Contemporaneity of English Language and Literature in the Robotized Millennium
Vol: 4(3), September 2025
REST Publisher; ISSN: 2583 7370
Website: https://restpublisher.com/journals/cellrm/
DOI: https://doi.org/10.46632/cellrm/4/3/2

A Comparative Analysis of Psychological Factors Contributing to Obesity in Developed and Developing Countries

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Abstract: *A comparative examination of the psychological elements contributing to obesity in developed and developing nations reveals intricate dynamics that shape the attitudes, behaviors, and lifestyles of individuals. In developed countries, cultural standards regarding body image and the pervasive impact of media-driven beauty ideals significantly influence people. Stressful and sedentary lifestyles, often linked to demanding work environments, lead to patterns of emotional eating and increased susceptibility to obesity. On the other hand, in developing countries, economic factors such as limited access to affordable, nutritious food and inadequate healthcare resources present significant challenges. The interplay of traditional cultural norms, urbanization, and globalization further modifies dietary habits and activity levels. Additionally, differences in educational opportunities and awareness contribute to varying levels of understanding about the consequences of obesity. The importance of undertaking a comparative examination of the psychological factors influencing obesity in both developed and developing nations lies in its capacity to deepen our comprehension of the complex dynamics shaping individuals' attitudes, behaviors, and lifestyles within varied socio-economic settings. Through an exploration of distinct influences like cultural norms, media-centric beauty ideals, and the effects of economic factors, this study seeks to offer valuable insights into the underlying reasons for obesity across diverse regions. The Weighted Sum Model is a decision-making technique that calculates a weighted sum of scores or values associated with various alternatives, where each score is multiplied by a predetermined weight to reflect its importance. This approach helps in comparing and selecting the best alternative based on the assigned weights and respective scores. Social Support Systems, Cultural Perceptions of Body Image, Educational Attainment, Emotional Eating Patterns, Mental Health Conditions, Stress Coping Mechanisms, Parental Influence and Childhood Experiences and Food Marketing and Advertising Impact. Psychological Stress Levels, Body Satisfaction, Self-Efficacy in Health Behavior, Cognitive Behavioral Patterns, Intervention Effectiveness, Cultural Variations and Prevalence and Incidence Rates. the indicates Mental Health Conditions (Rank: 1) holds the highest priority, suggesting it is considered the most crucial factor. Educational Attainment (Rank: 2) follows closely behind, signifying its significant impact on psychological well-being. Emotional Eating Patterns (Rank: 3) and Stress Coping Mechanisms (Rank: 4) are considered of moderate importance, securing mid-range ranks. Cultural Perceptions of Body Image (Rank: 5) and Parental Influence and Childhood Experiences (Rank: 6) are considered important but with lower priority. Social Support Systems (Rank: 7) is ranked lower, indicating it is perceived as less critical in this context. Food Marketing and Advertising Impact (Rank: 8) holds the lowest priority, suggesting it is considered the least influential factor.*

Keywords: *MCDM, Social Support Systems, Cultural Perceptions of Body Image, Educational Attainment, Emotional Eating Patterns, Mental Health Conditions.*

1. INTRODUCTION

A comparative analysis of psychological factors contributing to obesity reveals the intricate interplay between various elements that influence an individual's weight. One key aspect is eating behavior and habits, where emotional eating and binge eating disorder can contribute significantly to weight gain. Cognitive factors, including

body image and self-esteem, play a crucial role, as individuals with negative perceptions may engage in unhealthy eating patterns and avoid physical activities. Psychiatric disorders such as depression and anxiety are linked to obesity, with some individuals using overeating as a coping mechanism. Social and environmental factors, such as socioeconomic status and cultural influences, shape lifestyle choices and access to healthy options. Childhood experiences, particularly trauma, can lead to maladaptive coping mechanisms like overeating [1]. Sedentary behavior and a lack of physical activity are lifestyle factors contributing to obesity. Reasons for variations in people's health-related behaviors and lifestyle choices can be attributed to a range of factors, including psychological elements. Some individuals adopt habits that promote health, such as maintaining a balanced diet and regular exercise, while others do not. Engagement in these behaviors is also influenced by personality traits and cognitive processes, highlighting the role of individual differences in preventive control [2]. Psychological factors play a significant role in understanding obesity. Some people may succumb to the allure of appetizing food, leading to overeating, while others exhibit resistance to such temptations (Jasinska et al., 2012). Mental health, particularly depression, has been shown to have long-term implications for health, either protecting individuals or causing harm. The predictive nature of psychological factors based on individual differences is a key factor in whether people adopt healthy behaviors or not. The psychology of obesity is a subject that has been examined for over twenty-five years [3]. Previous studies comparing the psychological functioning of obese and non-obese individuals generally failed to identify consistent global differences. This led researchers like Friedman and Brownell (1995) to call for a new generation of research that explores possible psychological distinctions between normal weight and obese individuals. Recent studies have delved into various aspects of psychological factors related to obesity, including personality, self-esteem, working memory defects, focus, and overall mental health (Scott et al., 2008). These factors contribute credibly to the development of obesity, shaping perspectives within psychological, cognitive, and psychiatric theories [4]. As research advances, a more evidence-based profile of the psychology of obesity is being established. As an illustration, conditions like depression and other mental health issues are proposed as potential contributors to obesity due to the negative emotions associated with these conditions, leading to overeating. The societal stigma attached to obesity further exacerbates its impact on mental health. Personality theory suggests that individual differences in body weight and geographical distribution of obesity can be described using certain personality traits and coping mechanisms, such as neuroticism. In a particular study examining a region's prevalence of obesity, the experience of negative emotions and common personality traits related to poor emotional coping (e.g., neuroticism) were observed among the population [5]. Cognitive processes and individual differences may play a causal role in the theoretical propositions linking overeating and the development of weight gain. However, findings from studies on psychological individual differences in relation to obesity may present paradoxical results. For instance, the association between obesity and late discount rates, which refers to a preference for small instant rewards over delayed, larger rewards (e.g., unhealthy food), can vary. Some studies suggest a more pronounced late discounting in obese individuals compared to those of normal weight, while others present conflicting evidence [6]. Regarding personality traits, the conscientiousness trait is linked to higher levels of obesity, but mixed results are found across studies when examining features related to neurology and other personality traits. The relationship between variables in studies can be influenced by various factors, including differences in measurement procedures, sample characteristics, and random variations [7]. Conducting research can lead to false positive/negative outcomes, and biases may be introduced, increasing the risk of inaccuracies in evidence bases. Therefore, individual studies, despite playing a crucial role, cannot solely provide solid evidence for correlations between variables. Consequently, the widely accepted approach involves conducting legitimate reviews and meta-analyses that analyze a substantial body of evidence, employing rigorous statistical methods to account for potential biases and ensuring a comprehensive understanding of the relationship between variables [8]. Psychological factors play a well-established role in the functioning of the gastrointestinal system. For instance, research has demonstrated that experimentally induced emotional stress can impact gastrointestinal motility. Historical evidence links psychological factors to various aspects of eating, swallowing, and digestive functions, with the belief that emotions, as identified by Alexander, can influence conditions like anorexia. Furthermore, conditions such as irritable bowel syndrome, regional enteritis, ulcerative colitis, dyspepsia, and peptic ulcer disease are often associated with psychological factors. Gastrointestinal diseases not only affect physical health but also significantly impact psychological well-being, with nutritional and lifestyle factors possibly influencing or being influenced by the disease process [9].In the realm of gastroenterology, it is noted that a considerable percentage of patients—around 60%—presenting with gastrointestinal complaints may have primarily psychological origins for their symptoms. However, it is acknowledged that the relationship between specific gastrointestinal conditions and stress is sometimes unclear. The article emphasizes the importance of understanding psychological factors in gastrointestinal disorders and suggests that a comprehensive approach is needed to improve the diagnostic and treatment strategies. Notably, the article reflects the ongoing efforts to include psychological factors in the Diagnostic and Statistical Manual of Mental

Disorders (DSM-IV) nosology [10]. While certain beliefs, such as alcohol causing ulcers, lack definitive proof, excessive alcohol consumption is acknowledged to cause gastric inflammation and contribute to conditions like alcoholic liver cirrhosis. Caffeine, specifically from coffee, is recognized to stimulate acid secretion, but the relationship between coffee consumption and ulcers remains unclear according to most research.The causes of duodenal and gastric ulcers are multifaceted, involving factors such as excessive hydrochloric acid secretion, delayed gastric emptying, and potential links to blood type. Some studies also suggest a temporary correlation between brain chemistry, specifically thyrotropin-releasing hormone synthesis, and the presence of ulcers [11]. PUD, which stands for Psychological Investigation, is the primary area of focus in early psychological studies. Franz Alexander, known for his metaphysical hypothesis, gained fame for his investigations into duodenal ulcers, particularly in patients experiencing frustration. Alexander posited that oral needs and requirements might contribute to the development of ulcers. Weiner et al. conducted a study involving 2,073 military individuals, employing psychological testing and serum pepsinogen measurements on a scale. Their findings suggested a correlation between gastric acid secretion and military induction, supporting Alexander's theory. Military personnel with duodenal ulcers exhibited larger pepsinogen size, extreme dependency needs, and conflicts with authority, highlighting a potential link between weak personality traits, stress, and ulcer formation [12]. Further research explored the association between emotional stimulation, anxiety, anger, and the formation of duodenal ulcers. It was observed that psychological factors, including a weak personality trait and coping skills (low ego strength), correlated significantly with serum pepsinogen concentration in ulcer patients. Psychotherapy, especially for stress and lifestyle factors, was recommended for individuals with duodenal ulcers. While chronic life pressures and symptom anxiety were recognized as potential precursors to duodenal ulcers, evidence linking personality or adherence to psychological principles to ulcer formation remained unsupported. The role of Type A behavior or alexithymia in duodenal ulcer development lacked a clear correlation [13]. Relapses in duodenal ulcer patients were often associated with anxiety or chronic stress, highlighting the unfolding impact of various psychological, behavioral, and physiological factors. The inconsistent and contradictory nature of data on the role of stress in PUD formation further underscored the complexity of understanding the relationship between psychological factors and PUD. Discriminant analysis supported the idea that negative affect perception, the frequency of life events, and the number of relatives with PUD could somewhat predict serum pepsinogen concentration in patients with PUD [14]. Smoking, alcohol consumption, and aspirin infusion are considered behavioral risk factors significant in patients with peptic ulcer disease (PUD). It has been observed that an excess of psychiatric disorders exists in individuals with PUD who engage in these behaviors. However, systematic attempts to define the personality profile of such patients through psychological testing procedures are lacking in the literature. Regardless of personality type, individuals with a predisposition to PUD exhibit increased vulnerability and reactivity, particularly in response to anxiety-provoking situations. Emotional expressions like anger or resentment contribute to heightened gastric mucosa activity, leading to prolonged hypersecretion [15]. A study by Gilligan et al. revealed that PUD is particularly common among individuals who are divorced, separated, or widowed. This case-controlled study demonstrated that those with chronic personality problems, such as hypochondriasis and negative feedback dependence, are more likely to develop ulcers. Four variables, including reduced ego strength, were identified as potential contributors to PUD in individuals with chronic personality issues. There is an intriguing possibility that genetically determined characteristics may play a role in the development of PUD. However, the exact relationship between personality details and the prognosis of the disease remains unconfirmed [16]. Recent evidence suggests that both duodenal and gastric ulcers may be influenced by a gene affecting growth and family factors. Family history has been documented as a significant factor in the occurrence of small bowel ulcers. Dyspepsia and ulcers are often described in the literature, with characteristic personality traits (e.g., dependent, imperative, or avoidant) being associated with chronic dyspepsia or PUD. Studies by Langeluddecke et al. and Kinney of Logical Factors indicate that dyspepsia patients with high levels of anxiety and tension exhibit symptoms more characteristic than those in the peptic ulcer group, particularly in terms of tension and hostility. Additionally, Magni et al. demonstrated that both dyspepsia and PUD were associated with psychiatric diagnoses, suggesting a potential link between behavioral factors like type A personality traits, urgency, and competitiveness with the development of PUD [17]. Tennant et al. (42) conducted a study examining the psychological aspects of gastric and duodenal ulcer disease. The research explored correlations between two diagnostic groups characterized by anxiety and tension, as well as introverted or type A behavior. Measurements indicated no significant differences in psychological factors or mental disorders between these groups. The role of these factors in the onset and chronicity of disorders like dyspepsia and ulcerative colitis remains controversial. Psychological testing, as mentioned earlier, has not clearly established a defined personality category among individuals with these disorders. The inability to express emotions (alexithymia) may contribute to autonomic sensitization, holding potential pathological significance. Individuals with dyspepsia participating in studies or clinical trials may show emotional reactions, while suppression of emotions is not a

possibility [18]. Contrastingly, animal studies on lesions caused by stress indicate that the central amygdaloid activities in the fetus, particularly in the central nucleus of the amygdala in rats, reflect emotional characteristics. Researchers concluded that stress plays a role in the development of ulcers, with most duodenal and gastric ulcers resolving without intervention. However, medical interventional therapy can enhance the recovery process. Clinical experience suggests that psychological factors are often associated with exacerbations of peptic ulcer disease (PUD). In some instances, psychiatric treatment considerations are based on individual psychology and the presence of PUD (46). Chapell et al. (47) proposed a positive method for treating patients suffering from organic diseases, including PUD. This involved group members learning about the physiological aspects of intestinal disease through formal didactic instruction, with untreated controls showing more improvement in the group that received treatment [19].

2. MATERIALS AND METHOD

Social Support Systems: The network of relationships and connections that individuals have with family, friends, and communities can significantly influence their health and well-being. A robust social support system can provide emotional, practical, and informational assistance, promoting healthier lifestyle choices and buffering against the negative impact of stressors.

Cultural Perceptions of Body Image: Cultural norms and societal ideals regarding body image can shape individuals' perceptions of their own bodies. These cultural standards may contribute to the development of body image dissatisfaction or, conversely, foster a positive body image. Understanding cultural influences is crucial in addressing issues related to body image and promoting a healthy relationship with one's own body.

Educational Attainment: The level of education an individual achieves can impact their health outcomes. Higher educational attainment is often associated with better health knowledge, access to resources, and healthier lifestyle choices. Conversely, lower educational levels may be linked to limited health literacy and increased risk factors for certain health conditions.

Emotional Eating Patterns: Emotional eating refers to the consumption of food in response to emotions rather than hunger. Understanding and addressing emotional eating patterns is crucial in promoting healthier eating habits and preventing issues such as overeating or binge eating, which can contribute to weight-related concerns.

Mental Health Conditions: Mental health conditions, such as depression, anxiety, and eating disorders, can have a profound impact on overall well-being, including physical health. Treating and managing mental health conditions is essential in promoting a holistic approach to health and preventing the development of unhealthy behaviors.

Stress Coping Mechanisms: Individuals employ various strategies to cope with stress, and these mechanisms can influence their health behaviors. Effective stress coping methods, such as exercise or mindfulness, contribute to better overall health, while unhealthy coping mechanisms, like substance abuse or overeating, can have adverse effects.

Parental Influence and Childhood Experiences: Early experiences and parental influences play a critical role in shaping individuals' attitudes, behaviors, and lifestyle choices. Positive parental role modeling and a supportive childhood environment can contribute to the development of healthy habits that persist into adulthood.

Food Marketing and Advertising Impact: The food industry's marketing and advertising strategies can shape individuals' food choices and consumption patterns. Understanding how marketing influences perceptions of food and nutrition is vital in addressing issues such as unhealthy eating habits, particularly among children and adolescents who may be more susceptible to advertising messages.

Psychological Stress Levels: Psychological stress levels represent the emotional and mental strain experienced by individuals in response to various stressors. These stressors can include work-related pressures, interpersonal conflicts, financial challenges, and other life events. The impact of psychological stress extends beyond the immediate emotional experience, affecting both mental and physical well-being. Chronic stress has been linked to a range of health issues, including cardiovascular problems, weakened immune function, and mental health disorders.

Body Satisfaction: Body satisfaction refers to an individual's contentment with their physical appearance and overall body image. It encompasses feelings of acceptance and positivity regarding one's body, influencing mental well-being and self-esteem. Factors such as societal standards, self-perception, and cultural influences contribute to the varying levels of body satisfaction among individuals.

Self-Efficacy in Health Behavior: Self-efficacy in health behavior reflects an individual's belief in their ability to engage in and maintain positive health-related actions. It signifies confidence in adopting and sustaining behaviors that contribute to overall well-being, encompassing lifestyle choices, preventive measures, and adherence to health-promoting activities.

Cognitive Behavioral Patterns: Cognitive behavioral patterns involve intertwined thought and behavior processes influencing mental health. These patterns encompass cognitive elements, such as thoughts and perceptions, along

with corresponding behavioral responses. They play a significant role in shaping an individual's mental well-being and can impact emotions, coping strategies, and overall psychological functioning.

Intervention Effectiveness: Intervention effectiveness measures the success of specific treatments or approaches in achieving desired outcomes. It evaluates how well an intervention addresses a particular issue or condition, such as reducing stress levels or improving mental health. Assessing intervention effectiveness is crucial for refining strategies and promoting positive outcomes in various fields, including mental health.

Cultural Variations: Cultural variations refer to differences in beliefs, values, norms, and behaviors among diverse cultural groups. These variations influence how individuals from different cultures perceive and respond to aspects such as stress, body satisfaction, self-efficacy, and health-related behaviors, contributing to the rich tapestry of human diversity.

Prevalence and Incidence Rates: The frequency and occurrence of a specific phenomenon within a population over a defined period. Prevalence refers to the total number of cases, while incidence rates indicate the rate of new cases emerging within a specified timeframe. These measures are commonly used in epidemiology to assess the occurrence of health-related issues or conditions in a population.

Method: The Weighted Sum Method (WSM) is an approach for decision-making and optimization that assesses and contrasts multiple alternatives through a set of criteria. It offers a structured means of amalgamating these criteria, each with its own significance, into a single value. This facilitates informed decision-making by quantitatively evaluating the alternatives. As far as we know, current solutions for dealing with continuous multi-objective optimization problems predominantly hinge on precedence relations. In a traditional weighted sum model, unsustained solutions are eliminated through an optional link, as referenced [20]. A method for ranking cameras using the Weighted Sum Method (WSM) for multi-criteria decision-making is presented. This system employs WSM to compute preference scores for different camera options. In the WSM framework, weights are assigned to team scores and features. Customer reviews serve as scores, while the weight concept is defined as the average number of customers served, as explained in the document [21]. The discussion covers both the Weighted Sum Method and the Weighted Product Method. In the Weighted Sum approach, each characteristic is assigned primary weights, and an option's score is the sum of its assessments. Conversely, in the Weighted Product method, performance scores are calculated, not efficiency scores. Modifying the multiplier impacts the score's significance, with the power being raised to enhance its importance, as detailed in the text [22]. The Weighted Sum Method involves a blend of multiplication and subtraction and is applied to add and organize candidate keywords. We've previously covered the generation and depiction of these keywords. It employs a weighted sum of a four-dimensional feature vector, though this weighted sum undergoes changes during the process. The four features have unique parsing capabilities due to the weight requirements. This keyword attribute enhances discrimination, resulting in more effective manual detection. However, manually determining the weight vector for the domain is excessively time-consuming, as indicated in the text [23]. The suggested adaptive weighted sum system prioritizes predetermined weight choices instead of altering weights. It introduces extra inequalities and specific restrictions to tackle uncharted territories, particularly in non-convex regions. This adaptive approach generates solutions that are both non-Pareto and distributed, in contrast to top-ranked solutions that frequently miss more advantageous alternatives. The potential downside of crossing normal boundaries is underscored, with a focus on the reliance on equality constraints as a significant concern in this effective versatile method, as mentioned in the text [24]. Regarding weighted sum multi-objective optimization (MOO), the method, although reliable, is not the most efficient for producing multiple solution points by varying weights. Nevertheless, it incorporates a single-answer set selection that showcases alternatives and consistently offers that point. The approach exposes options to varying weights and is versatile when applied to different methods [25]. This paper presents a weighted sum technique for a clinical computer-assisted algorithm used in trauma diagnosis. Trauma is a highly significant medical issue with immediate physiological consequences. The method utilizes probability weights established by medical experts in a knowledge base, which includes comprehensive information on different types of shock. The findings, derived from the analysis of data from nine patients, offer a cumulative ranking of shock types based on a combination of two-level weights [26]. The Weighted Sum Method is a common feature in evolutionary multi-objective algorithms like the moea/d-lws algorithm, as suggested in. This research aims to harness the benefits of the Weighted Sum Method, applying it to non-convex problems to tackle challenges frequently encountered by other techniques. In the field of multi-objective optimization, the Weighted Sum Method enjoys broad utilization because of its systematic approach to weight adaptation [27]. This approach systematically adjusts weights, leading to distinct optimal solutions for each individual objective optimization. These solutions are then compared with front approximations, where unspecified anchor points are assigned values of 0. Importantly, the weighted sum method has been a fixture in optimization settings since its inception [28]. Among various options, the weighted sum approach is widely

acknowledged and commonly used. The suggested algorithm employs three objective functions – base pair score, entropy, and weight fully matched column (WFMC) – during the selection process, which are combined using a weighted sum technique to create a comprehensive similarity measure. The proposed Gray-Weighted Sum Model (GWSM) takes into consideration factors such as data ranges, usage, and alternatives, influencing the results and accounting for uncertainties. Gambia, situated in West Africa, is identified as the top-ranked country. However, considering environmental uncertainty over an extended period, GWSM's long-term suitability for investors is considered relatively high [29].

STEP 1. Design of decision matrix and weight matrix

For a MCDM problem consisting of m alternatives and n criteria, let $D = x_{ij}$ be a decision matrix, where $x_{ij} \in \mathbb{R}$

$$\begin{bmatrix} x_{11} & x_{12} & \cdots & x_{1n} \\ x_{21} & x_{22} & \cdots & x_{2n} \\ \vdots & \vdots & \ddots & \vdots \\ x_{m1} & x_{m2} & \cdots & x_{mn} \end{bmatrix}$$

The weight vector may be expressed as.

$$w_j = [w_1 \ldots \ w_n], \text{ where } \sum_{j=1}^{n}(w_1 \ \ldots \ \ w_n) = 1$$

STEP 2. Normalization of decision matrix

$$n_{ij} = \begin{cases} \dfrac{x_{ij}}{max.\, x_{ij}} & | \, j \ \in \ B \\ \dfrac{min.\, x_{ij}}{x_{ij}} & | \, j \ \in \ C \end{cases}$$

STEP 3: Weighted normalized decision matrix

$$W_{nij} = w_j n_{ij}$$

STEP 4: Ranking of alternatives

$$S_i^{wsm} = \sum_{j=1}^{n} w_j n_{ij}$$

Where S_i^{wsm} is the ranking score of the i^{th} alternatives, w_j is the weight of the j^{th} criterion. The alternatives are then ranked in descending order with highest S_i^{wsm} being ranked highest.

3. RESULT AND DISCUSSION

TABLE 1. Psychological Factors Contributing To Obesity

	Psychological Stress Levels	Body Satisfaction	Self-Efficacy in Health Behavior	Cognitive Behavioral Patterns	Intervention Effectiveness	Cultural Variations	Prevalence and Incidence Rates
Social Support Systems	90.0	95.0	5.0	3.0	7.0	10000.0	4.0
Cultural Perceptions of Body Image	80.0	90.0	6.0	4.0	6.0	12000.0	6.0
Educational Attainment	70.0	75.0	8.0	7.0	3.0	15000.0	8.0
Emotional Eating Patterns	95.0	96.0	4.0	2.0	8.0	20000.0	3.0
Mental Health Conditions	85.0	92.0	5.0	3.0	7.0	18000.0	5.0
Stress Coping Mechanisms	75.0	85.0	7.0	5.0	5.0	14000.0	7.0
Parental Influence and Childhood Experiences	88.0	91.0	6.0	4.0	6.0	11000.0	4.0
Food Marketing and Advertising Impact	60.0	70.0	9.0	8.0	2.0	5000.0	10.0

The table presents scores on various factors related to psychological well-being and health. Social support systems, cultural perceptions of body image, educational attainment, emotional eating patterns, mental health conditions, stress coping mechanisms, parental influence, and childhood experiences all contribute to different levels of psychological stress, body satisfaction, self-efficacy in health behavior, and cognitive behavioral patterns. Additionally, the effectiveness of interventions varies across these factors, indicating the need for tailored approaches. Cultural variations and prevalence and incidence rates provide insights into the diverse perspectives and frequency of these issues. Notably, food marketing and advertising impact show a distinct influence on body satisfaction, self-efficacy, and prevalence rates. These scores offer a comprehensive overview of the multifaceted aspects influencing mental health and well-being.

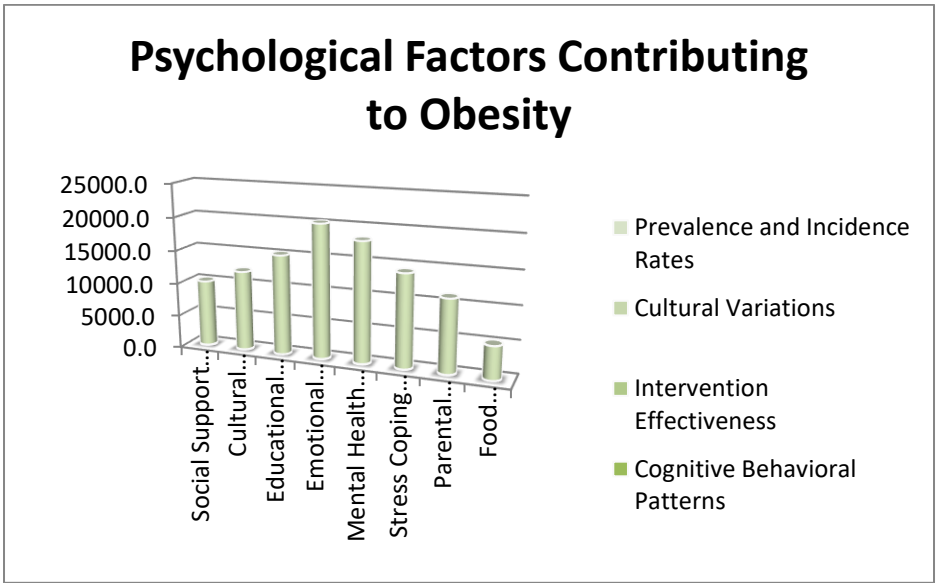

FIGURE 1. Psychological Factors Contributing to Obesity

The Figure presents scores on various factors related to psychological well-being and health. Social support systems, cultural perceptions of body image, educational attainment, emotional eating patterns, mental health conditions, stress coping mechanisms, parental influence, and childhood experiences all contribute to different levels of psychological stress, body satisfaction, self-efficacy in health behavior, and cognitive behavioral patterns. Additionally, the effectiveness of interventions varies across these factors, indicating the need for tailored approaches. Cultural variations and prevalence and incidence rates provide insights into the diverse perspectives and frequency of these issues. Notably, food marketing and advertising impact show a distinct influence on body satisfaction, self-efficacy, and prevalence rates. These scores offer a comprehensive overview of the multifaceted aspects influencing mental health and well-being.

TABLE 2. Normalized Data

Psychological Stress Levels	Body Satisfaction	Self-Efficacy in Health Behavior	Cognitive Behavioral Patterns	Intervention Effectiveness	Cultural Variations	Prevalence and Incidence Rates
0.94737	0.98958	0.55556	0.37500	0.87500	0.50000	0.40000
0.84211	0.93750	0.66667	0.50	0.75	0.60	0.60
0.73684	0.78125	0.88889	0.88	0.38	0.75	0.80
1.00000	1.00000	0.44444	0.25	1.00	1.00	0.30
0.89474	0.95833	0.55556	0.38	0.88	0.90	0.50
0.78947	0.88542	0.77778	0.63	0.63	0.70	0.70
0.92632	0.94792	0.66667	0.50000	0.75000	0.55000	0.40000
0.63158	0.72917	1.00000	1.00000	0.25000	0.25000	1.00000

Table 2 the normalized data presents scaled values for various factors related to psychological well-being and health. Each score ranges between 0 and 1, providing a relative comparison within each column. For instance, in the "Psychological Stress Levels" column, the highest score is 1.00000, indicating the maximum level of psychological stress, while lower scores represent lower stress levels. Similarly, in the "Body Satisfaction" column, the highest score is 0.98958, reflecting high body satisfaction, and lower scores represent lower levels of satisfaction. This normalization facilitates a standardized comparison across different factors, allowing for a clearer understanding of their relative impact on mental health and well-being.

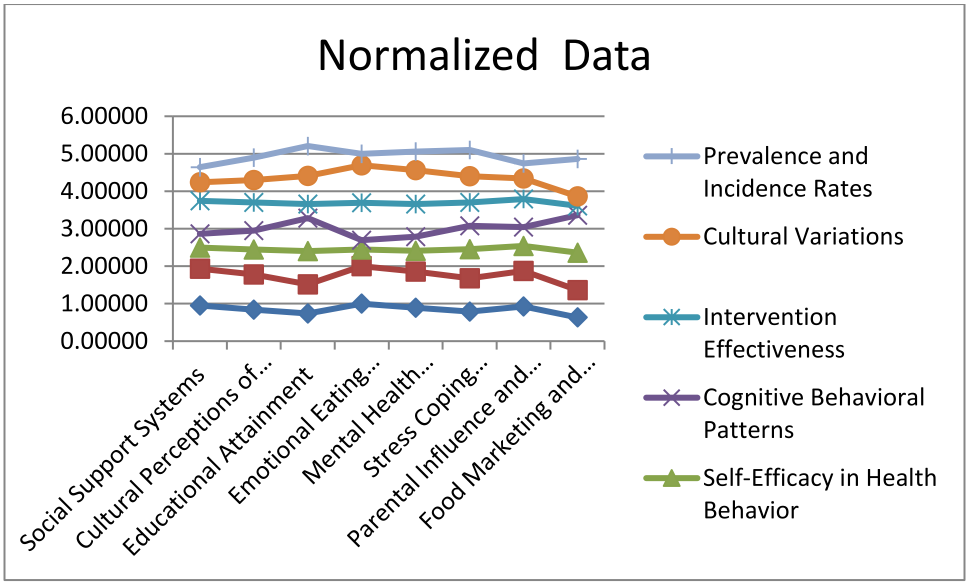

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TABLE 3. Weight

Weight						
0.25	0.25	0.25	0.25	0.25	0.25	0.25
0.25	0.25	0.25	0.25	0.25	0.25	0.25
0.25	0.25	0.25	0.25	0.25	0.25	0.25
0.25	0.25	0.25	0.25	0.25	0.25	0.25
0.25	0.25	0.25	0.25	0.25	0.25	0.25
0.25	0.25	0.25	0.25	0.25	0.25	0.25
0.25	0.25	0.25	0.25	0.25	0.25	0.25
0.25	0.25	0.25	0.25	0.25	0.25	0.25

Table 3 the provided weights suggest an equal distribution of importance (0.25) across various factors or variables. This means that each factor is given an equal weight or significance in the overall assessment or calculation. This approach assumes that all factors contribute equally to the overall outcome or measurement, without emphasizing

any specific factor over others. While equal weights simplify the evaluation process, it may not capture the nuanced variations in the impact or importance of each factor. Adjusting weights based on the relative significance of factors to the overall objective or outcome could provide a more nuanced and context-specific assessment.

TABLE 4. Weighted normalized decision matrix

Weighted normalized decision matrix						
Psychological Stress Levels	**Body Satisfaction**	**Self-Efficacy in Health Behavior**	**Cognitive Behavioral Patterns**	**Intervention Effectiveness**	**Cultural Variations**	**Prevalence and Incidence Rates**
0.23684	0.24740	0.13889	0.09375	0.21875	0.12500	0.09474
0.21053	0.23438	0.16667	0.12500	0.18750	0.15000	0.12632
0.18421	0.19531	0.22222	0.21875	0.09375	0.18750	0.14737
0.25000	0.25000	0.11111	0.06250	0.25000	0.25000	0.07500
0.22368	0.23958	0.13889	0.09375	0.21875	0.22500	0.11184
0.19737	0.22135	0.19444	0.15625	0.15625	0.17500	0.13816
0.23158	0.23698	0.16667	0.12500	0.18750	0.13750	0.09263
0.15789	0.18229	0.25000	0.25000	0.06250	0.06250	0.15789

Table 4 the provided weighted normalized decision matrix combines the normalized data with assigned weights for each factor, reflecting the relative importance of each element in the overall assessment. Higher values in the matrix indicate greater significance. For instance, the highest values in each row signify the factors with the most substantial influence on the overall evaluation. This matrix serves as a comprehensive tool for prioritizing and understanding the weighted impact of various factors on psychological well-being and health assessments.

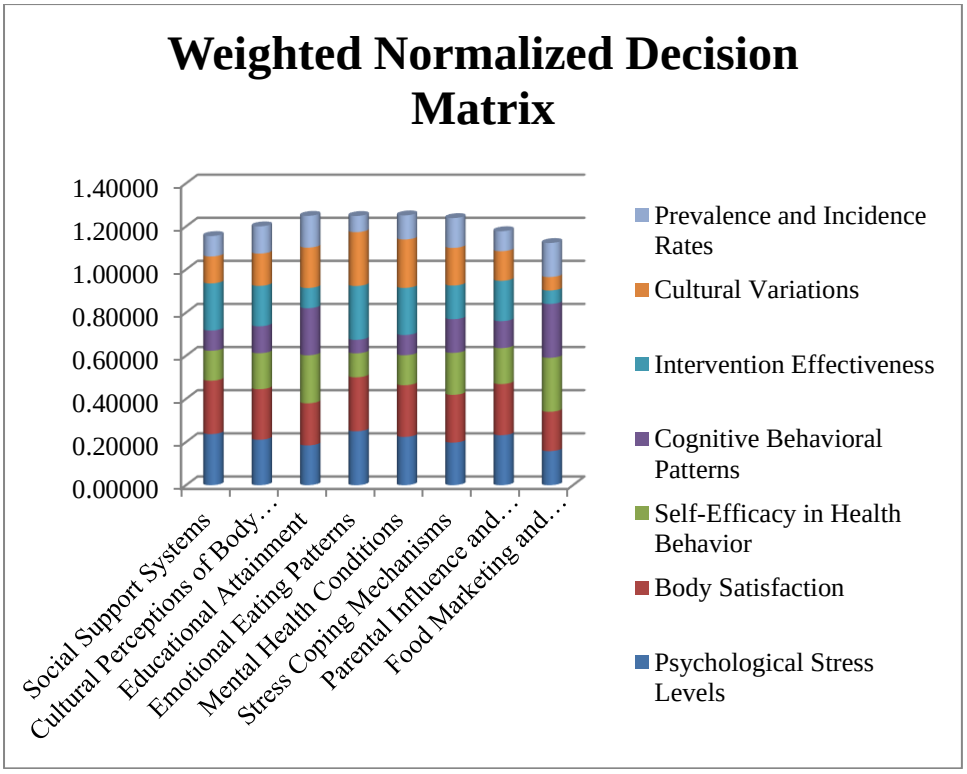

FIGURE 3. Weighted Normalized Decision Matrix

the provided weighted normalized decision matrix combines the normalized data with assigned weights for each factor, reflecting the relative importance of each element in the overall assessment. Higher values in the matrix indicate greater significance. For instance, the highest values in each row signify the factors with the most substantial influence on the overall evaluation. This matrix serves as a comprehensive tool for prioritizing and understanding the weighted impact of various factors on psychological well-being and health assessments.

TABLE 5. Preference Score & Rank

	Preference Score	Rank
Social Support Systems	1.15536	7
Cultural Perceptions of Body Image	1.20038	5
Educational Attainment	1.24911	2
Emotional Eating Patterns	1.24861	3
Mental Health Conditions	1.25150	1
Stress Coping Mechanisms	1.23882	4
Parental Influence and Childhood Experiences	1.17786	6
Food Marketing and Advertising Impact	1.12308	8

Table 5, The preference scores and ranks provide a comparative analysis of various factors influencing psychological well-being and health. The lower rank indicates a higher preference score, signifying greater importance in the overall assessment. In this context: Mental Health Conditions (Rank: 1, preference Score: 1.25150) holds the highest preference score, indicating its significant impact on psychological well-being. Educational Attainment (Rank: 2, Preference Score: 1.24911) follows closely, emphasizing the importance of education in this context. Emotional Eating Patterns (Rank: 3, Preference Score: 1.24861) and Stress Coping Mechanisms (Rank: 4, Preference Score: 1.23882) also play crucial roles, securing relatively high preference scores. Cultural Perceptions of Body Image (Rank: 5, Preference Score: 1.20038) and Social Support Systems (Rank: 7, Preference Score: 1.15536) contribute to psychological well-being but with slightly lower preference scores. Parental Influence and Childhood Experiences (Rank: 6, Preference Score: 1.17786) and Food Marketing and Advertising Impact (Rank: 8, Preference Score: 1.12308) have comparatively lower preference scores, suggesting a relatively lesser impact. These rankings provide insights into the prioritization of factors based on their perceived importance in influencing psychological well-being and health.

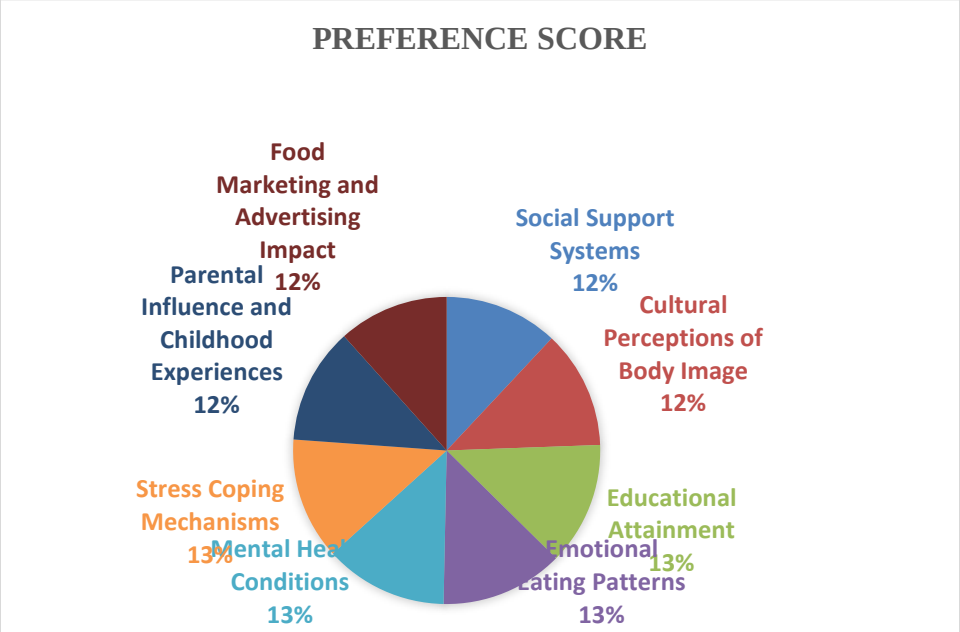

FIGURE 3. Preference Score

The preference scores and ranks provide a comparative analysis of various factors influencing psychological well-being and health. The lower rank indicates a higher preference score, signifying greater importance in the overall

assessment. In this context: Mental Health Conditions (Rank: 1, preference Score: 1.25150) holds the highest preference score, indicating its significant impact on psychological well-being. Educational Attainment (Rank: 2, Preference Score: 1.24911) follows closely, emphasizing the importance of education in this context. Emotional Eating Patterns (Rank: 3, Preference Score: 1.24861) and Stress Coping Mechanisms (Rank: 4, Preference Score: 1.23882) also play crucial roles, securing relatively high preference scores. Cultural Perceptions of Body Image (Rank: 5, Preference Score: 1.20038) and Social Support Systems (Rank: 7, Preference Score: 1.15536) contribute to psychological well-being but with slightly lower preference scores. Parental Influence and Childhood Experiences (Rank: 6, Preference Score: 1.17786) and Food Marketing and Advertising Impact (Rank: 8, Preference Score: 1.12308) have comparatively lower preference scores, suggesting a relatively lesser impact.These rankings provide insights into the prioritization of factors based on their perceived importance in influencing psychological well-being and health.

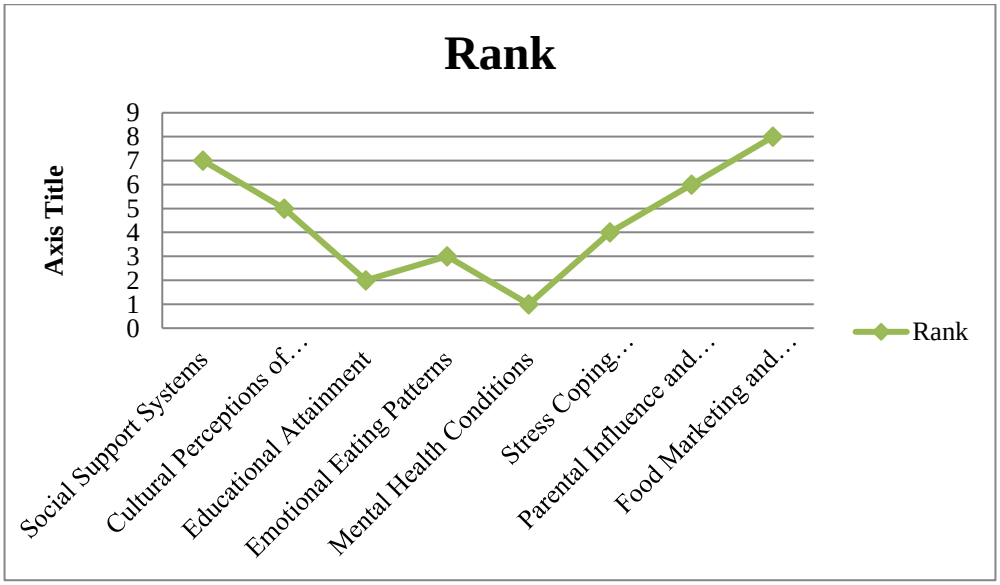

FIGURE 4. Rank

The figure 4 rank shows the indicates Mental Health Conditions (Rank: 1) holds the highest priority, suggesting it is considered the most crucial factor. Educational Attainment (Rank: 2) follows closely behind, signifying its significant impact on psychological well-being. Emotional Eating Patterns (Rank: 3) and Stress Coping Mechanisms (Rank: 4) are considered of moderate importance, securing mid-range ranks. Cultural Perceptions of Body Image (Rank: 5) and Parental Influence and Childhood Experiences (Rank: 6) are considered important but with lower priority. Social Support Systems (Rank: 7) is ranked lower, indicating it is perceived as less critical in this context. Food Marketing and Advertising Impact (Rank: 8) holds the lowest priority, suggesting it is considered the least influential factor.

4. CONCLUSION

A comparative examination of the psychological elements contributing to obesity in developed and developing nations reveals intricate dynamics that shape the attitudes, behaviors, and lifestyles of individuals. In developed countries, cultural standards regarding body image and the pervasive impact of media-driven beauty ideals significantly influence people. Stressful and sedentary lifestyles, often linked to demanding work environments, lead to patterns of emotional eating and increased susceptibility to obesity. On the other hand, in developing countries, economic factors such as limited access to affordable, nutritious food and inadequate healthcare resources present significant challenges. The interplay of traditional cultural norms, urbanization, and globalization further modifies dietary habits and activity levels. Additionally, differences in educational opportunities and awareness contribute to varying levels of understanding about the consequences of obesity. The importance of undertaking a comparative examination of the psychological factors influencing obesity in both developed and developing nations lies in its capacity to deepen our comprehension of the complex dynamics shaping individuals' attitudes, behaviors, and

lifestyles within varied socio-economic settings. A comparative analysis of psychological factors contributing to obesity reveals the intricate interplay between various elements that influence an individual's weight. One key aspect is eating behavior and habits, where emotional eating and binge eating disorder can contribute significantly to weight gain. Cognitive factors, including body image and self-esteem, play a crucial role, as individuals with negative perceptions may engage in unhealthy eating patterns and avoid physical activities. Psychiatric disorders such as depression and anxiety are linked to obesity, with some individuals using overeating as a coping mechanism. Social and environmental factors, such as socioeconomic status and cultural influences, shape lifestyle choices and access to healthy options. Childhood experiences, particularly trauma, can lead to maladaptive coping mechanisms like overeating the indicates Mental Health Conditions (Rank: 1) holds the highest priority, suggesting it is considered the most crucial factor. Educational Attainment (Rank: 2) follows closely behind, signifying its significant impact on psychological well-being. Emotional Eating Patterns (Rank: 3) and Stress Coping Mechanisms (Rank: 4) are considered of moderate importance, securing mid-range ranks. Cultural Perceptions of Body Image (Rank: 5) and Parental Influence and Childhood Experiences (Rank: 6) are considered important but with lower priority. Social Support Systems (Rank: 7) is ranked lower, indicating it is perceived as less critical in this context. Food Marketing and Advertising Impact (Rank: 8) holds the lowest priority, suggesting it is considered the least influential factor.

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