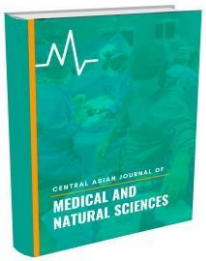

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Article

Physical Efficacy Among High School Female: Does Physical Exercise Outcome Expectations Matter?

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Abstract: This study aims to (1) identify whether students' age, body mass index, outcome expectation for exercise can predict their physical exercise Self-Efficacy, and (2) investigate the differences in physical exercise Self-Efficacy, outcome expectation for exercise between the groups of BMI classes and grade. A descriptive predictive correlational design was used to guide this study. This study was conducted in Ramadi City, Anbar Governorate, Iraq. The study included a simple random sample of 450 female high school students. The study instrument includes participants' sociodemographic characteristics, the Stages of Change Scale for Exercise (Short Form), The Exercise Outcome Expectation Scale. Data were collected using a self-reported instrument. The statistical package for social science, version 27 was used for data analysis. The study results revealed that participants' age and exercising together positively predict more their Self-Efficacy of engaging in regular physical exercise. On the other hand, participants' BMI negatively predicts their Self-Efficacy. There are statistically significant differences in Negative Affect, Inconvenient to Exercise, and overall Self-Efficacy among grade groups. There is a statistically significant difference in rewards among BMI groups. The researchers concluded the older the student, the greater the Self-Efficacy of engaging in regular physical exercise.

Keywords: Adolescents, Outcome Expectations, Physical Exercise, Self-Efficacy

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1. Introduction

The Department of Health and Social Care has labeled physical inactivity as the "silent killer". Recent findings suggest that sedentary behavior, like prolonged sitting or lying down, can have negative impacts on one's health [1]. Physical activity encompasses any movement that engages the body. According to the Physical Activity Guidelines for Americans, adults should aim for 150 minutes of moderate-intensity physical activity each week, along with two days of muscle-strengthening exercises because obesity and being overweight have become epidemics in both developed and developing countries. In 2016, the World Health Organization (WHO) estimated that there were around 1.9 billion overweight adults aged 18 and above, with at least 650 million being obese [2].

Regular physical activity is a key element individuals can do for their health [3]. It is evident that making physical activity a priority can significantly impact one's quality of life. By committing to regular exercise, individuals can proactively manage their health

and reduce the likelihood of developing chronic conditions. Regular exercise refers to "any planned physical activity (e.g., brisk walking, aerobics, jogging, bicycling, swimming, rowing, etc.) carried out to enhance physical fitness" [4]. Such activity needs to be practiced 3 to 5 times weekly for 20-60 minutes per session. Embracing an active lifestyle is a proactive approach to safeguarding one's well-being and enjoying a longer, healthier life [5].

Engaging in physical activity can enhance brain health by providing immediate benefits such as reduced state anxiety, better sleep, improved cognitive function, increased self-esteem, and weight management assistance [6-10]. Participating in consistent intense physical activity may have the potential to slow down the advancement of Alzheimer's disease [11]. Regular exercise can lower the chances of developing illnesses [6], assists in regulating blood sugar and insulin levels in the body [7, 10] and fights against various health conditions such as coronary heart disease [1, 7, 10] stroke [1, 6, 7] metabolic syndrome, high blood pressure, type 2 diabetes [1, 6, 7], depression, anxiety, dementia, support individuals in developing resilience and coping in a healthy way, preventing many types of cancer [1, 6 8, 10], arthritis, osteoarthritis, and falls [9, 10] strengthen bones and muscles [6, 7, 10], hip fracture [1], and improve your ability to do everyday activities [6], improves mood [7-10], boosts energy [8, 9], promotes better sleep [6, 9], enhances sexual performance [6, 8, 9, 10]. Engaging in regular physical activity may reduce the likelihood of premature mortality by as much as 30% [1]. Exercise has the potential to aid in quitting smoking by lessening cravings and withdrawal symptoms [10]. Also exercise reduce there are mental, biological and social risk factors which may increase the probability of developing an eating disorder eating disorders can happen over all ages, sex, and socio-economic groups [12]. Weight management is complex for most individuals, as indicated by the high numbers of obesity worldwide [13]. Obesity is assumed to result through a dynamic relationship between an organism's biology, behavior, and an increasingly obesogenic environment, while the exact causes are unknown [14].

The consistent practice of aerobic exercise can bring about significant changes in the heart, metabolism, physical health, and mental state of individuals. Research has indicated that exercise can be an effective remedy for anxiety disorders and clinical depression in endurance athletes [15].

Childhood and adolescence are crucial times for building movement abilities, adopting healthy behaviors, and laying the groundwork for long-term health. Engaging in regular physical activity during childhood and adolescence is particular by improving physical and mental functioning, as well as social well-being and general physical and physiological health [16]. Young people who participate in regular physical activity are more likely to enjoy a healthy adulthood. Chronic conditions like heart disease, hypertension, type 2 diabetes, and osteoporosis are not commonly seen in children and teenagers. Nevertheless, research indicates that obesity and other risk factors for these conditions, such as high insulin levels, elevated blood lipids, and high blood pressure, are on the rise among young individuals (U.S. Department of Health and Human Services, 2018). Whereas in England, nearly 39% of the elderly performed the recommended levels of physical activity, while in the United States about 23% were considered physically inactive and therefore had many health problems [17]. It is possible to observe that in countries where obesity affects a large proportion of the population, such as the United States, investments are made in public and private initiatives with the aim of preventing obesity among the young through Special Nutrition Programs, interventions, programs and actions encouraging healthy eating and the undertaking of physical activity [18]. Additionally that provide Health promotion consists of counseling on healthy behaviors [19].

Bandura (2001) defined Self-Efficacy as what individuals believe about their ability to exert a degree of control over the way they function and over environmental happenings.

Self-Efficacy pertains to a context-specific rather than a broad concept; it involves individuals' belief in their ability to execute required actions to achieve desired results in a specific scenario, like resisting the urge to smoke.

Self-Efficacy theory posits that individuals' confidence in their capability to engage in difficult behavior, such as quitting smoking, influences their success in achieving those behaviors. Individuals who believe in their abilities are more likely to attempt and persevere, while those who do not believe in their capabilities are less likely to make an effort or may leave the given behavior faster [20].

Outcome expectations, a fundamental aspect of self-efficacy theory, involve individuals' beliefs that involvement in particular behaviors will result in positive outcomes, such as mitigating the risk of heart problems. Bandura's theory emphasizes the significance of the relationship between self-efficacy and outcome expectations in anticipating behavior.

To efficaciously follow a health behavior, individuals have to believe that the behavior will result in a valued outcome and that they can successfully accomplish the behavior. Self-The Efficacy Theory posits that individuals are more inclined to adhere to different health recommendations, such as maintaining a smoking cessation program, managing exercise routines, following diabetes management protocols, and adhering to HIV medication regimens. This theory suggests that individuals are more likely to successfully follow through with these health behaviors. (2000) investigated the association between Self-Efficacy and smoking relapse. The results revealed that individuals who experienced an initial lapse in their smoking habits were more likely to maintain abstinence if they possessed high levels of Self-Efficacy. Conversely, those with poorer Self-Efficacy were more prone to relapse [20].

Outcome expectations are the beliefs that engaging in a particular conduct will result in a desired consequence is known as an outcome expectation. Both types of effectiveness expectations have an impact on a person's decision to start and continue with specific activities [21]. Even if someone believes that exercising regularly will enhance their strength, function, or overall health, it is unlikely that they will begin or maintain a regular exercise program [22]. According to Bacon and his colleagues the outcome expectations of regular Physical exercise will be as follows:

- Decreasing the risk of chronic illnesses such as cancer, heart attack, obesity, and diabetes.
- It additionally helps you maintain and reduce weight, but it also builds muscular mass, which improves your appearance.
- Engaging in regular physical exercise enhances mental strength by reducing symptoms of depression and anxiety, while also boosting self-esteem and confidence.
- Provides significant economical including higher productivity at work.

According to an increasing amount of scientific research; yet there are still significant social, cultural, and natural barriers to physical activity [23]. Individual's result expectations, which are important factors in determining exercise behavior and adherence, create an initial basis for regular exercise [24. Expectations on the expected effects of exercise are commonly referred to as outcome expectancies, and they have an impact on motivation and dedication to exercise programs [25].

Studies indicate that expecting favorable results significantly improves the possibility of beginning and continuing an exercise program [26]. Exercisers are more probable to remain consistent with their routines for a while if they anticipate benefits including increased physical activity, better general well-being, decreasing stress, and weight control [27]. In addition to an individual's personal opinions social and environmental factors also play a role in the effect of result expectancies [28].

SCT (Social Cognitive Theory) posits that observing others' positive experiences with exercise can reinforce one's own outcome expectations, thereby bolstering motivation [29]. Additionally, environmental cues, such as access to exercise facilities and community support, play pivotal roles in shaping individuals' expectations about the feasibility and benefits of regular physical activity [30]. Whereas Social support is used as indicator for academic success and adaptation of collegian students. It is also predicting a good perceived health in females and low physical symptoms in males [31].

Many studies have the decrease in physical activity levels within schools has been brought to light. Numerous scholars have posited that the rise in sedentary behavior among students can be attributed to their engagement with contemporary technological gadgets like TVs, computers, video games, mobile phones, and the Internet, coupled with easy access to unhealthy fast-food options high in saturated fats. Limited research has been carried out to explore the perceived advantages and obstacles to engaging in physical exercise among high school students [32]. The discovery is quite unexpected, given the numerous advantages linked to engaging in physical activity. The majority of youth fail to meet the minimum recommended levels of physical activity. A staggering 81% of adolescents worldwide are classified as physically inactive [33]. In addition, it has been observed that the level of physical activity tends to decrease as individuals get older, with this decline typically starting in the early teenage years [34], there is a more pronounced decline observed from the end of adolescence to the beginning of adulthood [35]. According to a recent study, there was a decrease in student exercise participation from 2014 to 2018, while the prevalence of obesity surged significantly from 2010 to 2018. Only about 20% of students were able to meet the prescribed criteria for exercise frequency, intensity, and duration [36].

This study is the first in Iraq, Middle East, and worldwide that sheds the light on physical exercise Self-Efficacy, exercise outcome expectation exercise behaviors in one study. This study aims to (1) identify whether students' age, body mass index, exercise identity, outcome expectation for exercise, and social support for exercise behaviors can predict their physical exercise Self-Efficacy, and (2) investigate the differences in physical exercise Self-Efficacy, outcome expectation for exercise, between the groups of BMI classes and grade.

2. Materials and Methods

Design

A descriptive predictive correlational design was used to guide this study.

Sample and Sampling

The study included a simple random sample of high school female students. The sample size was calculated using G*power software, version 3.1.9.2 based on a moderate effect size (0.25), an alpha error probability of 0.05, a power of 0.95, and 10 groups, the recommended sample size would be 390. The final sample size is 450.

Measures

The Exercise Self-Efficacy Scale (ESES)

The ESES measures persons' perceived ability to overcome each facilitating or constraining condition [37]. Particularly, it examines the extent to which individuals are confident to practice physical exercise when other things impede them [38]. The Exercise Self-Efficacy Scale includes the Negative Affect subscale (3 items), the Excuse Making subscale (3 items), Must Exercise Alone subscale (3 items), the Inconvenient to Exercise subscale (3 items), the Resistance from Others subscale (3 items), and the Bad Weather subscale (3

items). These items are measured on a 5-point Likert scale of 1 for (Not at all confident), 2 for (Somewhat confident), 3 for (Moderately confident), 4 for (Very confident), 5 for (Completely confident). The total score for this scale ranges 6-30 with a higher score indicates greater Self-Efficacy. The Cronbach's alpha for Negative Affect subscale (.852), the Excuse Making subscale (.829), Must Exercise Alone subscale (.869), the Inconvenient to Exercise subscale (.773), the Resistance from Others subscale (.853), and the Bad Weather subscale (.837).

The Stages of Change Scale for Physical Exercise (Continuous Measure)

The Stages of Change Scale for Physical Exercise (Continuous Measure) which represents sequential stages through which individuals proceed to affect lasting behavior change [39]. These stages include Precontemplation Non-Believer (people do not intend to take action in the foreseeable future "usually defined as within the next 6 months") which includes 4 items, Precontemplation Believer which includes 4 items, Contemplation (individuals engage in cognitive processes) which includes 4 items, Preparation (individuals intend to adopt a new behavior in the immediate future, usually defined as within the next month) which includes 4 items, Action (individuals have made specific overt modifications in their lifestyles within the past 6 months) which includes 4 items, and Maintenance (individuals still work to prevent relapse, but they do not need to apply change processes as frequently as do people in the action stage) which includes 4 items.

Exercise Outcome Expectation Scale

The Exercise Outcome Expectation Scale [40] that measures the specific benefits of exercise which includes nine items that are measured on a 5-point Likert scale of 1 for (Strongly disagree), 2 for (Disagree), 3 for (Not decided), 4 for (Agree), and 5 for (Strongly agree). The total score ranges between 9-45 with a higher score indicates greater benefits of physical exercise. The internal consistency of this scale was very good (Cronbach's Coefficient alpha was .89) [40]. Other studies confirmed the reliability of the Exercise Outcome Expectation Scale in that the Cronbach's alpha was 0.96 [41], 0.83 [42], 0.73 [43].

3. Results

The mean age is 17.48 ± 1.49; less than a half age 17-18-years (*n = 208*; 46.2%), followed by those who age 15-16-years (*n = 125*; 27.8%), and those who age 19-20-years (*n = 117*; 26.0%).

The study results reveal that more than a half are within normal weigh-to-height proportion (*n = 240*; 53.3%), followed by those who are overweight (*n = 160*; 35.6%), those who have obesity class I (*n = 40*; 8.9%), those who are underweight (*n = 7*; 1.6%), those who have obesity class II (*n = 2*; 0.4%), and one who has obesity class III (*n = 1*; 0.2%).

The stepwise regression model displays that participants' age and exercising together positively predict more their Self-Efficacy to engage in regular physical exercise (p-value = .010, .032) respectively.

On the other hand, participants' BMI negatively predicts their Self-Efficacy to engage in regular physical exercise (p-value = .021).

The study results reveal that there are statistically significant differences in Negative Affect, Inconvenient to Exercise, and overall Self-Efficacy among grade groups (p-value = .000, .035, .019) respectively.

The study results display that there is a statistically significant difference in rewards among BMI groups (p-value = .001).

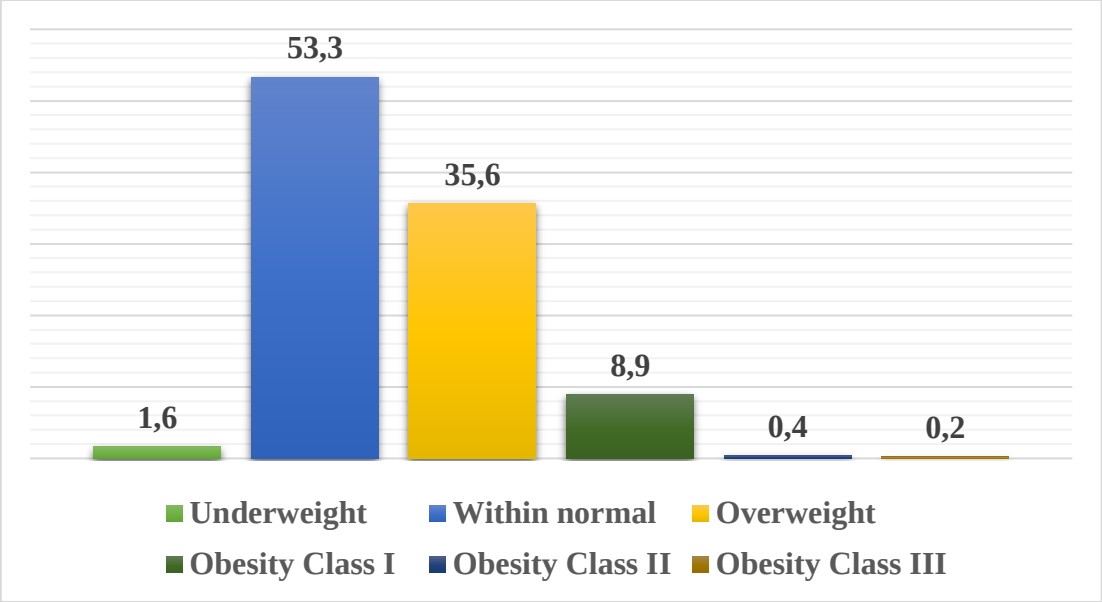

Figure 1. Participants' body mass index

Table 1. Stepwise regression model

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	38.813	6.580		5.899	.000
	Age	.869	.324	.125	2.682	.008
	BMI	-.305	.132	-.108	-2.316	.021
2	(Constant)	35.909	6.992		5.136	.000
	Age	.837	.324	.120	2.582	.010
	BMI	-.312	.131	-.110	-2.380	.018
	Outcome Expectations for Exercise	-.046	.067	-.032	-.690	.491
	Exercising together	.248	.115	.107	2.151	.032
	Participation and involvement	-.014	.063	-.012	-.229	.819
	Rewards	.311	.178	.085	1.752	.080

a. Dependent Variable: Self-Efficacy

Table 2. Differences in Self-Efficacy subdomains among grade groups

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Negative Affect	Between Groups	248.159	2	124.079	10.096	.000
	Within Groups	5493.399	447	12.289		
	Total	5741.558	449			

Excuse Making	Between Groups	5.627	2	2.813	.297	.743
	Within Groups	4236.738	447	9.478		
	Total	4242.364	449			
Must Exercise Alone	Between Groups	14.323	2	7.161	.744	.476
	Within Groups	4305.108	447	9.631		
	Total	4319.431	449			
Inconvenient to Exercise	Between Groups	62.699	2	31.349	3.390	.035
	Within Groups	4133.381	447	9.247		
	Total	4196.080	449			
Resistance from Others	Between Groups	26.649	2	13.325	1.587	.206
	Within Groups	3752.231	447	8.394		
	Total	3778.880	449			
Bad Weather	Between Groups	34.045	2	17.023	1.541	.215
	Within Groups	4938.186	447	11.047		
	Total	4972.231	449			
Self-Efficacy	Between Groups	845.352	2	422.676	3.996	.019
	Within Groups	47282.873	447	105.778		
	Total	48128.224	449			

df: Degree of freedom, F: F-statistics, Sig.: Significance

Table 3. Differences in Self-Efficacy subdomains among BMI groups

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Negative Affect	Between Groups	63.850	5	12.770	.999	.418
	Within Groups	5677.708	444	12.788		
	Total	5741.558	449			
Excuse Making	Between Groups	40.800	5	8.160	.862	.506
	Within Groups	4201.564	444	9.463		
	Total	4242.364	449			
Must Exercise Alone	Between Groups	98.869	5	19.774	2.080	.067
	Within Groups	4220.562	444	9.506		
	Total	4319.431	449			
Inconvenient to Exercise	Between Groups	69.777	5	13.955	1.502	.188
	Within Groups	4126.303	444	9.293		
	Total	4196.080	449			

Resistance from Others	Between Groups	31.649	5	6.330	.750	.586
	Within Groups	3747.231	444	8.440		
	Total	3778.880	449			
Bad Weather	Between Groups	71.046	5	14.209	1.287	.268
	Within Groups	4901.185	444	11.039		
	Total	4972.231	449			
Self-Efficacy	Between Groups	1031.827	5	206.365	1.946	.086
	Within Groups	47096.398	444	106.073		
	Total	48128.224	449			

df: Degree of freedom, F: F-statistics, Sig.: Significance

Table 4. Differences in outcome expectations for exercise among grade groups

ANOVA					
Outcome Expectations for Exercise					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	257.865	2	128.933	2.479	.085
Within Groups	23250.715	447	52.015		
Total	23508.580	449			

df: Degree of freedom, F: F-statistics, Sig.: Significance

Table 5. Differences in outcome expectations for exercise among BMI groups

ANOVA					
Outcome Expectations for Exercise					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	88.901	5	17.780	.337	.890
Within Groups	23419.679	444	52.747		
Total	23508.580	449			

df: Degree of freedom, F: F-statistics, Sig.: Significance

4. Discussion

This descriptive predictive correlational study aims to (1) identify whether students' age, body mass index, outcome expectation for exercise, can predict their physical exercise Self-Efficacy, and (2) investigate the differences in physical exercise Self-Efficacy, outcome expectation for exercise between the groups of BMI classes and grade.

The stepwise regression model displayed that participants' age positively predict more their Self-Efficacy to engage in regular physical exercise. This finding implies that the older the student, the greater the Self-Efficacy to engage in regular physical exercise. This finding could be explained as older students could have more information about the

benefits of engaging in regular physical exercise and the consequences of physical inactivity and/or sedentary lifestyle behavior.

Hussien et al. [44] concluded that there was a moderate association between physical activity and Self-Efficacy to overcome several barriers to physical activity. The stepwise regression model displayed that exercising together positively predict more their Self-Efficacy to engage in regular physical exercise. the greater the Self-Efficacy to engage in regular physical exercise.

On the other hand, participants' BMI negatively predicts their Self-Efficacy of enrolling in regular physical exercise. This finding implies that the lower the BMI, the greater the Self-Efficacy of enrolling in regular physical exercise. This finding goes parallel to that obtained by Clum et al. [45] who concluded that BMI significantly inversely associates with exercise Self-Efficacy. Consistently, Brooks et al. [46] concluded that there was a significant difference in Self-Efficacy for exercise among BMI groups.

The study results reveal that the difference in Negative Affect was significant among grade groups. Further post hoc analysis demonstrates that 12th graders enjoy greater Self-Efficacy of enrolling in regular physical exercise in terms of Negative Affect than 11th graders and 10th graders. This finding could be explained as 12th graders could have much information of the value of engaging in regular physical exercise as they obtained this information through their academic courses compared to 11th and 10th graders even when they are in a negative effect.

The study results reveal that the difference in Inconvenient to Exercise was statistically significant among grade groups. Further post hoc analysis displays that 12th graders enjoy greater Self-Efficacy of engaging in regular physical exercise when they find it inconvenient to exercise than 11th graders and 10th graders. This finding could be explained as 12th graders could be explained as 12th graders supposedly have much information of the value of engaging in regular physical exercise to the extent that they maintain exercising regularly even when they find it inconvenient to exercise.

The study results reveal that the difference in overall Self-Efficacy was statistically significant among grade groups. Further post hoc analysis exhibits that 12th graders enjoy greater overall Self-Efficacy of enrolling in regular physical exercise than 11th graders and 10th graders. This finding could be explained as 12th graders could have much information of the value of engaging in regular physical exercise as they obtained this information through their academic courses compared to 11th and 10th graders.

5. Conclusion

The study results displayed that the difference in rewards was statistically significant among BMI groups. The current study involved the limitation of the study data were subjectively collected using a self-reported instrument. The study involves a number of implications including the reality that this study is the first worldwide that integrates physical exercise Self-Efficacy, exercise outcome expectation, an in one study. On the other hand, there are a number of factors that can influence individuals' inclination to regular physical exercise including parents' readiness to engage in regular physical exercise, parents' social support for healthy eating habits that the researchers did not consider and future researchers need to consider.

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