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A Multi-Theoretical and Cross-Cultural Investigation into the Underuse of Bariatric Surgery

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ABSTRACT: To synthesise multi-theoretical insights into why eligible patients with obesity under-utilise bariatric surgery, and to inform culturally tailored interventions that can raise acceptance rates worldwide, with special attention to China. Guided by an integrated framework of the Health Belief Model, Social Cognitive Theory, and Cultural Dimensions Theory, we conducted a narrative review of 120 empirical studies (2000-2024) retrieved from PubMed, Web of Science, CNKI and grey literature. Comparative analysis was performed across individualistic versus collectivist societies and between high- versus low-resource settings. Perceived surgical benefits (e.g., diabetes remission) often outweigh perceived health threats; however, high perceived barriers—surgical risk fears, lifestyle disruption, body-image concerns significantly deter surgery uptake. Social Cognitive factors further modulate these perceptions: self-efficacy is strengthened by peer success stories on social media and by instrumental family support, whereas low physician confidence and limited insurance coverage undermine it. Culturally, collectivist norms (high power distance, family centrality) suppress autonomous decision-making; in China, only 0.01 % of eligible patients undergo surgery, partly because family disapproval and stigma dominate the discourse. Cross-national data reveal that stigma is lower and discussion is more open in Western individualistic cultures, yielding higher utilisation rates. An interplay of cognitive appraisals, social learning processes, and cultural values shapes acceptance of bariatric surgery. Interventions should deliver risk-benefit education, enhance physician training, leverage culturally resonant social support networks, and advocate for inclusive health policies. Future multicenter, culturally comparative trials are warranted to test these strategies.

KEYWORDS: Bariatric surgery; Obesity; Health Belief Model; Social Cognitive Theory; Cultural Dimensions Theory; Patient perception

INTRODUCTION

Overweight and obesity exist as an international public health threat today. Bariatric surgery is considered the most effective medical intervention for treating obesity.[1] Yet, operational rates for this procedure remain insufficient throughout the world, and utilisation rates of bariatric surgery remain markedly low.[2] The current utilisation rate of bariatric surgery is less than 1%, according to Chaturvedi et al.[3] Results from several studies indicate that bariatric surgery recipients amount to only 2% of patients meeting the operation criteria; this means that few eligible patients gain access to this procedure.[4,5] Some studies even suggest that bariatric surgery is used by less than half a percent of eligible patients.[6] The acceptance rate for patients who would benefit from bariatric surgery operations in China remains as low as 0.01%,[4,5] which stands dramatically below international standards. Yang Hua's research points out that the lack of perception of bariatric surgery among obese patients is an essential reason for the low acceptance rate of surgery.[7]

This article integrates the health belief model (HBM), social cognitive theory (SCT), and cultural dimensions theory (CDT) to conduct a theoretical analysis of obese patients' perceptions of bariatric surgery.

METHODOLOGY

Guided by an integrated framework of the Health Belief Model, Social Cognitive Theory, and Cultural Dimensions Theory, we conducted a narrative review of 120 empirical studies (2000-2024) retrieved from PubMed, Web of Science, CNKI and grey

literature. Comparative analysis was performed across individualistic versus collectivist societies and between high- versus low-resource settings.

Health Belief Model (HBM) perspective

Health Behaviour research has heavily utilised the Health Belief Model since its introduction in the 1950s. A person's health-related decisions depend on their perception of health risks and understanding of the potential benefits of behavioural change and the barriers they may encounter. Perceived benefits and perceived barriers are the strongest predictors.[8–10] This model can effectively explain how obese patients evaluate bariatric surgery and whether to choose surgery based on their perceived balance between the health threats posed by obesity and the benefits of bariatric surgery.

Studies have found that obese patients with diabetes usually have a positive attitude toward bariatric surgery [11,12], believing that surgery can effectively reduce the risk of diabetes. Surgery can reduce weight, cancer risk, and other diseases.[13] Successful obesity surgery cases are widely publicised, and patients are usually full of expectations for the postoperative results.[14] Female patients typically have higher expectations and stronger motivation to lose weight.[15] According to a Swedish study on obese patients, about 64% were willing to participate in randomised controlled trials related to weight loss surgery. The key reason was that patients were dissatisfied with the negative impact of weight on their lives. They believed this was an efficient way to improve their quality of life significantly.[13] 93.2% of patients found success in life quality increase following surgery while also considering the procedure an efficient current medical approach.[16] The medical threats of obesity serve as the basis for obese patients to decide on bariatric surgery.

In some developing countries, differences in patients' perceptions of bariatric surgery are even more complex. Studies have shown that Chinese obese patients have a low level of perception of bariatric surgery, and most have a high fear and risk assessment of surgery. Even medical professionals have limited knowledge of it.[7,17] Some patients are unwilling to undergo surgery due to insufficient understanding of surgical risks and excessive concerns about postoperative complications and the recovery process.[18] A study in Singapore found that only 2.2% of respondents would consider surgery, with some believing that it was "unnatural" or "against the laws of human metabolism".[19] Research conducted on Chinese college students revealed that their understanding of obesity fundamentals was high, while their knowledge regarding obesity-related bone and reproductive health concerns remained limited. The survey also showed that students hold diverging views about bariatric surgery safety and effectiveness, with only 29.3% correct identification of effectiveness. The research outcomes indicate that Chinese college students are cautious about undergoing bariatric surgery.[7,20]

Patients who assess risks and benefits also consider their worries regarding lifestyle modifications. People who are obese tend to feel poor about themselves and develop unfavourable views about their bodies because they fear their bodies will not handle life adjustments after surgery.[21,22] Correction of obesity requires patients to learn and accept the physical modifications that come with it. Rapid weight loss after surgery may lead to psychological adaptation problems, including receiving a new image and rebuilding social relationships.[23] Other studies have highlighted the body image issues faced by female patients after surgery due to the continuation of their “I am fat” identity. This phenomenon hurts postoperative psychological adaptation.[24] The perception of health threats and the benefits and risks of surgery significantly affects obese patients' perception of bariatric surgery.

Social Cognitive Theory (SCT) perspective

Social cognitive theory (SCT) emphasises that behaviour is not only influenced by internal factors such as individual motivation and ability but also by the social environment.[25,26] Social cognitive theory explains how the social interactions and cultural environment of obese patients influence their perception of bariatric surgery. Family support, doctor's advice, and social communication of successful cases will affect patients' perception and decision-making about bariatric surgery.

Obese patients can often learn about other people’s successful bariatric surgery experiences through social media, patient groups, etc. These social interactions greatly enhance their confidence in surgery.[27] Parks et al. found that social media provided adolescents with emotional support and behavioral strategies to increase their confidence in undergoing surgery when preparing for bariatric surgery.[28] Ogle et al. conducted in-depth interviews with 13 women who had undergone surgery and found that social support helped them in many ways, including relieving their worries, enhancing their self-esteem, reducing the burden of responsibility, and providing emotional companionship.[29] In some cultures, people who undergo bariatric surgical procedures often hide their surgery from social interactions because their culture views weight loss operations as indications of laziness and convenience. In some cultures, societies accept obesity surgery as an essential medical practice. For example, appearance-focused cultures such as France may stigmatise female patients more. In contrast, in the Netherlands and the United Kingdom, this gendered stigma may be less prevalent, and patients may be more likely to discuss their surgical experiences openly.[30]

According to SCT, patients base their tendency to get bariatric surgery on their self-efficacy, representing their belief in their capabilities. The review examined how four types of informal social support, emotional support, instrumental support, informational support, and self-support, influence bariatric surgery cognition among patients through semi-structured interviews with 20 patients going through bariatric surgery. Respondents generally said that before surgery, they lacked confidence in their ability to control their weight successfully. Still, through communication with other successful patients, their sense of self-efficacy

was significantly improved, and they ultimately decided to undergo surgery.[31] Therefore, how patients view bariatric surgery is primarily influenced by the experiences of patients who have undergone surgery and the impact of the social environment on the acceptance of bariatric surgery.

The emergence of perceptive differences is determined by the patient's inner state and the comprehensive external social environment, such as socioeconomic background, education level, and doctor's recommendations. The high cost of surgery and postoperative follow-up may exceed the financial capacity of some patients. Insurance coverage and personal financial status significantly impact surgical decisions.[32] Loss of income and additional medical expenses during recovery are also important factors for patients to weigh.[32] Economic factors not only directly affect patients' access to medical resources but also indirectly affect patients' weighing of surgical value and economic risks when making surgical decisions, thus becoming an essential reference that cannot be ignored in the decision-making process. The heavy financial burden causes obese patients in financially disadvantaged areas to abandon their plans for bariatric surgery. Statistical analysis revealed that people residing in rural areas in the United States showed a reduced probability by 23% of selecting bariatric surgery compared to those in urban areas. Rural residents, together with minority men who experience economic disadvantages or have poor health status and age-related factors, show decreased suitability for bariatric surgery.[33] High surgical costs are a leading reason patients hesitate to get bariatric surgery, according to research on acceptance rates in underdeveloped Chinese regions.[34]

Patients who have lower formal education tend to lack understanding of bariatric surgery procedures while showing heightened worry about surgical risks, according to Coblijn et al., Funk et al., and Rajeev et al.[35–37] The research shows that bariatric surgery is considered a dangerous procedure that carries significant risks in the eyes of people from lower education levels because they are unaware of potential long-term health advantages.[37,38] Medical professionals with low opinions about bariatric surgery directly influence how patients acquire knowledge of this procedure. Early mortality expectations from bariatric surgery proved high among numerous UK primary care physicians in an assessed study by McGlone et al. Postoperative care confidence continued low at 66% among doctors, with resulting negative patient perception evidence.[39] The survey recorded that 91.3% of Greek medical professionals lacked complete comprehension of bariatric surgery. The professional data showed that among 500 doctors, only a minority (21.3%) admitted sending patients to bariatric treatment facilities.[40] Patients with different levels of education and socioeconomic statuses require specific health education efforts combined with an enhanced doctor's understanding of bariatric surgery. Bariatric surgery needs a better social environment to improve patient knowledge about this treatment.

Cultural Dimension Theory (CDT) Perspective

Cultural Dimension Theory (CDT) explains how cultural factors shape individuals' health perception and behaviour from an artistic perspective. [41,42] Research shows cultural dimensions are essential for practical clinical reasoning and existing technical knowledge in decision-making.[43] The cultural dimension theory demonstrates that medical patients with different backgrounds possess varied perspectives regarding surgical risks, treatment effects, and medical professional opinions.[44]

People from collectivist cultures represent the collective group and their extended family unit as their highest priority. The decision to have bariatric surgery becomes influenced by what family members think and what others expect, according to Taylor et al. and Yunus et al.[45,46] Chinese obese patients with surgical understanding may decide against surgery because of family disapproval and public social media opinions.[34,47] However, patients in individualistic societies adopt personal autonomy regarding their healthcare choices, so they focus on their health needs for weight loss and make more independent decisions about weight loss.[48]

According to Matusitz & Spear, the doctor-patient communication patterns in American healthcare differ substantially from those practised in Pakistan, Japan, Thailand, and other Asian regions. Different communication styles play a key role in the effectiveness of doctor-patient relationships. Power distance is an essential analytical dimension for studying doctor-patient communication styles.[49] In high power distance cultures, patients are more likely to accept doctors' advice and have less fear of surgery.[50,51] In Western countries, patients rely on their doctors' professional opinions and make decisions based on personalized information.[52] In China, the views of family and friends often play a more critical role. A study on Chinese nurses' perception of obesity indicated that nurses' decision-making would differ in different social roles. When nurses face obese patients as "nurses," more than 80% of the nurses will recommend bariatric surgery. Still, when facing family and friends, only 22.5% of the nurses will recommend bariatric surgery to family and friends, which is a significantly lower proportion. This difference reflects the significant influence of family and friends' opinions or social roles on perception.[53] Family support plays a vital role in patients' surgical decision-making, especially patients with good marital status who are more likely to accept surgery.[34] A review pointed out that family and social factors influence the public's perception and attitude toward bariatric surgery, emphasizing the importance of family support in surgical decision-making. Family opposition may cause patients to give up surgery.[7]

Cross-cultural studies have shown that patients from different cultural backgrounds significantly differ in their perceptions of surgery. Research across cultures proves that surgery perceptions differ substantially between patients with varying ethnic roots. According to Baek, Korean weight loss websites utilize collectivist cultural strategies for health promotion, and American websites demonstrate distinct advertising approaches.[54] Bariatric surgery heavily relies on social media functionality.[55] West-based obese patients typically receive case success reports of bariatric surgery from connections maintained through social

networks and friendship circles. Successfully treated patients share their experiences in ways that improve patient knowledge of bariatric surgery procedures while navigating the path to making operative decisions. According to Robinson et al, bariatric surgery patients benefit from online forums by reading success stories that provide realistic information during their decision-making process.[56] The UK study conducted by Homer et al. revealed that obese patients benefit from social network-provided details, which enhances their surgical comprehension before bariatric procedures.[57] However, in Asian countries, cultural norms have a profound impact on the life experience of obesity, and sociocultural factors have a significant moderating effect on individuals' social roles and expectations.[47] In China, a large proportion of obese adults tend to view weight loss as solving the problem of "beautiful appearance" and do not seek medical help until they develop major obesity-related diseases.[58] Many family members and friends have many misunderstandings and ideas about weight loss surgery and discourage or even oppose it, regarding it as a disaster.[59] Hofstede's theory of cultural dimensions provides a powerful explanation for understanding these differences. The individualistic tendency in Western culture makes patients rely more on personal will and self-assessment when choosing bariatric surgery. In contrast, the stronger collectivist tendency in Eastern culture makes patients more easily influenced by family members, social environment, and traditional concepts when making decisions.[60,61]

DISCUSSION

This article combines the health belief model (HBM), social cognitive theory (SCT), and cultural dimension theory (CDT) to propose a multidimensional analytical framework to explore the perceptive differences of obese patients towards bariatric surgery. Based on the analysis of the above three theoretical models, we found that the differences in the perception of obese patients towards bariatric surgery are multi-level and multi-dimensional ((Figure 1.).

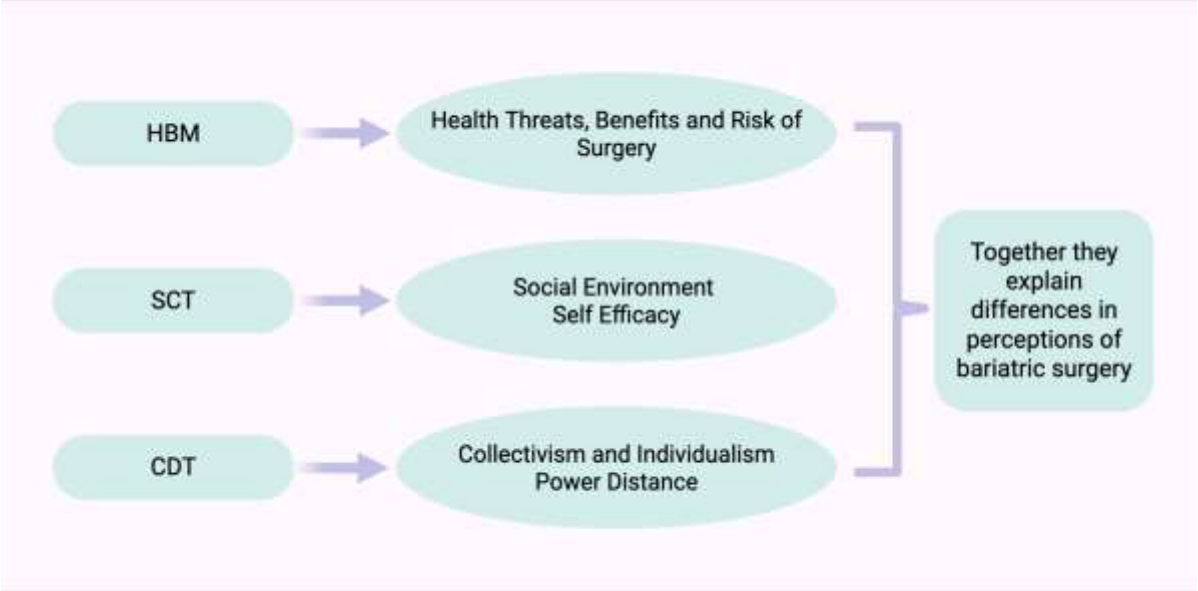

Figure 1. A multidimensional analytical framework for obese patients' perception of bariatric surgery.

We analysed the influence of different cultural and psychological elements on obese patients' cognition and attitudes towards bariatric surgery based on the health belief model, social cognitive theory, and cultural dimension theory. Our work further contributes to established evidence on surgery perception among obese patients, especially in a cultural context. Collectivist cultures are characterised by strong social and family values that have a significant impact on patient decisions, cause-and-effect.[62] The magnitude of the psychological load borne by patients is only part of the reason that in other countries like China and Japan, surgery has been eschewed by patients themselves under pressure from their family and peers. In contrast, patients in individualistic societies (compared to collectivist cultures) place more importance on their health needs and want to make independent decisions based on these health needs. These cultural differences have a marked influence on how surgery is viewed and accepted by patients.[63] Furthermore, social cognitive theory gives some insight into the concept of self-efficacy and social support in patient decision-making rendering the importance of social support as a key driver within different cultural settings.[64] These findings provide critical theoretical references for the future development of cross-cultural bariatric surgery.

Given the support from the above theoretical framework, how can we educate obese patients about bariatric surgery? Health education at first should help patients to make a correct assessment about the risks and benefits of surgical treatment, in order to decrease their psychological stress. The second point is that health interventions should be culturally sensitive. The well-known value of family and social support in collectivist culture should be considered, taking into account the cultural background of the patient. Third, we need to improve the construction of a social support system, especially in some more culturally different areas,

by setting up a comprehensive network of support on one side for patients to overcome their fear and anxiety for surgery, but also to improve the understanding and acceptance of bariatric surgery.

This review article provides an extensive overview of cognitive differences seen in obesity; however, there are still many domains where further investigation is needed. Further research is necessary to determine the relationship between these differences and cultural beliefs, focusing on developing countries, where patients may be more culturally closed and restricted socially when having bariatric surgery. Moreover, cross-national comparative studies can show differences in perspectives on bariatric surgery between obese patients with different cultural contexts, which may provide potential insights into developing global strategies for the treatment of obesity. Future studies could implement different types of interventions to optimise the surgical decision-making process in obese patients based on the theoretical framework described in this article.

CONCLUSION

This study conducted an in-depth analysis of the differences in obese patients' perception of bariatric surgery by combining the health belief model, social cognitive theory, and cultural dimension theory. Through this framework, this article not only provides a theoretical explanation for the differences in obese patients' perception of bariatric surgery but also provides a theoretical basis for the design of cross-cultural health education and intervention strategies. To improve the acceptance rate of bariatric surgery, it is necessary to consider the psychosocial factors in patients' cultural background and develop more personalised and culturally sensitive health education interventions. The government and medical institutions should increase publicity for bariatric surgery, provide more channels for social support, and reduce patients' cognitive impairment and psychological burden through effective communication between doctors and patients. In addition, considering cultural differences when formulating health policies, especially in collectivist cultures, can better promote the popularisation of bariatric surgery and improve patients' health.

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