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Orginal Article

Understanding Body Dysmorphic Disorder Risk and Exercise Addiction in the Philippines

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Abstract

Background: *Body Dysmorphic Disorder Risk (BDDR) may incite Body Dysmorphic Disorder (BDD) following bodily imperfection fixations, potentially fuelling Exercise Addiction (EA) – excessive exercising causing musculoskeletal disorders. This study examined the correlation between BDDR and EA, their prevalence among Regular Exercisers (REs), and BDDR's significant association with age, sex, and exercise dynamics.*

Methods: *A descriptive-correlational design was employed. BDDR was assessed using a BDD questionnaire, and EA was measured with the Exercise Addiction Inventory. Pearson's correlation determined the relationship between BDDR and EA, while prevalence was calculated using frequencies and percentages. Chi-square tests assessed associations between BDDR and demographic or exercise-related variables.*

Results: *Among the 179 respondents, REs showed a low prevalence of BDDR and a moderate prevalence of EA. BDDR was significantly associated with age, exercise frequency, and duration ($p < 0.05$). Respondents with BDDR reported concerns with body build, shape, and weight. Age emerged as a predictor of BDDR, and adjusting exercise frequency and duration appeared to reduce BDDR risk. While EA and BDDR can co-occur, they are not mutually predictive.*

Conclusion: *The findings highlight the importance of balanced exercise practices that promote physical and psychological well-being while guiding future research toward exploring additional physiological and psychological contributing factors to BDDR.*

Keywords

body dysmorphic disorder risk, exercise addiction, regular exerciser, age, sex, exercise dynamics

INTRODUCTION

Body Dysmorphic Disorder Risk (BDDR) refers to the likelihood of developing Body Dysmorphic Disorder (BDD), a psychiatric condition marked by obsessive concern over perceived physical flaws, often unnoticeable or non-existent to others (American Psychological Association, 2022). Individuals at risk frequently engage in repetitive behaviors, such as mirror checking, driven by dissatisfaction with specific body parts. Globally,

BDD affects approximately one in every 100 individuals (John Hopkins Medicine, n.d.). Despite its prevalence, BDDR remains significantly underdiagnosed, mainly due to sufferers' reluctance to disclose symptoms and a general lack of awareness, contributing to its continued underestimation (Phillips, n.d.; Veale & Singh, 2019). Alarmingly, BDDR is associated with an increased risk of suicidal ideation—around 73% during late adolescence and 78% in early adulthood (Krebs et al., 2020). To cope with their perceived imperfections, some individuals turn to physical exercise as a compensatory behavior (Corazza et al., 2019).

While exercise can offer a temporary sense of control or relief, it may also open the door to another issue: Exercise Addiction (EA). EA is a pattern of compulsive exercise behavior that goes beyond healthy habits and can cause serious harm, including injuries to muscles and joints. This behavior is prevalent in people with obsessive tendencies tied to body image concerns, such as those with BDDR (Jee, 2016). Regular Exercisers (RE)—those who work out for at least 10 hours each week for the past six months—are particularly at risk (Weinstein & Szabo, 2023). Many follow structured plans using the FITT principle, which stands for Frequency, Intensity, Time, and Type, to guide their routines (Kester, 2020). Studies have shown that gym-goers are especially vulnerable to both BDDR and EA (Corazza et al., 2019). The Philippines was listed as one of Asia's top 20 fitness markets in 2018 (Yeung & Johnston, 2019), highlighting the growing popularity of exercise culture and raising concerns for those already struggling with body image issues. Without proper understanding and intervention, the overlap between BDDR and EA may lead to serious mental and physical health consequences.

Existing literature presents conflicting findings regarding the relationship between EA and BDDR. Some studies suggest frequent, high-intensity workouts may increase a person's risk of developing BDDR (Zheng et al., 2021), while others argue that a lack of physical activity could also contribute (Soler et al., 2018). Among regular exercisers, the most common form of BDDR is muscle dysmorphia—where individuals become fixated on building muscle and may engage in excessive training, strict dieting, and supplements to achieve their desired appearance (Rodrigues & Rodrigues, 2022). On the other hand, there is also evidence that regular physical activity might help reduce BDDR symptoms by improving brain function and supporting healthier coping methods (Hotting & Röder, 2013). Despite these contrasting findings, there is still minimal local research exploring how BDDR and EA are linked, especially in the Philippine context.

Hence, this study seeks to reconcile these conflicting perspectives and examine the prevalence and association of BDDR and EA among Regular Exercisers in the Philippine context. It will assess the overall and subtype-specific prevalence of BDDR among individuals who consistently engage in physical activity. The study also examines whether demographic factors such as sex, age, and exercise patterns influence the likelihood of developing BDDR. Lastly, it will explore whether there is a meaningful correlation between BDDR and EA, providing a more comprehensive understanding of how these conditions intersect in a local context.

METHODS

Study design, population, setting

The study used a quantitative descriptive-correlational design to determine the prevalence of BDDR among REs. There were 179 REs chosen from Baguio City Center's top 10 fitness establishments through proportional quota and purposive sampling. Inclusion criteria include those who had exercised regularly for the past six months, dedicating 10 hours per week. Individuals clinically diagnosed with Body Dysmorphic Disorder (BDD) by a mental health practitioner and individuals aged <12 or >65 were excluded.

Study tools, variables, data collection

The questionnaire contained items for the respondent's personal information and variables: age, sex, and exercise dynamics (frequency, intensity, time, and type). Frequency is the exercise sessions attended weekly (3-4, 5-6, and 7 or more). Intensity is the perceived exertion during exercise (1-3, 4-8, and 9-10). Time refers to the duration per session (1.5-3 hrs and 3 hrs or more). Lastly, type refers to their exercise (cardio, strength, hypertrophy, flexibility, and balance). Furthermore, it utilized the Body Dysmorphic Disorder Questionnaire (BDDQ) and the Exercise Addiction Inventory (EAI) for screening and determining the prevalence of the variables BDDR and EA. From January to April 2024, data collection comprised of the following: 1) Presentation

of request permission letters to the top 10 fitness centers in Baguio City, 2) Recruitment of respondents through verbal consent for inclusion and exclusion, 3) Presentation of the Informed Assent/Consent Form to included individuals, addressing questions and concerns, providing a prominent disclaimer and trigger warnings, and signing, 4) Distribution of Questionnaires, clarification of instructions, and providing privacy, and 5) Immediate computation of the BDDQ and EA scores, and providing consenting respondents with the results.

Data analysis

Pearson's correlation coefficient determined BDDR and EA correlation, frequency and percentages for BDDR and EA prevalence, and chi-square for the significant association between BDDR and variables.

Ethical considerations

The study obtained approval from SLU-REC and consent from the selected respondents to conduct research after fully disclosing the study's purpose, benefits, and risks. The respondents answered the questionnaire securely, ensuring their confidentiality and that there was no physical harm.

RESULTS

Demographic Profile of Respondents

Table 1. *Demographic Profile of Respondents*

Category	Type/Group	Frequency
Sex	Male	128
	Female	51
Age	Adolescents (12-18 years old)	20
	Early Adult (19-40 years old)	143
	Middle Adult (41-65 years old)	16
Frequency	-4 sessions/week	76
	5-6 sessions/week	99
	>7 sessions/week	4
Intensity	1-3	12
	4-8	116
	9-10	51
Time	1.5 hours (90 minutes)	165
	3 hours and above	14
Type	Cardio	41
	Hypertrophy	91
	Flexibility and Balance	12
	Strength	35
Total No. of Respondents		**179**

BDDR and EA among REs

The study revealed a small portion of positive results for BDDR among RE, interpreted as a low prevalence of BDDR, while there is a moderate prevalence of EA among REs. Among 179 respondents, 46 were positive for EA.

Table 2. *Prevalence of BDD Risk and EA among Regular Exercisers*

Overall:	Frequency	Percentage	Interpretation
	N = 16	8.94%	*Low Prevalence
Type:			
Weight	5	31.25%	
Shape	7	43.75%	
Body built	11	68.75%	
Positive EA	N = 46	25.69%	**Moderate Prevalence

**1- 24% Low; **25-50% Moderate*

BBDR among RE in terms of Sex of Age

The result indicates that BDDR among RE is more prevalent in males than females. However, the result is not significant. Young adults (aged 19-40) exhibited the highest prevalence. The Young Adult age group appears to have the most significant association with the outcome, as indicated by the higher proportion of positive outcomes compared to other age groups and the significant chi-square test result of 7.1457.

Table 3. *The significant association between BDD Risk among Regular Exercisers in terms of Sex and Age*

BDD risk							Chi-Square	P-value
	Sex							
	Male (n = 128)		Female (n = 51)					
	f	%	f	%				
Positive	12	6.70%	4	2.23%				
Negative	116	64.80%	47	26.26%			0.1051	.745747
	Age							
	Adolescent (n=20)		Young Adult (n=143)		Middle Adult (n=16)			
	f	%	f	%	f	%		
Positive	5	25%	10	7%	1	6%		
Negative	15	75%	133	93%	15	94%	7.1457	0.028075

The result is not significant at p > 0.05 in terms of sex.
The result is significant at p < 0.05 in terms of age.

BBDR among RE in terms of Exercise Dynamics

The result shows a significant association between exercise frequency, time, and BDDR. REs who exercise for 5-6 sessions per week are more likely to be positive with a chi-square of 10.6835 and p-value of .004788. Additionally, REs who exercise for 1.5 - 3 hrs per day are more likely to be positive with BDDR with a chi-square of 7.1922 and p-value of .007322. In contrast, the result revealed a lack of significant association between BDDR, Type, and Intensity among RE, with a chi-square statistic of 1.0549 and a p-value of .78797 for type and 0.7043 and p-value of .703188 for intensity.

Table 4. *The significant association between BDD Risk among Regular Exercisers in terms of Exercise Dynamics*

Overall prevalence of BDD risk	Exercise Dynamics																							
	Frequency (No. of sessions per week)						Intensity						Time (No. of hours per day)				Type							
	3-4		5-6		7 or more		1-3		4-8		9-10		1.5-3 hrs		>3 hrs		Cardio		Strength		Hypertrophy		Flexibility and Balance	
	f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%
Positive	3	2	11	6	2	1	1	1	9	5	6	3	12	7	4	2	3	2	2	1	10	6	1	1
Negative	69	39	92	51	2	1	11	6	107	60	45	25	153	85	10	6	38	21	33	18	81	45	11	6
X^2	10.6835						0.7043						7.1922						1.0549					
p-value	.004788***						.703188						.007322***						.78797					

*The result is significant at ***p < 0.05*

Correlation between BDDR and EA

The analysis revealed a positive correlation (r = 0.1519, p < .05) between BDDR and EA. However, the correlation coefficient indicates a weak association between the two variables.

Table 5. *Pearson's R Correlation between Body Dysmorphic Disorder Risk and Exercise Addiction*

		Exercise Addiction	BDDR
Exercise Addiction	Pearson Correlation	1.000	0.1519*
	Sig. (1-tailed)		0.042373
	N	179	179
BDDR	Pearson Correlation	0.1519*	1.000
	Sig. (1-tailed)	0.042373	
	N	179	179

**The result is significant at p < 0.5 level*

Limitations

Including the top 10 gyms within the city center excluded the participation of other gyms. BDD is a sensitive topic that may result in the refusal of some respondents, and fitness is a male-dominated industry. The time constraints in data gathering limited the inclusion of possible respondents. These factors affected the proportional matching of the variables' sample sizes. The findings were potentially influenced by unequal variables such as time constraints, specific gym inclusions, and male dominance in gym settings, but the results remain valid despite these disparities.

DISCUSSION

Overall Prevalence of BDDR among REs

The low prevalence of BDDR among REs may be due to the increased self-esteem from exercise that enhances one's overall sense of value and worth. Research indicates that young individuals with high self-esteem are more likely to be content with their bodies, leading to a positive self-image and greater confidence (O'Dea, 2012; Ouyang et al., 2020). Exercise releases endorphins that boost mood, reduce stress, and improve emotional well-being, which can counter negative body image concerns (Abdulrasool et al., 2020; Harvard Health Publishing, 2014). Additionally, good physical health contributes to a positive body image, as those who feel strong and healthy are less likely to fixate on perceived flaws (Dyremyhr et al., 2014; Panão & Carraça, 2019). Focusing on overall fitness and performance rather than specific body parts was also found to maintain a positive perception of the body's function over its appearance (Franzoi, 1995; Tiggemann & McCourt, 2013). Thus, there is a low prevalence of BDDR among REs.

Subsequently, among the respondents who tested positive for BDDR, 11 were concerned with body build, seven about body shape, and five about weight. Body recomposition increases muscle mass, contributes to a slimmer, more defined physique, and is linked to increased strength and improved metabolism. It also contributes to enhanced self-confidence and self-esteem of individuals (Barakat et al., 2020). Therefore, individuals with BDDR often pursue body recomposition to boost their self-esteem.

Moreover, body shape ranks second due to the influence of social media norms and sociocultural pressures. Studies highlight that body positivity on platforms like Instagram showcases diverse body sizes and appearances, promoting a healthier relationship with one's body (Cohen et al., 2019; 2021). However, significant body image dissatisfaction persists due to societal pressures to be thin (Ganesan et al., 2018).

Furthermore, body weight is easier to alter through exercise, with studies showing an average weight reduction of 1.5 to 3.5 kg and significant decreases in visceral fat among those who exercise (Belicha et al., 2021). Exercise can also change adult women's body composition over 16 weeks, although its impact on body shape varies (de Mendonça et al., 2014). Cognitive Behavioral Therapy (CBT) suggests that thoughts and beliefs about weight and body image influence emotional and behavioral responses, focusing on maintaining a healthy weight, reflecting positive self-care practices, and potentially reducing BDDR (Beck, 1976).

Overall, regular exercise may have a protective effect on BDDR. Exercise can improve body image perceptions due to its positive physiological and psychological impact on individuals. Moreover, exercise can

lead to noticeable changes in body build and shape, which might influence BDDR. However, weight changes might only be as apparent when using a scale, contributing to a lower prevalence of BDDR related to weight.

Prevalence of EA among REs

The result shows a moderate prevalence of EA among RE. Regular exercise activates the brain's reward system and neurotransmitters, promoting increased exercise engagement. CBT posits that the maintenance of desired emotions requires an increase in positive emotions. It also shows how negative emotion intensifies the cycle. Avoiding negative emotions encourages individuals to engage in RE to feel better, thus fueling EA development. Moreover, influence from others suggests that social comparisons, body-related messaging, and societal standards influence the development of EA (Reynolds et al., 2022). EA may come from competitiveness due to witnessing others engaging in rigorous or frequent physical activity and wanting to match or exceed them. Also, co-occurring mental health conditions may increase EA risk (Weinstein & Szabo, 2023). This is demonstrated by the use of exercise to cope with mental health conditions leading to EA.

Multiple factors can cause EA. When taken to extremes, these factors have negative consequences but can positively influence overall well-being if exercise is done in moderation as part of a healthy lifestyle. Understanding this interplay between biological, social, and psychological factors is crucial for addressing EA and linking it to CBT.

Significant Association of BDDR among RE in terms of sex

The result is not significant in terms of the association between BDDR and sex. However, this indicates that BDDR among REs is more prevalent in males than females. However, the result is insignificant, meaning both sexes are at risk for BDDR. Men might be susceptible due to cultural pressures and goal orientation, while women could be vulnerable due to gym environments and media promoting thinness.

Men consistently focus on exercise to achieve a desired body (O'Gorman et al., 2020). However, these goals can become harmful obsessions (Nguyen, 2023). Societal pressure for unrealistic body standards exacerbates this (Corazza et al., 2019). Additionally, women may also experience BDDR.

Some studies suggest women are at risk for BDD due to media representation of beauty (Himanshu et al., 2020). Some undergo aesthetic surgeries for this concern (Corazza et al., 2019). Meanwhile, aesthetics and strength are important to some female bodybuilders and weightlifters (Cerea et al., 2022). Genetics and social media can also influence both sexes to BDDR (Loewen et al., 2024). Overall, there are no sex preferences in BDDR among RE (Hands & Parker, 2016; Himanshu et al., 2020).

People have various exercise motivations (Herbert et al., 2020), which can impact their perceptions of body image that align with CBT. The results can be used to address the motivations for the exercise habits of both sexes in BDD assessments. Also, this highlights a balanced approach to physical and mental health.

Significant Association of BDDR among REs in terms of age

Young adults show the highest association among the age group. Despite body dissatisfaction being present across age groups, it has a higher association among young adults. It predisposes them to lower self-esteem, significantly threatening their well-being (Kuck et al., 2021). It may be due to higher social media access and engagement, which exposes them to unrealistic beauty standards and norms. It leads them to decide which exacerbates body satisfaction, thus increasing their BDDR (Roberts et al., 2022; Silva & Steins, 2023; Xie, 2024). Furthermore, psychosocial development may play a role in developing BDDR.

Pursuing romantic partners in young adulthood can trigger body dissatisfaction due to individual physical preferences. Therefore, the requirement to meet unrealistic standards may drive individuals to participate in excessive physical exercise (Ingledew & Markland, 2008). Erikson's psychosocial development theory emphasizes that this stage involves a tension between "intimacy vs. isolation" in individuals actively seeking partners (Orenstein & Lewis, 2022). However, being in a relationship can also be a factor in the dissatisfaction with their physical appearance as they may place high importance on their physical appearance to fulfill the demands of the relationship. As self-worth is tied closely to the success or failure of one's relationship or

relationship-contingent self-esteem (RCSE) (Knee et al., 2008), individuals may have a higher tendency to evaluate themselves. They will then feel bad about themselves, developing a pattern of self-blame. Individuals with low self-esteem are also linked to not feeling confident about their appearance (Baumeister et al., 2003), thus urging them to engage in exercise (Gori et al., 2021).

Aside from body dissatisfaction, young adults who experience depression and anxiety have higher BDDR (Fang & Hofmann, 2010; Haider et al., 2023). Individuals who have insecurities regarding mental health engage in self-seeking behaviors (Westberg et al., 2022). This behavior can lead to engagement in health-promoting behaviors (Westberg et al., 2022), including exercise (Smith & Merwin, 2021). Despite the positive effects of exercise on mental health, one could still have BDDR due to their predisposition to mental health problems. Moreover, young adults tend to be more conscious of their health.

During the transition to young adulthood, individuals acquire a heightened consciousness of the significance of upholding a healthy lifestyle, specifically through exercise. The increased health awareness motivates young adults to prioritize activities that enhance their physical well-being, making regular exercise an essential part of their way of life. Young adults actively adopt health-conscious behaviors during this crucial phase, which involves adhering to exercise (Espinosa & Kadić-Maglajlić, 2018; Espinosa, 2020). During this stage, exercise motives shift from external factors like appearance to internal factors like physical fitness and mood (Huellemann et al., 2021). Nevertheless, although they acknowledge the advantages of physical activity, numerous young individuals have difficulties maintaining consistent exercise routines due to cognitive processing obstacles and self-regulation problems (Iso-Ahola, 2017).

The Health Belief Model states that individuals are more inclined to adopt health-promoting behaviors if the advantages outweigh the obstacles (Rosenstock, 1974). In the case of young adults, they recognize the importance of maintaining a healthy lifestyle, particularly through regular exercise, as they may view exercise as beneficial for them when it comes to improving overall well-being. CBT Beck (1976) also explains that individuals' thoughts significantly impact their emotions and behaviors. In the case of young adults, those who engage in regular exercise may have distorted thoughts and beliefs about their bodies, such as enhancing it to be able to find partners as a way to keep a relationship and address their mental state. Thus, this shows why nurses should be aware of the association of BDDR among different age groups, especially young adults who may engage in exercise, and their crucial role in screening for mental conditions such as BDD, especially among individuals who engage in exercise. This also allows modification and creation of tailored interventions addressing how age influences the development of BDDR.

Significant Association of BDDR among RE in Terms of Exercise Dynamics

The significant association between Frequency, Time, and BDDR may be due to the limited time due to personal obligations that hinder fitness involvement (American Heart Association, 2024). Accordingly, regular exercisers jeopardize their time for exercise due to other responsibilities, creating room for them to develop further body image disorders, such as BDD (Oliveira et al., 2023). The lack of action toward body concerns aggravates their preoccupation (DiPippo, 2023; Mayo Clinic, 2022). Therefore, they tend to consciously or unconsciously compensate for their inadequacy through increased exercise frequency, predisposing individuals to self-comparison, body-checking, and BDD (Bailey & Pico, 2023; Olave et al., 2021; Zheng et al., 2021). Conversely, Intensity and Type have no significant association with BDDR.

The intensity of exercise is capable of masking anxiety and stress through the release of endorphins, creating euphoria, temperature increase promoting relaxation and reducing anxiety post-workout (Cousineau et al., 1977; deVries, 1981; Glasser, 1976; SantaBarbara et al., 2023; Szabo, 1995). Hence, individuals with BDD often use exercise as a compensatory mechanism. However, body image perception is influenced by multiple factors and is beyond abstract cognition (Longo, 2015). Thus, BDDR depends on an individual's overall state, not solely on intensity, and is similar to exercise type. BDDR remains prevalent across various exercise types, emphasizing the negligible impact of exercise type on its occurrence. Despite the exercise type, those who exercise regularly tend to be more critical of their bodies than those who do not exercise much (Corazza et al., 2019). Regular exercisers often focus on perceived flaws, exhibiting heightened body dissatisfaction.

The significant association between Time, Frequency, and BDDR indicates that regardless of their responsibilities, their preoccupation and exposure to external factors make them more vulnerable to BDDR. On the other hand, the results between Type, Intensity, and BDDR imply that it depends on how the person perceives his workout regimen. Hence, the risk of developing BDDR is highly individualized.

Correlation between BDDR and EA

The positive correlation between BDDR and EA indicates that the two variables are related. It may indicate that BDDR contributes to EA or vice versa. It may be due to the situations in gyms where comparisons usually happen. Such environments normalize unhealthy obsessions with appearances due to the perceived deficits and contribute to altering addictive behavior (Bullivant et al., 2020; Corazza et al., 2019; Meyer et al., 2021). Moreover, BDDR might be heightened by EA, forming a vicious cycle of feeder problems and a compulsion to change one's appearance caused by underlying psychological insecurities (Corazza et al., 2019). noted that exercise could be perceived as a tool rather than a means to achieve the ideal and used as a coping mechanism or addictive or systematically repeated action. The primary outcome is that the perception of the body as incomplete and the pursuit of perfection create a cycle effect, exacerbating the positive correlation demonstrated that EA increased body dysmorphic disorder risk and body image concerns, as well as situations in gyms where comparisons usually happen.

Even though BDDR and EA have a positive correlation, the relationship is still weak and presents a complicated situation influenced by several factors (Bullivant et al., 2020; Corazza et al., 2019). Although this correlation is statistically weak, it demonstrates the complex dynamics present in the variables and that many contributing factors might reduce the intensity of their connection while still maintaining a significant and understandable linkage. Goals ranging from improving physical fitness to chasing aesthetic ideals influenced by individual baseline fitness levels and personal motivations drive the various routes into exercise initiation (Hausenblas & Downs, 2002; Lox et al., 2019).

Individuals have ideal preferences, which greatly affect how they link things; their unique mind influences how they deal with things and even what they have learned from their families. Individual differences emerge as significant determinants in shaping the correlation, influenced by unique psychological compositions, coping mechanisms, and even genetic predispositions (Corazza et al., 2019; Schaefer & Thompson, 2014). Consequently, the strength of the association between BDD risk and EA varies significantly across individuals, underscoring the interplay of personal characteristics and environmental factors. Individual vulnerability can arise due to a change in the size or shape of the bodies an individual is viewing (Cornelissen et al., 2013). Unrealistic beauty standards are ingrained from an early age. When girls are given a Barbie, they are exposed to the ideal body and start to internalize the thin body ideal and the desire to have features similar to Barbie's (Rice et al., 2016). Due to the exaggerated proportions of Barbie dolls, which set an unachievable norm for young girls, this early exposure creates the foundation for lifetime body image difficulties.

While EA may serve as a way of coping for individuals with body image issues, it falls short of fully encapsulating the nature of BDDR. This limitation stems from the interaction between BDDR and EA, which are determined by cultural influences, shifting body image ideals, and individual experiences. These factors contribute to an individual's understanding and engagement in exercise behaviors; therefore, the relationship between BDDR and EA is complex and multi-faceted, better than what can be explained by EA alone (Rote et al., 2013). CBT offers a framework for understanding the intricate connections between BDDR and EA. As individuals engage in excessive exercise and comparison, compulsive behaviors emerge, negatively impacting various aspects of their lives. CBT can also be combined with addressing cognitive distortions to treat exercise addiction by identifying and challenging irrational thoughts such as all-or-nothing thinking, catastrophizing, and overgeneralizing. (Arayici & Sutcu, 2024; Freimuth et al., 2011). Even when weak, this correlation tends to point out much more complex interactions between mental well-being and exercise, especially in regions so often left untouched in gyms or places of fitness. Such acknowledgment of this relationship would allow the nurse to offer holistic care, such that it does not merely attend to the patient's physical health but also the assessment and intervention of the patient's mental health needs.

The findings of this study hold significant implications for public health in the Philippines. The study aims to enhance early detection and intervention efforts for affected populations by identifying early indicators and risk factors. Furthermore, it will offer valuable insights into nursing practice—supporting more accurate assessment and diagnosis and implementing holistic, person-centered care. The study can help improve nursing education by raising awareness and supporting the development of specialized training programs addressing BDDR and EA. Ultimately, this research will bridge existing gaps in the literature and provide context-specific knowledge to inform policy, education, and practice.

CONCLUSION

Results show that RE has a concurrency with EA and a significant reduction in BDDR. Body build, shape, and weight preoccupy REs with BDDR. Age can be a predicting factor for BDDR as opposed to sex. Exercise frequency and time can be modified to reduce BDDR, regardless of exercise type and intensity. While they may co-occur, EA alone does not fully encapsulate the complexities of BDDR and vice-versa. DOH must promote RE by incorporating nurse-initiated fitness community training programs, seminars, nurse-fitness center partnerships, and mental health screening of fitness center members for more individualized BDDR management. DepEd and CHED must strengthen their physical education programs and integrate mental health promotion. Researchers may conduct studies to identify practical approaches for promoting RE across different demographic groups, including comorbidities.

Author Contributions

L. Payumo: Conceptualization, Investigation, Data Curation, Writing - original draft, Writing - review editing; **R. G. Gengania:** Investigation, Data Curation, Writing - original draft; **M. A. G. Lachica:** Methodology, Investigation, Visualization, Writing - original draft; **K. J. Licupa:** Investigation, Data Curation, Resources, Writing - original draft; **J. Mallare:** Investigation, Data Curation, Resources, Writing - original draft; **V. A. Ocariza:** Investigation, Data Curation, Resources, Validation, Writing - original draft; **J. P. Quinopez:** Investigation, Data Curation, Resources, Visualization, Writing - original draft; **D. C. Santos:** Investigation, Funding Acquisition, Formal Analysis, Writing - original draft; **S. R. Suyat:** Formal Analysis, Investigation, Writing - original draft; **M. J. Versosa:** Investigation, Methodology, Validation, Visualization, Writing - original draft; **R. J. Padilla:** Conceptualization, Investigation, Data Curation, Writing - original draft, Project Administration, Writing - review editing, Supervision

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Ethical Approval

This research proposal has been reviewed and approved by the Saint Louis University - Research Ethics Committee (SLU-REC), with protocol code SLU-REC 2023-061 on February 21, 2024. If you wish to find more about the SLU-REC, contact: Dr. Janette Awisan (074 442 2842) resec@slu.edu.ph. Informed consent form, informed assent, and consent form was obtained from all subjects involved in the study.

Competing interest

The authors declare no conflicts of interest.

Data Availability

Data will be made available by the corresponding author on request.

Declaration of Artificial Intelligence Use

In this work, the authors declare the utilization of artificial intelligence tools. Turnitin and Grammarly were utilized to maintain content originality and grammatical accuracy. After using this tool/service, the author(s) evaluated and revised the content as necessary and take(s) full responsibility for the published content.

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