals' willingness to recommend might not be motivated by the perceived severity of Type-2 diabetes. However, prior studies also documented similar results: for example, controlling for the BMI and obesity-related comorbidities is not the factor that motivates overweight people to receive weight loss surgery (Giardino et al., 2019); another study also revealed that the perceived severity of H1N1 exerts a weak influence on vaccination, which reflects that the participants might not take the H1N1 as a severe health threat to their well-being (Z. J. Yang, 2015). As prior studies noted, health literacy is an important factor in fostering individuals' health behaviors (Sadeghi et al., 2025). The empirical study found that a lack of health literacy might make patients with Type-2 diabetes difficult in self-care and difficult in utilize health information (Sadeghi et al., 2025). Thereby, a lack of formal education decreases health literacy regarding diseases (Ong- Artborirak et al., 2023). Thereby, the non-significant relationship in this study might also be

due to the lack of health literacy: participants in this study underestimate the negative influences of obesity-related comorbidities (including Type-2 diabetes), so they underestimate the necessity of using medical treatments to control weight. Meanwhile, coupled with the discouraging effects of social stigmatization of medical treatments, individuals might further be reluctant to share information about medical treatments with other overweight people. Thus, this study argues that the health communicators should bear the responsibility to raise health awareness that obesity is not only a choice of lifestyle, but more importantly, is a severe health condition. In the practice of health campaigns, health experts might provide clear communication to normalize the use of medical interventions to lose weight and help the public foster a positive attitude towards them (Rahmani et al., 2024). By doing this, as the degrees of health literacy of obesity-related knowledge and the normalization of medical intervens increase, medical treatments would be more socially acceptable as an alternative for those overweight people, and beneficial to them.

Thirdly, this study reported the non-significant relationship between the perceived safety concern of semaglutide and willingness to recommend, partly because participants hold a relatively high trust towards the Chinese government and medical systems. This explanation is based on the prior studies, which acknowledge that the trust in government, institutions, medical systems, and scientists is important to vaccination uptake (e.g., Chen et al., 2024; Denemark et al., 2022; Rahmani et al., 2024; Raude et al., 2016; Sato, 2022). Taking the USA as an example, due to distrust of the authorities, studies found that the participants are unsure about the safety and efficacy of vaccination, and believe that they are “lab monkeys” and “guinea pigs” (Quinn et al., 2008, p. 326). Compared to this, a study found that the samples ’ vaccine hesitancy in China was initially high in 2021 (Chen et al., 2024), but the vaccination rate in a study reached 97.6% later in 2023 (Zhang et al., 2023). The increasing acceptance of vaccination in this case might indicate that Chinese citizens ’ support of vaccination is based on trust (Chen et al., 2024). A similar case is New Zealand,

where the relatively high rates of vaccination are due to the high trust in the government (Rahmani et al., 2024). Thus, the high trust in the Chinese government and health systems might account for the non-significant result because semaglutide is officially approved by the Chinese National Medical Products Administration. And this official approval might neutralize the public safety concerns of semaglutide. Thereby, it is important to maintain the public trust in authorities and be open to citizens by providing clear communication (Neumann-Böhme et al., 2020)and letting them fully understand the potential side effects and benefits of novel medical interventions (Giardino et al., 2019).

Limitations

This exploratory study found that the public's attitudes and willingness to recommend medical interventions for weight loss purposes are mainly influenced by outcome expectancy and social stigmatization.

However, there are two major pitfalls in this study: first, this study ignored the different versions of semaglutide. Currently, semaglutide can be delivered by injection or oral administration(Aroda et al., 2022). Meanwhile, according to the meta-analysis, the fear of needles is a common symptom for the public (McLenon & Rogers, 2019). Thereby, it is reasonable to believe that individuals would respond differently to different methods of semaglutide delivery. Taking the effect of the fear of needles as an example, individuals might believe the oral administration of semaglutide would be more convenient and mentally acceptable than the injection version of semaglutide. Thereby, compared to oral semaglutide, individuals might be less likely to recommend the injection version to others. Hence, this nuanced difference is worthy of being explored in the future.

Also, the literature mainly cited to develop the research model comes from the context of vaccination against COVID-19 or other infectious diseases. Thus, it should be noted that the oral version of semaglutide might not be a perfect match in this research model, as

similar as the injection version might be. Thereby, one should be cautious when generating the results in this study to apply to the oral semaglutide.

The second pitfall of this study is that pivotal confounding factors were not controlled in the research model, and two types of confounding factors are highly recommended to be explored in the future:

Firstly, the basic information about the health condition and the previous experience of losing weight from respondents should be included. Even though this study contains the measurements of "perceived difficulties of losing weight" and "the willingness to lose weight", these two items can serve as an indirect way to understand the respondents' previous experience of and the current decisions of losing weight. However, the explicit measurements of respondents ' weight management-related information should be considered, as Nasrallah et al. (2020) did in their study. For example, key variables should include respondents ' BMI, and the BMI information from their perceived others (i.e., those family members and close friends whom respondents want to recommend medical treatments to lose weight). Also, respondents ' health conditions (i.e., whether they suffer from one or several obesity-related comorbidities), health literature (e.g., the basic knowledge of nutrition, medications or body training), the experience of using the traditional way to lose weight (such as regular exercise and dieting), their attitudes toward and experience of using other alternative approaches to lose weight (such as herb tea and acupuncture) are relevant to this study.

Secondly, the literature documented that individuals tend to avoid talking about topics about losing weight during interpersonal communication(Gunther et al., 2012; Hayes et al., 2024), due to the stigmatization of obesity (Gunther et al., 2012). Thus, social support from family members (Kulik et al., 2016; McManus-Shipp et al., 2024; Nasrallah et al., 2020) and confirmations from significant others (Dailey et al., 2010) might also be important to serve as a positive motivation for individuals to lose weight. Based on these findings, future

research should consider family cohesion, perceived social support, the degree of openness or willingness to talk about weight loss topics with others, and the evaluation of social bonding with close friends. This is because a well-supported relationship with family members and close others, and a relatively open-minded attitude towards weight management and medical treatment of it, would help individuals to discuss, share, and

recommend weight loss information (such as using semaglutide in this study) to those in need.

Besides these pitfalls mentioned above, this study also recommends the future studies to explore the following parts: firstly, the direct relationships developed from this research might not provide detailed inner associations among independent variables. For example, prior studies revealed that outcome expectancy serves as a mediator in the relationship between self-efficacy and behavioral variables (see the review in Borah et al., 2023). Also, the potential side effects of medical interventions for weight loss purposes might generate a negative outcome expectancy. Thus, a further exploration of the inner relationships among the independent variables from the research model in this study is still salient. Secondly, this study only contains one social factor (i.e., stigma). Other social and cultural trends, such as "body positive" (e.g., Breves et al., 2025; Rousseau, 2024; Vendemia et al., 2024) might also influence individuals ' ideal body image and thereby their willingness to weight management. Thirdly, according to the existing literature (e.g., Israelashvili & Perry, 2024), psychological factors, such as empathy and altruism, might also explain the individuals' adherence to recommended health behaviors. Thus, these factors might also be important to be included in the research model to provide more details in the context of weight control- related recommendation behaviors.

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Appendix

Six measurement scales have been employed in this study (1 = totally disagree; 5 = totally agree). The index of each scale is the average score after adding up all items.

The scale of **willingness to recommend semaglutide to others** is adapted from Borah et al (2023). The adapted items are:

1. How likely would you be to recommend weight-loss pills, such as semaglutide, to your family members or friends who suffer from severe obesity as soon as it is available?
2. If you were faced with the decision of whether to recommend weight-loss pills to your family members or friends who suffer from severe obesity today, how likely is it that you would choose to recommend it?
3. How likely would you be to recommend weight-loss pills to your family members or friends who suffer from severe obesity in the future? (1 = very unlikely; 5 = very likely)

The scale of **self-efficacy** is adapted from Borah et al (2023). The adapted items are:

1. I can recommend weight-loss pills, such as semaglutide, to my family members or friends who suffer from severe obesity.
2. I know how to recommend weight-loss pills, such as semaglutide, to my family members or friends who suffer from severe obesity.
3. I know what to do ifI need to recommend weight-loss pills, such as semaglutide, to my family members or friends who suffer from severe obesity.

The scale of **outcome expectancy** is adapted from Wong (2014). The adapted items are:

1. Recommending weight-loss pills, such as semaglutide, to my family members or friends who suffer from severe obesity would have positive outcomes for me.
2. Recommending weight-loss pills, such as semaglutide, to my family members or friends who suffer from severe obesity would be a positive experience for me.
3. The benefits of recommending weight-loss pills, such as semaglutide, to my family members or friends who suffer from severe obesity are great and outweigh any costs."

The scale of **perceived severity of Type-2 diabetes** is adapted from Liao et al (2025). The original scales are used to measure Pandemic risk perception. It contains five dimensions, and this study adapts the "health" dimension. The adapted items are:

1. Once diagnosed with type 2 diabetes, one will suffer a lot of pain.
2. Once diagnosed with type 2 diabetes, it is difficult to recover from the disease.
3. Even after recovering from type 2 diabetes, you may suffer from the after-effects.
4. Once diagnosed with type 2 diabetes, one might lose his/her life.

The scale of **perceived stigma of semaglutide** is adapted from Ort & Sukalla (2023). The original scale is used to measure Pre-exposure prophylaxis (PreP stigma). The original scale contains eight items. This study adapts five items considering the research context, because the rest of them are not relevant. The adapted items are:

1. People who use weight-loss pills lack willpower.
2. Using weight-loss pills is a sign of personal failure.
3. People who take weight-loss pills are looking for a magic bullet to lose weight.
4. People using weight-loss pills cannot take responsibility for managing their weight.
5. People who take weight-loss pills are lazy.

The scale of **perceived safety concern of semaglutide** is adapted from Paredes et al (2023). The original scale is used to measure perceived (COVID-19) vaccine safety. The adapted items are:

1. I worry about the potential short-term side effects of the semaglutide.
2. I worry that the semaglutide might negatively affect the human body.
3. I worry that the semaglutide might have unknown long-term side effects.