

Predictors of Filipino physical education teachers' intentions in the use of exercise as punishment

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Authors' Contribution: A – Study design; B – Data collection; C – Statistical analysis; D – Manuscript Preparation; E – Funds Collection

Abstract

Background and Study Aim Studies on exercise as punishment (EAP) have focused on students and coaches, but less attention has been given to the perspectives of physical education (PE) teachers. This study examined the factors that influence Filipino PE teachers' intentions to use EAP. Specifically, the study examined the role of socio-demographic characteristics, attitudes, and subjective norms in predicting intentions to use EAP in PE classes.

Material and Methods A cross-sectional study was conducted to collect data from 397 PE teachers from all 16 regions of the Philippines. A researcher-made questionnaire was used to collect data on the participants' socio-demographic characteristics, attitudes, subjective norms, and intention to use EAP in their classes. Descriptive statistics and regression analysis were used to analyze the data.

Results The results showed that attitude was the strongest predictor, followed by gender (male), subjective norms, and age (over 45 years). This analysis suggests that the intention to use EAP is more prevalent among males and those over 45 years. It also shows that attitudes significantly predict these intentions. This suggests that teachers who perceive exercise as a tool for improving physical fitness and enforcing adherence to rules in a PE setting are more likely to have such intentions. In addition, respondents with higher social pressure in employing exercise as a disciplinary measure in PE classes showed greater intentions to use EAP.

Conclusions The intention to use EAP is more prevalent among male PE teachers, those who are older, and those with positive attitudes towards disciplining students using physical exercises. Additionally, teachers who feel more social pressure to use exercise as a disciplinary measure are also more likely to use EAP. These findings can be used to inform the development of PE teacher training programs and policies that promote the use of positive reinforcement and other non-punitive methods of discipline in PE classes.

Keywords: attitude, exercise as punishment, human and health, physical education, subjective norm, teachers

Introduction

Physical exercise is an essential aspect of maintaining a healthy lifestyle. It is defined as any physical activity that involves the contraction of muscles and the expenditure of energy, including activities such as walking, running, swimming, and weightlifting. Regular physical exercise offers numerous benefits, such as improved cognitive function in children [1] and reduced anxiety in adults [2]. It also improves muscle strength and endurance [3] circulation and blood flow [4], lung and heart function [5], and overall physical fitness [6]. However, there are some instances where exercise can be used as punishment, leading to various negative consequences.

Exercise as punishment (EAP) has been used in various settings, such as schools [7, 8]. One reason for using EAP is the belief that it helps individuals build discipline and self-control [7]. Requiring individuals to perform physical activities for their

misbehavior can prompt them to follow the rules and take responsibility for their actions [9]. Additionally, exercise can promote physical fitness and health, benefiting sedentary and inactive individuals [10, 11]. On the contrary, potential drawbacks to using EAP have been observed. One of the main concerns is the negative association with physical activity. Some studies suggest that EAP can contribute to negative attitudes toward physical activity and a lack of engagement with exercise [12, 13]. Additionally, it could result in physical harm and overexertion, jeopardizing health and safety. For example, a child who is forced to run laps as punishment may become dehydrated or injured. These effects show that EAP can be counterproductive to promoting physical fitness and health, as individuals may be less likely to exercise voluntarily in the future.

In the fields of physical education (PE) and sports, using EAP is a prevalent practice. Richardson et al. [13] reported that many youth had experienced being forced to exercise as a form of punishment, which appears to be embedded in PE and sports

culture. Coaches and trainers often use exercise to modify behaviors that negatively impact performance [9, 13]. This can manifest in various ways, including running, push-ups, jumping jacks, and even suspension from practice. Nonetheless, studies have indicated that physical exercise as a discipline or behavior management technique can foster unfavorable attitudes toward exercise that persist into adulthood [14, 13]. EAP is considered inappropriate in 29 states and a form of corporal punishment by the National Association for Sport and Physical Education [15, 16]. Despite the well-documented negative effects of EAP on attitudes and behaviors toward exercise, it is noteworthy that this approach remains prevalent in various countries, such as the Philippines.

In the Philippines, EAP has recently been the subject of much attention as a pressing issue, particularly in light of several incidents in which government officials have used excessive exercise to correct behaviors. For example, a Filipino man who violated quarantine rules was forced to do 300 squats by the police as punishment, ultimately resulting in his death [17]. The incident sparked widespread public outcry and led to an inquiry into the use of excessive exercise as a disciplinary measure. Multiple reports also surfaced of teachers directing students to kneel for extended periods of time as punishment for misbehavior [18, 19, 20]. It is of paramount importance to note that the issue of physical inactivity among Filipinos has been a major concern in the country. Recent surveillance data have reported a concerning prevalence of insufficient physical activity among young Filipinos [21, 22]. Despite the Philippine government's initiatives to encourage physical activity through sports, PE, and healthy lifestyles [23, 24, 25, 26], current data indicates that the country still needs to tackle the issue of physical inactivity effectively. While there are a number of factors that may have contributed to the issue of physical inactivity, the use of EAP may have played a role, as some people may have a positive attitude towards or feel socially pressured to use it.

The attitudes and subjective norms of individuals may influence their use of EAP. The Theory of Reasoned Action (TRA) provides insight into how a person's behavior is influenced by their attitude towards a specific behavior and the perceived social pressure (subjective norms) to engage in that behavior [27]. TRA is a cognitive theory that can help predict various health behaviors, including EAP. It consists of two components: attitudes and subjective norms. Attitudes refer to an individual's beliefs about a specific behavior, while subjective norms refer to their beliefs about what their significant others think about that behavior. Previous research has applied the principles of TRA to examine the intentions of PE majors toward using EAP [14]. Results showed that the constructs of TRA

explained almost 70% of the variance in participants' intentions to use EAP. Another study was conducted with sports coaches, citing their beliefs on EAP as a form of performance motivation and team cohesion [7]. Existing studies have explored the reasons for using EAP from the point of view of students and coaches, and more is needed from the perspective of PE teachers. They may feel that exercise is a way to teach students discipline and respect, or feel compelled to do it because it is a common practice. Furthermore, although existing studies on EAP are scarce, they have primarily been conducted in Western countries. Therefore, further investigation is needed to understand the underlying reasons for EAP in the Philippines, where it is prevalent. This is particularly important given the unique cultural and social factors that may contribute to using EAP in the Philippines.

Another possible factor behind the use of EAP in schools is the socio-demographic characteristics of teachers. Although there is limited research to support this claim, some have argued that younger, less experienced teachers may be more likely to use EAP because they may be less skilled and experienced in managing students and using alternative methods of discipline. Zhukova [28] noted that the first few years of teaching are often the most difficult and demanding for new teachers. This is because teaching is a complex skill that takes time and experience to master. Zafer et al. [29] found that younger teachers are less effective in teaching and classroom management than older teachers. On the contrary, older teachers, who typically have more teaching experience, tend to use corporal punishment to discipline students. One reason for this is that corporal punishment is "what they have known all along" [30], or it is deeply ingrained in their way of thinking and behaving that it has become a common and acceptable practice [31]. The study by Yousuf et al. [32] also noted that older teachers were the ones who frequently use corporal punishments for disciplining students.

Furthermore, gender may also be a contributory factor in using EAP. Studies found that male teachers are three times more likely than female teachers to inflict severe corporal punishment on students [33, 34]. In recent years, the studies by Matofari [35] and Anwar et al. [36] found the same results, citing that male teachers have affirming attitudes toward corporal punishment. It is important to note that the socio-demographic characteristics of teachers are just some of the possible factors that may contribute to the use of EAP in schools. More research is needed to fully understand this complex issue.

Purpose of the Study. The study's purpose was to examine the predictors of Filipino PE teachers' intentions in using EAP. More specifically, it aims to answer the following questions:

1. Do PE teachers' socio-demographic characteristics (gender, age, education, years of experience) affect their intentions toward using EAP in their classes?
2. Do PE teachers' attitudes and subjective norms affect their intentions toward using EAP in their classes?

Materials and Methods

Participants

The respondents were 397 public school teachers across the 16 regions of the Philippines. This number is above the 377 computed minimum sample size by Raosoft® software for an unknown population. The study employed convenience sampling because data collection was conducted via online platforms. This approach allowed for widespread questionnaire dissemination during the pandemic when direct contact and social interaction were limited. Table 1 shows the socio-demographic profile of the respondents. In terms of gender, the number of males was comparable to that of females. Most of them were under 45 years old (55.2%), had a postgraduate degree as their highest educational attainment (73.8%), and had more than ten years of teaching experience (88.7%).

Table 1. Socio-demographic profile of respondents (n = 397)

Socio-demographic Variables	Frequency	Percent
Gender		
Male	198	49.9
Female	199	50.1
Years of Service		
Less than 10 years	45	11.3
More than 10 years	352	88.7
Highest Educational Attainment		
Undergraduate	104	26.2
Postgraduate	293	73.8
Age		
Under 45 years old	219	55.2
Above 45 years old	178	44.8

Research Design

A cross-sectional study design was employed in this study. This design allowed the researchers to collect data from a group of PE teachers at a single point in time, which enabled them to gain a better understanding of the factors that influence these teachers' decisions to use EAP. Data were collected between January and March 2023, three years after COVID-19 had been declared a pandemic.

Data Gathering

The data-gathering procedure followed five phases: Phase 1: development of a questionnaire

that measures the variables of the study; Phase 2: content validation of the questionnaire guided by three experts (one expert in the English language and two experts in PE); Phase 3: pilot testing of a questionnaire for internal reliability consistency testing; Phase 4: distribution of the questionnaire via social media groups and institutional websites; and Phase 5: screening of the gathered data to determine the completeness and accuracy of the data set.

In Phase 1, the study used a researcher-made questionnaire to ask the PE teachers' socio-demographic characteristics, attitudes, subjective norms, and intention to use EAP in their classes. The development of the questionnaire was guided by the theoretical recommendations for constructing Theory of Planned Behavior measures [37, 38]. The attitude dimension comprised four questions regarding a person's general feeling of EAP's benefits, such as: "Exercise, as a consequence, can improve students' physical fitness". The subjective norms dimension comprised four questions regarding a person's belief of what their significant others think about EAP. "I tend to follow other PE teachers who use exercise as a punishment". The intention dimension comprised four questions regarding a person's likelihood of doing EAP in their classes. "I intend to use exercise to penalize students who fail to follow the rules and instructions in my PE classes". We employ a four-point scale for the response rate, where 1 represents "strongly disagree" and 4 indicates "strongly agree".

In Phase 2, the questionnaire underwent a series of reviews by three education experts to ensure each item aligned with the study's variables. One expert in the English language reviewed and corrected some items with grammatical and sentence structure issues. Two PE experts ensured that the items were within the context of PE. In Phase 3, the pilot testing of the questionnaire yielded a Cronbach's alpha rating ranging from 0.717 to 0.743 after the deletion of 5 items. The questionnaire has acceptable internal reliability consistency. In Phase 4, the prospective respondents answered the questionnaires distributed online via social media groups and institutional websites. In the instructions, the respondents have read the directions for answering the questionnaire and the ethical protocol statements. In Phase 5, the gathered data was screened by excluding responders who were not regular public school teachers at the basic education level and those with incomplete answers.

Statistical Analysis

We utilized SPSS software version 26 (SPSS 26.0 IBM Corporation, Armonk, New York, USA) to conduct our data analysis, encompassing descriptive statistics and regression analysis. The data for age, gender, years of experience, and educational level

were analyzed using descriptive statistics, such as mean, frequency, and percentage. For assessing the assumption of normality, we examined skewness (± 3) and kurtosis (± 10) indices, following the method suggested by [39]. We calculated Pearson's r correlation coefficients to investigate the relationships between all the variables in the study at a bivariate level. To check for multicollinearity, we evaluated both tolerance and the variance inflation factor (VIF). A linear multiple regression analysis was subsequently performed, with the dependent variable being the intention to use EAP. We set the significance level at $p < 0.05$. The proportion of variance in the intentions to use EAP was communicated via changes in the R-squared value. Within this study, we classified age, gender, years of experience, and educational level as dummy variables to ensure accurate results.

Results

We conducted a Pearson's r correlation coefficient analysis to explore potential significant correlations between socio-demographic variables, attitudes, subjective norms, and the intention to use EAP. As indicated in Table 2, the analysis results suggested significant correlations between the intention to use EAP and several variables, including gender (male), experience (< 10 years), age (< 45 years), attitudes, and subjective norms. Specifically, the most significant

correlation with intentions to use EAP was attitudes ($r = 0.818, p < 0.01$), followed by subjective norms ($r = 0.767, p < 0.01$), gender ($r = 0.747, p < 0.01$), experience ($r = 0.296, p < 0.01$), and age ($r = -0.183, p < 0.01$). Subsequently, we carried out a multiple linear regression with the intention to use EAP as the dependent variable, and the factors of gender (male), experience (< 10 years), age (< 45 years), attitudes, and subjective norms were designated as the predictors. Prior to conducting the multiple regression analysis, we ensured that the four key assumptions of multiple regression - homoscedasticity, linearity, multicollinearity, and normality - were tested. Table 2 illustrates that the values of skewness and kurtosis were within the acceptable ranges according to Brown [39]. As the tolerance value exceeded 0.1 and the variance inflation factor (VIF) remained below 10, we established that multicollinearity was not a concern in our research variables [40]. Consequently, the multiple regression analysis was executed once all assumptions were satisfactorily met.

A linear multiple regression analysis was carried out to ascertain which variables were influential in the intentions to use EAP. The outcome revealed a high R^2 value of 0.728, accounting for 72.8% of the variance in the intentions to use EAP. As detailed in Table 3, the attitude ($\beta = 0.404, p = 0.000$) was identified as the strongest significant predictor of these intentions. Following this, gender (male) ($\beta =$

Table 2. The results of Pearson correlation

No	Variables	1	2	3	4	5	6	7
1	Gender (Male)	1						
2	Experience (< 10 years)	-.357**	1					
3	Education (Undergraduate)	0.082	.438**	1				
4	Age (< 45 years)	-.418**	.322**	-0.108*	1			
5	Attitude	.762**	-.336**	-.214**	-.220**	1		
6	Subjective Norms	.696**	-.395**	-.294**	-.231**	.833**	1	
7	Intentions	.747**	-.295**	-0.068	-.183**	.818**	.767**	1
	Skewness	0.01	2.45	1.09	-0.21	-0.41	-0.37	-0.25
	Kurtosis	-2.01	4.02	-0.82	-1.97	-1.47	-1.11	-1.36

Note: ** $p < 0.01$; * $p < 0.05$

Table 3. Predictors of intentions to use exercise for punishment

Dependent Variable	Predictors	B	T	p	R ²	F	p	TOL	VIF
Intentions to use exercise for punishment	Gender (Male)	0.316	7.024	0.000	0.728	209.242	0.000	0.345	2.901
	Experience	0.019	0.642	0.521				0.786	1.272
	Age (< 45 years old)	0.087	2.863	0.004				0.761	1.314
	Attitude	0.404	7.453	0.000				0.237	4.226
	Subjective Norms	0.239	4.832	0.000				0.285	3.505

0.316, $p = 0.000$), Subjective Norms ($\beta = 0.239$, $p = 0.000$), and age (< 45 years old) ($\beta = 0.087$, $p = 0.004$) were established as additional influential factors. Education (undergraduate level) was found not to be a significant predictor.

Discussion

This study aimed to examine the predictors of Filipino PE teachers' intentions in using EAP. More specifically, it examined if socio-demographic characteristics (gender, age, education, years of experience), attitudes, and subjective norms affect the intentions toward using EAP in classes.

A linear multiple regression analysis was conducted to ascertain which variables influenced the intention to use EAP. The results showed that attitude was the strongest predictor, followed by gender (male), subjective norms, and age (over 45 years). This analysis suggests that the intention to use EAP is more prevalent among males and those over 45 years. It also shows that attitudes significantly predict these intentions, suggesting that those who perceive exercise as both a tool for improving physical fitness and enforcing adherence to rules in a PE setting are more likely to have such intentions. In addition, respondents with higher social pressure in employing exercise as a disciplinary measure in PE classes showed greater intentions to use EAP. This study supports previous research that shows people's attitudes and subjective norms influence the use of EAP. In particular, Burak et al. [14] found that 70% of the variance in participants' intentions to use EAP was explained by their affirming attitude about it and the social pressure they perceived from their peers or leaders. Additionally, Kerr et al. [7] found that sports coaches use EAP because they believe it can motivate athletes to perform better and improve team cohesion.

Furthermore, our findings support the notion that older teachers tend to use corporal punishment to discipline students [32]. Contrary to the notion that younger teachers are less expert or effective in teaching and classroom management than older teachers [29, 28], older teachers tend to use corporal punishment to discipline students because that is how they were taught [30] and it is a common and acceptable practice in their place [31]. On the other hand, the study supports the notion that gender is a contributory factor in using EAP. Studies found that male teachers are three times more likely than female teachers to inflict severe corporal punishment on students [33, 34]. In recent years, the studies by Matofari [35] and Anwar et al. [36] found the same results, citing that male teachers have affirming attitudes toward corporal punishment.

The findings imply that EAP has been used in school settings [7, 8], particularly in PE classes. Many Filipino PE teachers see EAP as a common and acceptable practice to discipline students, but

they need to be aware of the potential drawbacks of this approach. It has been noted that many people believe that exercise can help individuals improve their physical fitness and health [10, 11], develop self-control and a sense of responsibility, and manage misbehavior [9, 7]. However, there is also evidence that EAP can lead to negative attitudes toward physical activity, a lack of engagement with exercise, and physical harm [12, 13]. EAP has also been noted to impact performance negatively [9, 13]. PE teachers should be aware of the potential drawback of using EAP, especially in its impact on individuals being less likely to exercise in the future.

It is crucial to note that the problem of physical inactivity among Filipinos has been a major concern in the country [21, 22]. Despite the Philippine government's initiatives to encourage physical activity through sports, PE, and healthy lifestyles [23, 24, 25, 26], current data shows that the country still needs to address the issue of physical inactivity effectively. While there are many factors that may have contributed to physical inactivity, EAP may have played a role in this problem.

Our study adds to the existing knowledge about EAP by examining the topic from the perspective of PE teachers. Previous studies have focused on the perspectives of students and coaches, but less attention has been given to the perspectives of PE teachers. This is important because PE teachers are often the ones who implement classroom policies and procedures. Moreover, this investigation provides significant input in understanding the underlying reasons for the prevalent use of EAP in the Philippines.

Conclusions

This study determined a number of relevant contributions to the limited knowledge on PE teachers' intentions in the use of EAP in their classes. In particular, the intention to use EAP is more prevalent among male PE teachers, those who are older, and those with positive attitudes towards disciplining students using physical exercises. Additionally, teachers who feel more social pressure to use exercise as a disciplinary measure are also more likely to use EAP.

Recommendation

The study's findings have important recommendations for PE teachers and policymakers. First, it is important for PE teachers to be aware of their own attitudes towards exercising and disciplining misbehavior, as these attitudes may influence their intentions to use EAP. Second, policymakers should consider the potential risks of using EAP, such as the negative impact on student motivation and self-esteem, and should develop policies that discourage the use of EAP in PE schools. Lastly, the findings can be used to inform the development of PE teacher

training programs and policies that promote the use of positive reinforcement and other non-punitive methods of discipline in PE classes.

Conflict of interest

We hereby declare that there is no conflict of interest in this research

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Cite this article as:

Tanucan JCM, Wider W, Sofyan D. Predictors of Filipino physical education teachers' intentions in the use of exercise as punishment. *Pedagogy of Physical Culture and Sports*, 2023;27(4):289–296.
<https://doi.org/10.15561/26649837.2023.0404>

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Received: 22.05.2023

Accepted: 21.06.2023; Published: 30.08.2023