การศึกษานำร่องในประเทศไทย: การสำรวจลักษณะทางประชากรและวิถีชีวิตของผู้ใหญ่ในกรุงเทพมหานครที่เกี่ยวข้องกับออร์โธเร็กเซีย นอร์โวซา

A Pilot Study in Thailand: Investigating the Demographic and Lifestyle Characteristics of Adults in Bangkok Related to Orthorexia Nervosa

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บทคัดย่อ

การศึกษานำร่องนี้ศึกษาปัจจัยด้านประชากรและวิถีชีวิตที่เชื่อมโยงกับโรคออร์โธเร็กเซียนอร์โวซาในกลุ่มผู้ใหญ่ในกรุงเทพมหานคร ประเทศไทย ซึ่งปัจจุบันยังขาดการวิจัยเกี่ยวกับความชุกและปัจจัยที่มีผลต่อโรคออร์โธเร็กเซียในประชากรเอเชียตะวันออกเฉียงใต้ แม้ว่าจะมีความสำคัญที่เกี่ยวเนื่องกับลักษณะการรับประทานอาหารอย่างผิดปกติที่มีลักษณะการหมกมุ่นกับการกินอาหารเพื่อสุขภาพอย่างเกินควร

การศึกษามีเป้าหมายเพื่อทราบความชุก และศึกษาปัจจัยด้านประชากรอย่างหลากหลาย เช่น อายุ เพศ และระดับการศึกษา รวมถึงปัจจัยด้านวิถีชีวิต เช่น นิสัยการกิน ระดับการออกกำลังกาย และการฝึกสมาธิที่เชื่อมโยงกับโรคออร์โธเร็กเซีย

เป็นการสำรวจเชิงตัดขวางที่ประกอบด้วยคำถามเกี่ยวกับประชากรและการประเมินตนเองด้วยมาตรวัดออร์โธเร็กเซียแบบดีสเซลดอร์ฟ (DOS; ฉบับภาษาไทย) โดยมีผู้เข้าร่วม 250 คนจากกรุงเทพมหานคร

ผลเบื้องต้นบ่งชี้ว่าความชุกของโรคออร์โธเร็กเซียอยู่ที่ 15.6% และพบว่าวิถีชีวิตที่มุ่งเน้นอย่างเข้มงวดต่อพฤติกรรมเพื่อสุขภาพ สามารถนำไปสู่การพัฒนาโรคออร์โธเร็กเซียได้ ในกรณีนี้คือ การเลือกวิถีชีวิตในการมีแบบแผนของการรับประทานอาหารที่เข้มงวดและมีระดับการออกกำลังกายในระดับสูง ผลการวิจัยชี้ให้เห็นถึงผลกระทบต่อโรคออร์โธเร็กเซียที่เป็นไปได้จากนิสัยการดำเนินชีวิตในชุมชนเมืองของประเทศไทย

การศึกษานี้เพิ่มข้อมูลใหม่ให้กับวรรณกรรมที่มีอยู่เกี่ยวกับโรคออร์โธเร็กเซีย และเน้นความสำคัญของการวิจัยเพิ่มเติมเกี่ยวกับสาเหตุและผลกระทบของอาการนี้ในภูมิภาคเอเชียตะวันออกเฉียงใต้ ผลการวิจัยมีความหมายสำคัญต่อกลยุทธ์ด้านสาธารณสุขในภูมิภาคเอเชียที่มุ่งเน้นการป้องกันและวิธีการรักษาโรคออร์โธเร็กเซีย เนื่องจากการละเลยนี้อาจนำไปสู่การเกิดโรคการรับปะทานอาหารแบบผิดปกติที่รุนแรงได้ในอนาคต

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Abstract

This pilot study investigates the demographic and lifestyle factors linked to orthorexia nervosa among adults in Bangkok, Thailand. There is a lack of research on the prevalence and factors affecting orthorexia nervosa in Southeast Asian populations, despite its significance as an eating disorder characterized by an excessive preoccupation with healthy eating.

The study intends to look at the prevalence and a variety of demographic factors like age, gender, and educational level as well as lifestyle factors including eating habits, degree of physical activity, and meditation practice that are associated with orthorexia nervosa.

A cross-sectional survey including demographic questions and the self-rating Düsseldorf Orthorexia Scale (DOS; Thai version) was carried out on 250 persons from Bangkok.

Initial results indicate orthorexia nervosa prevalence was 15.6% and revealed a strong focus on healthy habits that can lead to the development of orthorexic behavior, in this case lifestyle choices like strict dietary patterns and higher physical activity levels. The findings shed light on the possible impact of lifestyle habits among urban Thai communities.

This study adds to the existing body of literature on orthorexia and highlights the importance of conducting more research on its causes and effects in Southeast Asia. The results have significant implications for Asian public health initiatives aimed at orthorexia nervosa prevention and treatment methods, as ignoring this may lead to the emergence of a severe eating disorder in the future.

Keywords: Orthorexia Nervosa, Demography, Lifestyle

1. Introduction

Orthorexia nervosa, a term originally coined by Bratman in 1997, refers to an intense fixation on consuming foods that are considered proper appetite (Koven & Abry, 2015). Unlike other eating disorders that center around the amount of food consumed, orthorexia revolves around the quality of food, often resulting in strict dietary limitations and social withdrawal (Thorne et al., 2022). Extreme limitations can seriously impair eating satisfaction, leading to malnutrition and health concerns. Although orthorexia is not currently acknowledged as a separate clinical diagnosis in DSM-5, it is important to pay attention to its growing prevalence and the effects it has on both mental and physical well-being (Kalika et al., 2023).

Research conducted in Western contexts has found a connection between certain demographic factors, such as higher education, and an increased likelihood of displaying orthorexic behaviors (Barnes & Caltabiano, 2017). However, there is limited understanding of how these factors impact Southeast Asian populations, especially in urban areas such as Bangkok. In addition to the demographic and lifestyle factors associated with orthorexia nervosa, this study also incorporates meditation, as it has the potential to reduce the risk factors for

eating disorders and increase the protective ones (Beccia et al., 2018). The combination of traditional Thai dietary practices and Western health trends in this city creates a distinct dietary environment.

In conclusion, this pilot study seeks to address the lack of research in this area by examining the demographic and lifestyle factors of adults in Bangkok that may be associated with orthorexia nervosa tendencies. Exploring these connections in the bustling city of Thailand provides valuable insights into how population dynamics and personal choices shape lifestyle habits that could potentially contribute to orthorexia. This research has the potential to pave the way for more extensive studies throughout Southeast Asia and make a valuable contribution to the global conversation surrounding orthorexia nervosa.

2.Literature review

2.1 Orthorexia Nervosa

The concept of orthorexia nervosa (ON) was first introduced by Bratman in 1997. It describes an intense preoccupation with healthy eating. ON, in contrast to other eating disorders, focuses on the quality and purity of food rather than the quantity (Koven & Abry, 2015). Orthorexia nervosa is a condition characterized by an intense obsession with healthy eating based on the individual's own standards. This includes a fixation on organic and biologically clean products, dietary supplements, raw foods, and foods with high or low carbohydrate content. People with orthorexia nervosa exhibit a severe concern for their well-being, intrusions about being healthy, inflexibility in their eating habits, ongoing preparation related to nourishment, and an adverse effect on their overall quality of life including nutritional health and social functioning (Brytek-Matera, 2019). Despite not being included in diagnostic manuals like DSM-5, the increasing amount of research highlights the psychological, social, and physical effects, which deserve clinical attention.

2.2 Demographic Factors

Past studies have consistently highlighted the significant impact of demographic factors on the occurrence and manifestation of eating disorders, including orthorexia. For instance, Barnes and Caltabiano (2017) investigated the correlation between a higher risk of developing ON and certain demographic factors like age, gender, and academic level. The result showed that people with a bachelor's degree were much more likely to be orthorexic than people with only a high school diploma. This could be attributed to their heightened health consciousness or the societal expectations surrounding dietary standards. Similarly, Istanbul research reveals a higher incidence of ON in students who have received nutritional education compared to those who have not (Sormaz & Sanlier, 2023). Moreover, gender can also play a crucial role; a recent study in China found that women tend to report slightly more severe symptoms of ON than men do (Zhou et al., 2020). The result was in line with another study in 2016, which reported that there is a higher prevalence of orthorectic behavior among women compared to men (Sanlier et al., 2016). This implies that demographic factors may play a role in the disorder's development or worsening.

2.3 Role of Lifestyle

The development and maintenance of orthorexia nervosa are heavily influenced by lifestyle factors such as dietary habits, exercise frequency, and alternative health behaviors. People with ON often have very strict eating habits. Engaging in such restrictive practices may result in inadequate nutrition and heightened anxiety when it comes to making food decisions. Individuals who engage in high levels of physical activity and adhere to specific dietary patterns, such as veganis, may be more susceptible to developing ON. These behaviors frequently occur alongside an excessive habit of constantly examining ingredient lists and nutritional labels, which can develop into an unhealthy fixation. A recent study published in 2019 revealed a relationship between adhering to a vegetarian diet and the development of orthorexic eating behaviors (Brytek-Matera, 2019). Similarly, a Spanish study stated that people who choose a vegetarian diet may be more prone to developing an unhealthy obsession with healthy eating compared to those who eat an omnivorous diet (Parra-Fernández et al., 2020). This suggests that individuals who perceive the elimination of animal products as a means to achieve better health may be more prone to developing orthorexic tendencies. However, another study found no connection between vegetarianism and a fixation on consuming healthy foods (Cicekoglu & Tuncay, 2018). Therefore, this study gap signifies the need for additional investigation in this field of research. Furthermore, level of physical activity also has an impact on ON. Brunet et al. (2021) suggested that eating disorder patients often engage in too vigorous physical activity, which raises anxiety levels, lowers the efficacy of treatment, increases hospitalization rates, and has serious health consequences. Therefore, lifestyle plays a significant role in influencing the inclination towards ON.

2.4 Cultural Differences Influence Lifestyles

ON is linked to prevailing cultural notions of health in contemporary Western societies. However, there is a lack of information regarding the characteristics and clinical associations of ON in Asian societies (Zhou et al., 2020). The Asian context views the inclination towards orthorexia as a modern way of life. The study on Chinese elderly revealed an unexpected correlation between ON symptoms and various positive psychological indicators, such as body appreciation, functionality appreciation, and life satisfaction (He et al., 2021). However, there is a lack of comprehensive studies focusing on urban Asian populations. Bangkok's cultural backdrop, blending traditional Thai and modern Western influences, offers a distinct context for delving into ON. According to a study by Cockx et al., (2018), the process of urbanization will have significant impacts on dietary habits and contribute to an elevated risk of non-communicable diseases that are linked to nourishment. It is essential to have a comprehensive understanding of how these factors interact within the Thai cultural framework in order to accurately identify the prevalence and expression of orthorexia in Asian settings. The previous literature shed light on how cultural factors can impact lifestyle choices, specifically in relation to ON. It highlights the importance of understanding how different cultures can lead to varying tendencies towards this condition.

Moreover, Thailand is renowned for its fascinating cultural habit of practicing meditation and mindfulness. These practices have been widely recognized for their remarkable ability to alleviate stress and enhance mental well-being. A recent study that explored the relationship between mindfulness and orthorexia indicated that the use of mindfulness-based therapies has demonstrated effectiveness in addressing eating disorders. In addition, individuals who demonstrate elevated levels of orthorexia may find it advantageous to embrace a nutritious eating routine as a way to prioritize self-care and improve their overall well-being (Kalika et al., 2023). Therefore, individuals in Thai culture, deeply connected to meditation, may use it to strengthen their inflexible beliefs about healthy eating. Even though mindfulness promotes non-judgment and increased awareness. The cultural impact may play a role in what seems to be a paradox in which efforts to promote mental well-being can sometimes be hijacked by the unhealthy patterns associated with ON.

3.Research objectives and Hypothesis

3.1 Objectives

The objective of this study is to assess the prevalence of ON in the adult population of Bangkok. Additionally, it aims to examine how demographic factors (such as age, gender, and education) and lifestyle factors (including eating patterns, physical activity levels, and meditation practices) may impact the occurrence of ON.

3.2 Conceptual Framework

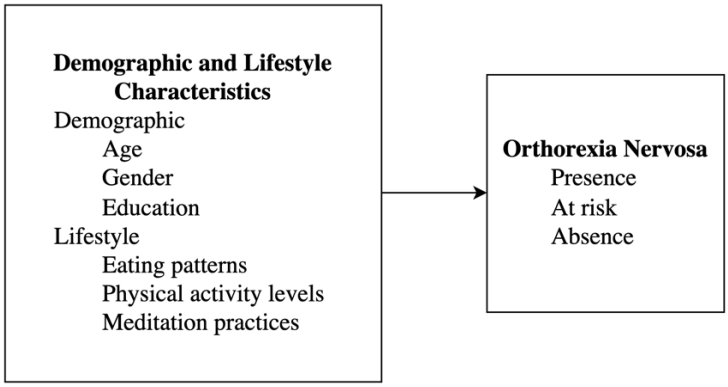

Figure 1 The relationship between demographics, lifestyle characteristics, and orthorexia nervosa

3.3 Hypothesis

Demographic factors (age, gender, education) and lifestyle factors (eating patterns, physical activity levels, and meditation practices) have an impact on the occurrence of orthorexia nervosa among adults in Bangkok.

4. Research Methodology

4.1 Research design

This study used purposive sampling, a non-probability sampling technique, to recruit participants who have a keen interest in wellness as it relates to the investigation. The study was conducted by acquiring electronic consent forms and filling out online questionnaires. This study also received ethics approval prior to carrying out this research.

4.2 Participants

250 of the participants were adults aged 20 to 65 who lived in Bangkok, Thailand. The study excluded participants with any type of psychiatric disorder. The exclusion was set since the symptoms may overlap with those of orthorexia nervosa. Furthermore, an additional 50 participants were gathered on two separate occasions, separated by a 7-day gap, to conduct a test-retest analysis of DOS. A total of 300 participants

4.3 Assessment

The information was gathered on the participants' age, gender, education level, dietary preference, physical activity, and meditation practice. Additionally, the participants completed the Düsseldorf Orthorexia Scale (DOS)—English Version (Chard et al., 2019). The DOS is a self-reported rating scale. It includes 10 items that measure the unidimensional construct of orthorexia nervosa. The English version demonstrates strong psychometric properties and well-established cutoffs. The threshold for determining whether ON is present is 30 or higher. If the score falls between 25 and 29, there may be a risk of getting on. However, if the score is 24 or lower, it suggests that ON is not present. The experts in this study employed established translation and back translation methods for the Thai version, and we carefully evaluated it using the quantitative Index of Item Objective Congruence (IOC). After conducting a pretest on 50 Thai adults in Bangkok, we evaluated the internal consistency of the translation.

4.4 Statistical Analysis

The study consists of a descriptive statistic and a test for internal consistency for DOS using the reliability analysis (Cronbach alpha) and the test-retest reliability analysis. A Cronbach alpha coefficient of 0.7 or above is considered to be an acceptable value (Taber, 2018). The study also includes descriptive statistics on the baseline characteristics including demographics and lifestyle characteristics of participants, and a pairwise comparison is used to compare those among individuals with present, at-risk, and absent orthorexia nervosa (ON). The statistical analysis was conducted using IBM SPSS Statistics version 29.0.2.0.

5. Research Results

5.1 The Düsseldorf Orthorexia Scale (DOS) pre-testing

The study involved a group of 50 Thai adults, ranging in age from 20 to 65, who were in Bangkok, Thailand. DOS received positive feedback about their readability and comprehensibility. The time it took to complete it was less than 10 minutes. No major issues were reported. The internal consistency was 0.70, indicating a satisfactory level of reliability. The pretest results were favorable,

which supported further reliability testing of the measurement instruments in this study.

5.2 Descriptive statistics and Internal Consistency analysis of the Düsseldorf Orthorexia Scale (DOS)

The mean DOS score was 23.92±5.02, representing a median score of 23 (IQR 20, 28) and a range of 15-35. The DOS reliability analysis in the Thai versions revealed that the internal consistency reliability, as measured by Cronbach's alpha tests (α), produced values of 0.76. During the test-retest reliability analysis, the DOS showed a correlation coefficient of 0.85 ($P<0.001$) based on a sample size of 50.

5.3 Baseline characteristics and Pairwise Comparison of participants

The prevalence revealed that 15.6% of the participants displayed indications of orthorexia nervosa, while 27.6% were identified as being at risk for the condition. The majority, 56.8%, did not show any indication of orthorexia nervosa. The baseline characteristics of 250 participants revealed a slightly higher proportion of females than males, with a ratio of 1.1:1. The majority (37.0%) of the total participants were between the ages of 30 and 39. The age group of 20–29 had a slightly higher percentage at 25.6%, while the 40–49 age group followed closely behind at 24.8%. Most people (80%) held a bachelor's degree level of education. When it comes to eating patterns, 30.8% of individuals reported following a low-fat diet, followed by 29.2% who didn't have a specific pattern and 21.2% who followed a ketogenic diet. A majority of participants (51.2%) reported engaging in less than 150 minutes of exercise per week. Over half of the participants (52.4%) did not engage in regular meditation practice at least twice a week, while 47.6% included meditation in their routine.

We discovered notable variations in eating patterns after analyzing the baseline characteristics of individuals with different levels of ON. These differences resulted in a significant difference in ON incidence, with statistical significance at the 0.05 level. The pairwise comparison also revealed significant differences in eating patterns between the groups with and without ON, with a statistical significance level of 0.05. In addition, the occurrence of ON varied depending on the level of physical activity per week, and this difference was statistically significant at the 0.05 level. Similarly, the pairwise comparison also revealed significant differences in physical activity level between the groups with ON at risk and without ON, which were statistically significant at a significance level of 0.05. However, there were no significant variations in the occurrence of ON when considering factors such as gender, age, education level, and meditation practice (Table 1).

Table 1 The Occurrence of Orthorexia Nervosa (ON) by Baseline characteristic (n=250)

Baseline characteristic	Total (n=250)	ON present (n=39, 15.6%)	ON at risk (n=69, 27.6%)	ON absent (n=142, 56.8%)	P-value
Gender, n(%)					
Male	110 (44.0)	14 (35.9)	25 (36.2)	71 (50.0)	0.088‡
Female	116 (46.4)	18 (46.2)	36 (52.2)	62 (43.7)	
Prefer not to say	24 (9.6)	7 (17.9)	8 (11.6)	9 (6.3)	
Age (years), n(%)					
20-29	64 (25.6)	9 (23.1)	11 (15.9)	44 (31.0)	0.460†
30-39	93 (37.2)	14 (35.9)	30 (43.5)	49 (34.5)	
40-49	62 (24.8)	10 (25.6)	19 (27.5)	33 (23.2)	
50-59	29 (11.6)	6 (15.4)	8 (11.6)	15 (10.6)	
> 60	2 (0.8)	0 (0.0)	1 (1.4)	1 (0.7)	
Education, n(%)					
Under bachelor's degree	37 (14.8)	7 (17.9)	9 (13.0)	21 (14.8)	0.797†
Bachelor's degree	200 (80.0)	31 (79.5)	55 (79.7)	114 (80.3)	
Master's degree	12 (4.8)	1 (2.6)	4 (5.8)	7 (4.9)	
Doctoral degree	1 (0.4)	0 (0.0)	1 (1.4)	0 (0.0)	
Eating Patterns, n(%)					
Vegetarian	11 (4.4)	2 (5.1)[a]	3 (4.3)	6 (4.2)[a]	0.009‡*
Low-fat diet	77 (30.8)	12 (30.8)	26 (37.7)	39 (27.5)	
Intermittent fasting	36 (14.4)	12 (30.8)	9 (13.0)	15 (10.6)	
Ketogenic diet	53 (21.2)	4 (10.3)	19 (27.5)	30 (21.1)	
No specific patterns	73 (29.2)	9 (23.1)	12 (17.4)	52 (36.6)	
Physical activity, n(%)					
< 150 minute/week	128 (51.2)	21 (53.8)	26 (37.7)[a]	81 (57.0)[a]	0.029‡*
> to 150 minute/week	122 (48.8)	18 (46.2)	43 (62.3)	61 (43.0)	
Regular Meditation, n(%)					
yes	119 (47.6)	15 (38.5)	31 (44.9)	73 (51.4)	0.312‡
no	131 (52.4)	24 (61.5)	38 (55.1)	69 (48.6)	

Data were analyzed with Chi-square test‡, Fisher's exact test†, Kruskal-Wallis test¥
[a,b,c] The same letters indicate statistically significant differences between groups at the 0.05 level, as determined by the Bonferroni correction
**Statistically significant at the 0.05 level (α=0.05)*

6. Summary and Discussion of Results

This preliminary study in Bangkok investigates the complex relationship between demographic and lifestyle factors, as well as the occurrence of ON in adults. According to a prevalence analysis, 15.6% of the adult sin Bangkok, Thailand, had symptoms consistent with orthorexia nervosa. Nevertheless, the absence of a broadly recognized diagnostic technique leads to significant disparities in prevalence rates, ranging from 1% to 82.7% (Kalika et al.,2023).

One of the interesting discoveries indicates that some lifestyle factors, such as dietary patterns and a higher level of physical activity, can also influence

the condition of ON, whereas demographic factors such as age, gender, and educational level did not affect the occurrence of ON. Furthermore, research reveals that individuals without ON typically do not follow a specific dietary protocol and engage in less consistent exercise. The finding was consistent with previous research, which stated that people who are more engaged in sports activity have a higher tendency for ON compared to people who do not engage in any sport, and individuals on special diets also showed a stronger ON tendency than non-dieting individuals (Varga et al., 2014).

Unexpectedly, the risk or protective factors of orthorexia nervosa were not significantly correlated in this study with culturally relevant activities like meditation. One reason is that people view meditation as a technique that promotes psychological balance and mental health, but it may not have a direct impact on eating behavior. Meditation has the potential to alleviate tension and anxiety (Vijayaraghavan & Chandran, 2019), which contrasts with the obsessive obsession with healthy eating that is a hallmark of orthorexia nervosa. This could potentially reduce the likelihood of developing disordered eating habits; however, meditation did not contribute to either an increase or a decrease in the risk of orthorexia nervosa in the framework of this investigation.

Our findings suggest that people who do not have strict or specific eating habits have a lower risk of developing ON. An intense preoccupation with eating healthily, which characterizes ON, often leads to strict dietary habits that eliminate foods considered unhealthy (Parra-Fernández et al., 2020). This finding is consistent with previous research from Hayatbini and Oberle (2019) which suggests that ON is linked to rigid thoughts and behaviors related to eating healthily. This flexibility enables a broader range of nutrient intake, which helps to lower the likelihood of nutritional deficiencies commonly seen in ON. Having a flexible diet can help prevent the onset of eating disorders. People who do not have strict dietary restrictions often have a more moderate approach to eating, which may help prevent the extreme behaviors associated with ON. It is worth considering that advocating for dietary flexibility may prove to be a valuable aspect of public health initiatives targeting the prevention of eating disorders.

Another discovery which is that individuals who engage in less than 150 minutes of physical activity per week are less likely to develop orthorexia nervosa. This finding fits with earlier research that showed that doing too much physical activity, especially when combined with strict dieting, may make it more likely to develop ON (Segura-Garcia et al., 2012). When incorporated into a strict health routine, physical activity, often encouraged for its positive impact on health, can unexpectedly contribute to ON. Excessive exercise is often associated with a strong focus on achieving a perfect diet and an idealized body image or health standard (Furnham et al., 2002). On the other hand, participating in moderate levels of physical activity, as seen in our study, where less than 150 minutes per week were typical, may suggest a healthier approach to overall well-being without the obsessive tendencies associated with ON.

Interestingly, the findings indicate that individuals who maintain a perfect lifestyle, which includes a strict diet and exercise, potentially exhibit the perfectionist trait. Research indicates that regular exercisers frequently exhibit

ON, and traits like perfectionism could be a potential risk factor for the development of excessive exercise and ON (Mavrandrea & Gonidakis, 2023). So, a lack of perfectionistic traits may lead to lower levels of physical activity in individuals with ON. Individuals who engage in less intense exercise may not follow the strict self-discipline and dietary restrictions commonly associated with ON. This could indicate a potential safeguard against the development of such eating behaviors. Further investigation is required.

In conclusion, not actively participating in health-focused behaviors may actually help prevent the development of eating disorders like ON. Our pilot study indicates that a strong focus on health and wellness could potentially increase the likelihood of developing ON among adults in Bangkok, Thailand. This link backs up what other research has found about how a strong focus on healthy eating can lead to the development of orthorexic behavior, especially when combined with other risky lifestyle choices like strict dietary restrictions and too much exercise. It would be intriguing to delve deeper into the relationship between health-related attention and health comprehension. Additional investigation is required to explore these factors more extensively.

7. Suggestions and Implementations

Spread Awareness of Balanced Health Education: It is important to educate the public about the potential risks of excessive emphasis on health, as it may result in ON. It is important to promote a well-rounded approach to nutrition and exercise. Encourage a diverse range of foods and an appropriate level of regular physical activity.

Support Resource Creation: Develop and distribute materials to raise awareness about orthorexia nervosa and other detrimental eating patterns. Participating in workshops, seminars, and accessing online content can offer valuable insights on maintaining a healthy diet without resorting to extreme measures.

Enhance healthcare professional training: Empower healthcare providers with the necessary resources for diagnosing and treating ON. Practitioners may benefit from training on the psychological and physical impacts of the disorder, enabling them to better support and refer patients.

Exploring Community-Based Interventions: Encourage stronger connections through enjoyable shared meals and group exercise activities that prioritize enjoyment over strict rules. This can help alleviate the isolation often associated with strict health routines.

Responsible Health and Fitness Marketing: Collaborate with regulatory organizations to oversee and control health and fitness marketing, discouraging the promotion of extreme diets and workouts that could potentially lead to ON. It is important to thoroughly evaluate the claims made by diet, supplement, and fitness programs to ensure that they encourage a balanced and healthy lifestyle.

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